

Towards Spatial Assimilation?

Neighbourhood Attainment among non-Western Immigrant Descendants in the Oslo Region

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Master Degree Thesis in Sociology
Department of Sociology and Human Geography
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<http://www.duo.uio.no/>

Print: Allkopi, Oslo

Abstract

The Oslo region has seen a substantial increase in the immigrant population during the last five decades. In Oslo, as in many other European cities, the non-Western population is far from evenly distributed throughout the city. The aim of this thesis is to explore developments in neighbourhood concentrations of non-Western immigrants with a specific focus on adult descendants of Turkish, Moroccan, Indian, Pakistani and Vietnamese immigrants. The main inquiry is whether and to what extent non-Western immigrant descendants integrate spatially in adulthood, in terms of settling in neighbourhoods that are characterised by similar levels of non-Western immigrant population, as compared with their ethnic Norwegian peers. Variables measuring social background characteristics, as well as, socioeconomic and cultural resources are explored in order to identify associations between these and the proportion of non-Western immigrant population in the neighbourhoods where the descendants settle as adults. Moreover, associations between proportion of non-Westerners in the descendants' origin and destination neighbourhood are explored. The analysis follows a modified version of Alba and Logan's (1993) locational attainment model, which is based on OLS regressions, and employs register data on Western and non-Western immigrant descendants and their ethnic Norwegian peers in the birth cohorts of 1974-1980 who resided in the Oslo region at age 16 (1990-1996).

The theoretical framework supporting the analysis is composed of three prevailing theoretical models in the international research literature on ethnic residential segregation: 1) The Spatial Assimilation Model, 2) The Place Stratification Model, and 3) The Ethnic Enclave Model.

The analysis finds that non-Western descendants settle in neighbourhoods with, on average, higher non-Western population proportions, as compared with ethnic Norwegian peers on equality of characteristics. The largest differences apply to Pakistani and Turkish descendants as well as for female Moroccan descendants, while the average differences are moderate among Indian and Vietnamese descendants. In fact, female Indian and Vietnamese descendants are not predicted to settle in neighbourhoods with, on average, higher non-Western population proportions than equivalent female ethnic Norwegian peers. The same applies to Western immigrant descendants. However, mechanisms of spatial assimilation are found among other non-Western immigrant descendants as well. When comparing individuals with specific levels of socio-economic resources (measured as education and income levels) and cultural resources

(measured as partner's country-of-origin) the average differences in the proportions of non-Western immigrant population between the neighbourhoods of non-Western descendants and equivalent ethnic Norwegian peers are predicted to be lower among individuals with higher education, incomes and/or who cohabit with partners of ethnic Norwegian descent. Nevertheless, these mechanisms are not equally strong for descendants in all non-Western groups. They seem to be especially weak among male Pakistani descendants. Stronger mechanisms of spatial assimilation were found among female Indian and Vietnamese descendants, as they are not predicted to settle in neighbourhoods with, on average, higher non-Western population proportions compared with equivalent female ethnic Norwegian peers with similar incomes and partner status.

Spatial assimilation set aside, non-Western descendants are largely found to reproduce their parents' neighbourhood patterns, even in cases of equality with majority peers. Those who were raised in neighbourhoods with the highest non-Western population proportions are also predicted to settle in neighbourhoods with the highest proportions, as compared with equivalent ethnic majority peers raised in similar neighbourhoods. Their ethnic Norwegian peers are, on the other hand, found to settle in neighbourhoods with, on average, moderate proportions of non-Westerners even when raised in neighbourhoods with proportions. The largest differences were found for Turkish and Pakistani descendants raised in neighbourhoods with the highest non-Western population proportions. These findings indicate that preferences for ethnic neighbourhoods might be prevalent among non-Western immigrant descendants, at least among Turkish and Pakistani descendants. However, it is also conceivable that structural hindrances, such as ethnic housing discrimination, impair non-Western descendants from relocating to the neighbourhoods they wish to settle in.

In total, female Indian and Vietnamese descendants are found to be the most spatially integrated non-Western descendants examined in this study. Compared with equivalent female ethnic Norwegian peers, they are predicted to settle in neighbourhoods with, on average, similar non-Western population proportions regardless of the proportions in their origin neighbourhoods.

Acknowledgments

The thesis was written at the Department of Sociology and Human Geography, University of Oslo, under the supervision of Gunn Elisabeth Birkelund and Are Skeie Hermansen. Several persons deserve acknowledgment for their contributions to the final product. Nonetheless, I take full credit for any ambiguities or mistakes, be they factual or logical.

First of all, I thank Gunn Elisabeth Birkelund, my main supervisor, for inviting me to take part in the project '*Ethnic segregation in schools and neighbourhoods: Consequences and Dynamics*'. Throughout this process she has devoted time and efforts to provide me with outstanding and enthusiastic supervision. Gunn has always been thorough and precise in her feedback, and not the least encouraging on rainy days. Her extensive knowledge in the field of social and ethnic stratification, as well as her contagious humour, has undoubtedly been a valued and indispensable source of inspiration for me.

I am also highly indebted to my second advisor, Are Skeie Hermansen, for inspiring academic and methodical discussions throughout this process. Without Are's expertise in quantitative methods and technical skills in the statistical software package Stata, this thesis would have been a woeful affair. Thank you also to Mats Lillehagen for preparing the extensive dataset and Audrey Stark for patiently proofreading my 'broken' English in the drafts of this thesis.

Big thanks also go to Osloforskning and Husbanken for believing in the outline of this thesis and generously offering their scholarships.

My gratitude also extends to several of my talented and witty fellow students at the Master's course in sociology. I particularly thank you, Kjersti for being a cheerful friend and devoted interlocutor during the last two years. Special thanks also go to Liridonna, Ida and Azadeh, for keeping me going through the extensive days at the computer lab on the second floor of Eilert Sundts Hus. And the rest of the bunch – you know very well who you are!

Last but not least, I thank my dear Aleksander for being the beloved and devoted partner he is, waiting up late and making me smile at the end of a laborious day. His sharp-witted and clever insights about social phenomena motivated me to study sociology in the first place, and have kept me going throughout the entire course of study. I am also grateful to my parents, Karin and Vidar, for all their loving support in my endeavours of life.

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1 Introduction

As in many European cities, the residential concentrations of the non-Western immigrant population in Oslo is well documented (Blom 2012a; Høydahl 2014, 2015; Wiggen *et al.* 2015b).¹ The non-Western immigrant population has increased substantially since the first labour migrants from Turkey, Morocco, Indian and Pakistan arrived in the late 1960s (Brochmann 2006) and it currently comprises 22 percent of Oslo's population (Statistics Norway 2016: author's calculation). The tendency for ethnic minorities to settle in certain neighbourhoods and areas is usually referred to as 'ethnic residential segregation' (Søholt 2010:11). The overall level of segregation in Oslo, which is considered to moderately high and relative stable (Blom 2012a), is frequently a source of concern.

The debate regarding ethnic residential segregation that has most recently surfaced in the media has focused on fears that ethnic communities are becoming 'parallel societies' that lead to social exclusion, socioeconomic marginalisation and religious radicalisation of the youth. Challenges seen in other European cities such as Stockholm, Malmö, Brussels and Paris are cited as prime examples (see e.g. Brandvold 2016; Dagbladet.no 2016; Lien and Kjos 2016; Lundggard, Skogstrøm, and Pletten 2016; Stavrum 2016; Støbakk 2016). These worries are related to the debate on 'white flight' and 'white avoidance', referring to majority households that allegedly escape neighbourhoods with high concentrations of ethnic minorities or refrain from settling in them (Doksheim 2010; Mellingsæter 2013; Fekjær 2014).

The theme of this thesis is development in residential concentrations among the non-Western immigrant population in the Oslo region, with a particular focus on Norwegian-born adult children of non-Western immigrant parents (henceforth referred to as 'non-Western immigrant descendants'). Research from Norway indicates that, when compared with their parents, these non-Western immigrant descendants tend to obtain a higher level of socioeconomic integration in terms of education and labour market outcomes (Birkelund and Mastekaasa 2009; Østby 2013).

¹ The non-Western immigrant population refers to immigrants and Norwegian-born to immigrant parents with origins in Asia, Africa, Latin America, Oceania except Australia and New Zealand, and Eastern Europe outside the EU/EEA.

However, research on whether these descendants also tend better integrate along the ‘sociocultural axis’ is still sparse.

This study is unique in the Norwegian context as it examines whether, and to what extent, non-Western descendants integrate spatially in adulthood, in terms of settling in neighbourhoods that are characterised by similar levels of non-Western immigrant population (henceforth referred to as ‘non-Westerners’) as compared with their ethnic Norwegian peers (henceforth referred to as ‘majority peers’). This is done by comparing the proportion of non-Westerners in the neighbourhoods of 30-year-old individuals (period 2004-2010), who at age 16 (period 1990-1996) lived in neighbourhoods characterised by various proportions of non-Westerners. Additionally, the assumed mediating effects of education, income and cohabitation with partners of ethnic Norwegian descents (measured at age 30 in 2004-2010) are explored.²

The individuals who serve as the basis for this study all resided in the Oslo region at age 16. The descendants of Turkish, Moroccan, Indian, Pakistani and Vietnamese immigrants are large enough in numbers to be examined as separate groups, while immigrant descendants with origins in other non-Western countries are treated as an aggregated group. These groups are also compared with an aggregated group of Western immigrant descendants, in addition to individuals from the majority population.

The statistical analyses are twofold and based on comprehensive longitudinal population-wide data at the individual level, extracted from official administrative registers. The first set of analyses assess the neighbourhood contexts in which the 30-years-old individuals originate (age 16) and where many have subsequently settled as adults (age 30).³ This involves mapping the distribution of the non-Western immigrant population of Oslo in 1990 and 2010, which are the first and last year of the observations, and calculating segregation levels among various segments of the immigrant population during both observation periods (1990-1996 and 2004-2010). Furthermore, this first set of analyses also examine whether the descendants of Turkish, Moroccan, Indian, Pakistani and Vietnamese immigrants tend to be raised and settle in neighbourhoods with high proportions of individuals from their own country-of-origin groups, so-called ‘co-ethnics’.⁴

² Partners of ethnic Norwegian decedent are henceforth referred to as ‘majority partners’.

³ Fourteen percent of the 55,747 individuals in the population left the Oslo region before age 30.

⁴ It is actually incorrect to refer to individuals with the same country-of-origin as ‘co-ethnics’. Data in Norwegian administrative registers do not contain information on ethnicity, so individuals with the same

The second set of analyses – addressing the main focus of this thesis – utilise a modified version of Alba and Logan’s (1993) classical Locational Attainment Model to study associations related to group differences between the proportions of non-Westerners in the destination neighbourhoods age 30. The theoretical framework supporting these analysis is composed of three prevailing theoretical models in the international research literature on ethnic residential segregation: 1) the spatial assimilation model, 2) the place stratification model, and 3) the ethnic enclave model.

The classical *spatial assimilation model* claims that ethnic minorities who improve their socioeconomic status and acculturate (e.g. gain language and cultural skills) will tend to relocate their households to neighbourhoods with better amenities, which are typically characterised by higher proportions of the majority population (Massey 1985; Massey and Denton 1985). In a stricter version of this model, spatial assimilation has been interpreted in terms of ‘equality of opportunities’, in the sense that given equality of conditions (i.e. socio-economic assets, education, etc.) ethnic minorities and majority individuals have the same probability to settle in desirable neighbourhoods (i.e. neighbourhoods that are usually characterised by better living conditions *and* lower proportions of ethnic minorities). Hence, differences between the residential patterns of ethnic minority and majority individuals should primarily reflect socioeconomic differences and the ethnic minority individuals’ lack of cultural integration (Logan and Alba 1993).

The *place stratification model* does not dispute this assumption, but asserts that ethnic minority groups, some more than others, often are impaired from attaining residence in ‘better’ neighbourhoods. They might face discrimination in the housing market, harassment from neighbours and other structural hindrances. Therefore, ethnic minorities are sorted in a neighbourhood hierarchy according to a hierarchical rank of ethnic minority groups (Alba and Logan 1993; Bolt and Van Kempen 2010; Crowder, Pais, and South 2012). The *ethnic enclave model*, to the contrary, argues that ethnic minorities usually have preferences for sharing neighbourhoods with co-ethnics, or at least with multi-ethnic blend, despite own socioeconomic and cultural gains (Bolt and Van Kempen 2010; Schaake, Burgers, and Mulder 2014).

country-of-origin might in fact belong to different ethnic groups. Moreover, it actually incorrect to talk about ‘ethnic segregation/concentration’ at all when employing register data on individuals’ country-of-origin. However, this is common in Norwegian research (see, e.g. Blom 2012a; Turner and Wessel 2013). Given the lack of better terms ‘co-ethnics’ and ‘ethnic segregation/ concentration’ are used in this thesis.

Three research questions raised in this study are aimed at testing the theoretical assumptions in the spatial assimilation, place stratification and ethnic enclave models among descendants of non-Western immigrants in the Oslo region. The first question explores the extent to which descendants of non-Western immigrants, generally tend to settle in neighbourhoods with low proportions of non-Westerners, as compared with majority peers with similar characteristics:

1. *To what extent do adult non-Western descendants settle in neighbourhoods with low non-Western proportions, compared with majority peers on equality of individual, social background and origin neighbourhood characteristics?*

The second question explores to what extent the presumed mediating effects of education, income and cohabitation with majority partners are associated with lower proportions of non-Westerners in the destination neighbourhoods of non-Western descendants, across different country-of-origin groups:

2. *To what extent are socioeconomic resources (measured as education and income) and cultural integration (measured as partners' country-of-origin) associated with lower non-Western proportions in the destination neighbourhoods of non-Western descendants associated with different country-of-origin groups?*

Finally, the third question examines the association between non-Western proportions in the origin and destination neighbourhoods of non-Western descendants, across the different country-of-origin groups, who were raised origin neighbourhoods with dissimilar non-Western proportions, as compared with majority peers on similarity of characteristics:

3. *To what extent do adult non-Western descendants raised in neighbourhoods with dissimilar non-Western proportions settle in neighbourhoods with lower non-Western proportions, compared with majority peers on equality of individual, social background and origin neighbourhood characteristics?*

1.1 The Litmus Test of Residential Integration?

The achievements of immigrant descendants have been termed the 'litmus test of integration'. Whereas many immigrants, especially those with non-Western origins, often lack human capital needed to succeed in the Norwegian labour market, opportunities for Norwegian-born descendants are supposedly equal to those of their majority peers. These individuals have access to free education and generally have better conditions for acquiring linguistic and cultural skills. Norwegian integration policies are believed to have failed if immigrant descendants do not

succeed in the labour market (Henriksen and Østby 2007; Østby 2013). Overall, descendants of non-Western immigrants do acquire higher education (Egge-Hoveid and Sandnes 2015), receive higher earnings (Omholt and Strøm 2014a) and achieve more lucrative positions in the labour market (Hermansen 2013) compared with their parents. Additionally, descendants from some non-Western groups acquire, on average, higher levels of education than majority peers, while descendants from other non-Western groups fall behind (Birkelund and Mastekaasa 2009; Østby and Henriksen 2013). ‘Bottlenecks’ into the labour market have been detected among non-Western descendants. This means that entry into the labour market can be characterized as difficult or delayed, however, many tend to succeed very well once they have secured employment (Hermansen 2013).

It is often argued that integration of ethnic minorities means more than securing employment and achieving socioeconomic success, although this is the main goal of Norwegian integration policies. There is also a ‘sociocultural dimension’ to integration that involves participation on social arenas frequented by the majority population and making friendships with majority individuals (Eriksen and Næss 2010). A report on youth in Oslo indicates that nearly half of all youth with immigrant backgrounds primarily socialise with individuals in the immigrant population. This largely applies to individuals raised in districts with high proportions of immigrant population (Frøyland and Gjerustad 2012).

Official population projections indicate that almost every second citizen of Oslo will have an immigrant background by 2040 (Texmon 2012). From a societal perspective it is therefore important to investigate prospects on whether Oslo gradually will become a more ethnically divided city, or if the increasing immigrant population will tend to integrate socially and spatially. Although the segregation level of Oslo only is considered to be moderately high, it is still essential to explore signs of desegregation. It is especially important to investigate whether neighbourhoods with high concentrations of non-Western descendants signalise a lack of opportunities to become successfully integrated in with ‘mainstream’ society, or if they, despite socioeconomic success, prefer to settle in ‘ethnic neighbourhoods’. Answering these questions will be pivotal to facilitate measures that predict and combat negative future developments.

As non-Western descendants generally achieve higher socioeconomic success than their parents, one might assume that they also tend to be better integrated along the ‘sociocultural dimension’. This might also involve moving to neighbourhoods characterised by higher proportions of the majority population, as envisioned in the spatial assimilation model. On the

other hand, there might be several reasons why they choose not to. Non-Western descendants living close to family and relatives might imply preferences for co-ethnic or multi-ethnic neighbourhoods. However, such trends might also stem from more practical reasons, such as moving close to family and relatives in order to receive a helping hand with childcare. Yet again, it could mean that these individuals experience other, real or imagined, hindrances to residential integration, such as discrimination in the housing market or social exclusion and/or harassment by neighbours.

Research on neighbourhood ‘attainment’ among the non-Westerners in Norway is still sparse. Turner and Wessel (2013) found that various non-Western groups mostly do not follow the same relocation patterns found among the majority population when achieving socioeconomic gains. Søholt and Astrup (2009b) have shown that descendants of Chilean, Turkish, Moroccan, Indian, Pakistani and Vietnamese immigrants largely follow their parents’ residential patterns. Yet, more research is needed before it is determined whether Norwegian society passes or fails ‘the litmus test of residential integration’. In that respect, this study provides an important contribution.

1.2 Outline of the Thesis

The thesis is organised in nine chapters. This first chapter has provided an introduction to both the topic of this thesis and the research questions that guide the inquiry. The theoretical framework that supports the analysis is presented in Chapter 2. Chapter 3 gives an overview of previous research from Norway on residential patterns, locational attainment and neighbourhood preferences among the immigrant population, in addition to a brief review of ethnic housing discrimination. Chapter 4 presents eight testable hypotheses based on theory and previous research, while Chapter 5 describes the data and variables utilised in the analyses, as well as the analytical strategies that underlie the analyses. To further contextualise the residential circumstances of the individuals examined in this study, Chapter 6 explores ethnic residential segregation in the Oslo region. The individuals’ neighbourhood, social background and other individual characteristics are presented through the descriptive statistics in Chapter 7. Chapter 8 describes the OLS models used to analyse neighbourhood attainment among non-Western descendants and presents the results. Finally, Chapter 9 discusses the findings in this study and offers a conclusion on whether non-Western descendants in the Oslo region seem to be moving towards spatial assimilation.

2 Theoretical Framework

Scholars at the Chicago School of Urban Sociology were the first to address the tendency for immigrants to settle in urban neighbourhoods with co-ethnics and other immigrants upon arrival in the receiving country (Park, Burgess, and McKenzie 1925). This phenomenon has increasingly captured the interest of scholars in European countries, in line with growing immigrant populations (Skifter Andersen 2010). Several theories on residential segregation and relocation among immigrant populations have been set forth.

In the research literature there is a relatively broad consensus that ethnic neighbourhoods, often referred to as ethnic enclaves, serve as ‘safe havens’ for newly arrived immigrants. Co-ethnics are thought to offer a sense of belonging in midst of the ‘chaotic’ encounter with a foreign culture and language. Immigrants who are short on human capital might also utilise ethnic networks in search of employment and affordable housing (Logan *et al.* 2002:299). The prolonged impact of such ethnic neighbourhoods is, however, disputed among scholars (Skifter Andersen 2010).

As mentioned there are three prevailing theoretical models in the ethnic residential segregation literature; the *spatial assimilation model*, the *place stratification model* and the *ethnic enclave model*. The theoretical implications of these three models are elaborated below. In Chapter 5, these models are linked to a modified version of Alba and Logan’s (1993) Locational Attainment Model and equations that are employed in OLS regressions presented in Chapter 8.

2.1 The Spatial Assimilation Model

By spatial assimilation, we mean the process whereby a[n immigrant] group attains residential propinquity with members of a host society. (Massey and Mullan 1984:94)

The dominant model in the North American literature on ethnic segregation is that of spatial assimilation (Burgers and van der Lugt 2006:128). Although contested by many European scholars, it remains a strong point of reference even in the European research literature (Turner and Wessel 2013:1). The model, introduced by Massey and Mullan (1984) combines elements from the status-attainment perspective and theoretical concepts from the Chicago school of urban ecology.^{5 6}

The model rests on the assumption that immigrants tend to settle in marginalised ethnic enclaves located in inner cities upon arrival in the receiving country. In the establishment phase, co-ethnic networks in such enclaves may be very valuable to the newly arrived immigrants. However, as they start adapting to the receiving country's language, customs, norms and values in tandem with climbing the 'social ladder' by acquiring education, higher incomes and occupational prestige, they will attempt to leave less successful co-ethnics behind and orient themselves towards 'better' neighbourhoods. The destination neighbourhoods are usually characterised by a combination of lower segregation of ethnic minorities, higher socioeconomic status and better living conditions (Massey 1985).

In other words, the rationale of the model is that ethnic minority groups in the immigrant population will gradually diffuse into the mainstream society, both culturally and spatially, as the length of their residency in the receiving country increases. Cultural integration and socio-economic mobility are two important mechanisms that bring about this dispersion. However, such mechanisms can be time consuming, which means that the spatial assimilation is both an

⁵ The status-attainment perspective stresses the role of education and occupational status as important elements for income and life-chances. For more details, see Blau, Duncan, and Tyree (1967) and Duncan, Featherman, and Duncan (1972).

⁶ Urban ecology is a sociological discipline developed during the heyday of the early Chicago School in the 1920s and 1930s. A central assumption in this discipline is that human behaviour is largely shaped by the natural environment. In modern times, the city is believed to function as a social homogenous microcosm of society, largely developed as the (unplanned) consequences of competition between social groups for space to survive and prosper. Scholars of urban ecology borrow terms from biology, such as invasion, succession and dominance, to explain how groups tend to displace each other. Several models have been developed to demonstrate the spatial settlement behaviour and relocation among immigrant groups in U.S. industrial cities, on their journey towards cultural and residential assimilation with the majority population. For details on these models, see for example, Park, Burgess, and McKenzie (1925) and Knox and Pinch (2010).

intra- and *inter-*generational process (Bolt, van Kempen, and van Ham 2008:1361). Spatial assimilation among minority members is both an important *outcome* of socioeconomic advancement, and a *testimony* of deeper forms of assimilation and acceptance into mainstream society (Alba *et al.* 2014:3).

Every move a minority household makes towards spatial assimilation conceivably allows for increased contact with the majority population, especially for the younger generation, possibly leading to new dimensions of assimilation, such as intermarriage (Alba and Logan 1991:233). An improved spatial position in itself might offer advantages that promote opportunities for further social mobility, as elaborate by Massey and Denton (1985:94):

A host of variables important to people's social and economic well-being are determined by residential localization. For example, health, quality of educational opportunities, access to employment, exposure to crime and, of course, social prestige all depend in part on where one lives.

The spatial assimilation model, which is widely used in studies of spatial assimilation of ethnic minorities, examines whether cultural and socioeconomic gains have spatial correlates, in terms of improvements in neighbourhood characteristics. Various studies employ combinations of variables measuring, for example, majority language proficiency, length of residence, generation, education, class or income, in order to explore whether these variables correlate with movements (from more) to less deprived areas or (from more) to less ethnic segregated areas (Alba and Logan 1993; Alba *et al.* 1999; Bolt and Van Kempen 2010; Crowder, Pais, and South 2012; Lersch 2013; Schaake, Burgers, and Mulder 2014).

Logan and Alba (1993) have argued for a stricter interpretation of the spatial assimilation model linked to the notion of 'equality of opportunities' or 'equality of outcomes given equality of initial conditions'. They stress that all ethnic minority individuals reach similar chances of residing or moving to more 'desirable' neighbourhoods as members of the majority population, given equality of conditions, such as education and income. In this interpretation the focus shifts from individuals with higher levels of resources to the entire ethnic minority population (i.e. individuals with both high levels of resources), and the opportunities they have compared with equivalent individuals in the majority population.

Finally, it is important to note that the spatial assimilation model emphasises the micro-social level (Alba and Logan 1993:244). It does not imply that discrimination constrains the mobility of minority groups (Lersch 2013:1014) because ethnic differences are presumed to primarily

reflect compositional differences among groups (Logan and Alba 1993:433). Therefore, residential mobility is (primarily) considered as an individual-level processes, rather than the outcome of group membership. Control for individual variables measuring cultural and socio-economic trait should therefore largely erase differences in residential patterns between various minority groups (Alba and Logan 1991; Logan and Alba 1993). ‘In so far as spatial distinctions continued to exist, they would do so on the basis of class rather than ethnicity.’ (Peach 1997:120).

2.2 The Place Stratification Model

Critics of the spatial assimilation model point out that the model neglects persistent high levels of ethnic residential segregation, despite improved socioeconomic status. African Americans are identified as an extreme example, but such residential segregation is also relevant for other ethnic minority groups, in the U.S. and elsewhere (Burgers and van der Lugt 2006:128). The place stratification model tries to remedy deficiencies in the spatial assimilation model, not by rejecting its premises but rather by complementing its predictions (Alba and Logan 1991:433).

The place stratification model upholds the universalistic view on housing *preferences*, but asserts that residential *opportunities* are unequally shared between different ethnic minority groups. While the spatial assimilation model solely explains different residential patterns among minority groups as outcomes of individual socioeconomic variables at the micro-level, the place stratification model refers to structural (macro) constraints that hinder ethnic minority households, in some groups more than others, from converting socioeconomic achievements into favourable neighbourhood locations on par with the majority population (Bolt and Van Kempen 2010:335-336).

Residential areas and neighbourhoods are considered to be stratified in a hierarchical order, based on more or less favourable life qualities and life-chances for individuals residing in them (Alba and Logan 1993:1391). Powerful groups in favourable neighbourhoods, who are usually part of the majority population, manipulate space to maintain their physical and social separation from groups considered less desirable (Pais, South, and Crowder 2012:260). Therefore, residential areas and neighbourhoods are not only stratified by socioeconomic factors, but also by a hierarchy of ethnic minority groups. In other words, households are

spatially sorted according to the relative standing of the ethnic minority group with which they are affiliated (Crowder, Pais, and South 2012; Alba *et al.* 2014).

Complex mechanisms of public and private discrimination, such as exclusionary zoning by local governments, steering by realtors, unequal access to mortgage lenders' credit, as well as hostility, harassment and violent acts from neighbours, serve to generate ethnically segmented housing markets that maintain residential segregation (Alba and Logan 1991:433; 1993:1391; Pais, South, and Crowder 2012:260). Analyses of locational attainment among minority groups must therefore take group membership into account, because control for socioeconomic variables will only erase to a certain extent the contrasts in residential patterns between different minority groups (Bolt and Van Kempen 2010:336).

Consequently, in terms of spatial integration the place stratification model presupposes that despite equality in conditions, such as education, income and language proficiency ethnic minorities are less likely to move to more affluent neighbourhoods characterised by higher proportions of the majority population. The price is higher for members of some groups to attain desirable locational outcomes, if they can attain them at all. Some particularly stigmatized groups might get very low returns on socioeconomic and cultural gains. Their members are therefore not only hindered from entering desirable neighbourhoods, but also face the risk of being contained in ethnic neighbourhoods with the lowest levels of social and economic resources and high levels of deprivation (Alba and Logan 1993:1391).

2.3 The Ethnic Enclave Model

Proponents of the ethnic enclave model question the very notion of assimilation.⁷ They declare that the spatial assimilation model has lost its relevance in the global area of migration, and that it too readily assumes that minorities want to assimilate into a dominant majority culture.⁸ To

⁷ Peach (1997; 2005) refers to this model as the 'pluralist model' to signal its opposition to assimilation.

⁸ Critics claim that the spatial assimilation largely is inapplicable to modern migration, due to historical changes in the labour market. European immigrants in the U.S. pre-World War II period benefited from high demand for semi-skilled labour, and hence were able to climb the social ladder. The situation is quite different for contemporary immigrants in the U.S. and Europe who face a twofold post-industrialised labour market, divided between low-paid unskilled jobs and high-paid professional jobs. Additionally, these immigrants are a lot more diverse upon arrival, both culturally and socio-economically. While skilled immigrants are able to succeed, immigrants who lack human capital are impaired from starting their alleged journey towards spatial assimilation (Burgers and van der Lugt 2006; Macpherson and Strömngren 2013; Turner and Wessel 2013). The cultural differences between present day immigrants and the receiving countries are also perceived to be greater, compared with the

the contrary, strong bonds between members of ethnic communities do not necessarily weaken over the course of time (Forrest and Johnston 2001; Bolt and Van Kempen 2010). It is presumed that individuals who achieve higher socioeconomic status prefer to reside in the vicinity of co-ethnics, in order for their success to be conspicuous within their ethnic networks (Bolt and Van Kempen 2010:337).

Preferences, rather than opportunities and constraints, foremost explain why ethnic minorities do not relocate to neighbourhoods with higher proportions of the majority population and lower levels of deprivation, despite the socioeconomic (and cultural) means to do so (Bolt and Van Kempen 2010; Schaake, Burgers, and Mulder 2014). In other words, although socioeconomic and cultural differences between ethnic minorities and the majority population decline, ethnic minorities might be motivated to reside in neighbourhoods with high representations of their own ethnic group. Additionally, different groups and different households have divergent ideas of what constitutes desirable neighbourhoods and housing situations (Özüekren and Van Kempen 2002; Bolt, van Kempen, and van Ham 2008; Schaake, Burgers, and Mulder 2014).

An important distinction between assimilation versus the twin notions of integration and cultural pluralism is addressed in the ethnic enclave model (Mendez 2009:92). Although, ethnic minorities tend to integrate socioeconomically, or even acculturate to certain degrees, they do not necessarily form part of a social fusion with society at large (Peach 2005a; Bolt and Van Kempen 2010). The ethnic enclave model rejects the ‘melting pot’ metaphor so often associated with immigration to the U.S., in favour of a ‘cultural mosaic’ metaphor. Cities, and increasingly suburbs too, contain patchworks of ethnic neighbourhoods where co-ethnics have a whole range of benefits, such as grocery shops and restaurants with certain types of food, churches and social centres. This allows the preservation of minority identities also for immigrant descendants, and contributes to social closure and distinctiveness, such as marriage homology. Admittedly, this is not to say that ethnic minorities do not participate in the public sphere. Many tend to prefer ‘the best of both worlds’ (Peach 1997, 2005a).

Finally, it is important to note that the ethnic enclave model does not reject the fact that ethnic minorities prefer ‘better’ neighbourhoods as they gain socioeconomic status. Many ethnic minority households pursue a housing career within the ethnic enclaves, although preferences

experience of European immigrants in the U.S. This is believed to impair cultural integration and to strengthen permanent bonds within the ethnic groups. Cultural ties are further strengthened by a continual influx of new immigrants (Bolt and Van Kempen 2010:337).

might vary between groups. It is also assumed that many search for neighbourhoods with disproportionate numbers of fellow group members in prosperous suburbs (Peach 1997, 2005a).

This chapter has presented the theoretical framework that supports the analysis on neighbourhood attainment among non-Western descendants. The next chapter presents an overview of previous research from Norway on residential patterns, locational attainment and neighbourhood preferences among the immigrant population, in addition to a brief review of ethnic housing discrimination.

3 Previous Research

Research on neighbourhood attainment and neighbourhood preferences among non-Westerners in Norway is still sparse. This chapter present the main findings from three studies that are particularly relevant for this study. Unfortunately, only one of these studies specifically addresses non-Western descendans. Additionally, a brief presentation of research on ethnic discrimination in the Norwegian housing market is included at the end of the chapter.

In first study, Turner and Wessel (2013) examine residential relocation among nine immigrant groups in the Oslo region. The second study, conducted by Søholt and Astrup (2009b), concerns the housing situation and residential patterns of non-Western descendants. In the third study, Blom (2012b) explores to what preferences for co-ethnic neighbourhoods among members of the immigrant population predicts proportions of non-Westerners in their neighbourhoods. Finally, the handful of studies on ethnic housing discrimination include a field experiment and surveys on self-perceived discrimination of immigrants and descendants of immigrants.

3.1 Contained Spatial Assimilation in the Oslo Region

In their 2013 study, Turner and Wessel (2013) found some limited support for the classic spatial assimilation model when studying neighbourhood relocation patterns among nine non-Western country-of-origin groups in the Oslo region between 1998 and 2008.⁹ More specifically they examined whether socioeconomic integration among members of these groups is associated with relocation and spatial integration according to relocation paths along three overlapping dimensions commonly found in the majority population. *Upward* mobility refers to a hierarchy of neighbourhoods and entails relocation to less deprived neighbourhoods. *Outward* mobility refers to relocation from the inner city to suburbs. Finally, *westward* mobility refers to the well-established east/west status division in Oslo and relocation to more affluent and prestigious neighbourhoods in the west.

⁹ The nine ethnic minority groups included in Turner and Wessel's (2013) study are Turks, Moroccans, Somalis, Tamils, Filipinos, Iraqis, Iranians, Pakistanis, and Vietnamese. These groups are composed of both immigrants and descendants of immigrants. Ethnic Norwegians serve as the reference group.

Whereas the reference group, composed of majority individuals, mainly relocates along these three dimensions in accordance with socioeconomic improvements, Turner and Wessel (2013) ascertain that most of the non-Western groups do not.¹⁰ The relocation patterns among these groups are much more complex, but mainly incompatible with the spatial assimilation model. Variation of spatial integration among the groups is inadequately explained by socioeconomic integration. Some groups display signs of spatial integration despite limited or absent socioeconomic integration, and vice-versa. Moreover, they also claim that the virtually stable segregation level of the immigrant population in the Oslo region between 1998 and 2008 demonstrates that individual mobility in these groups mainly reproduces the majority/minority gap in settlement behaviour.

Although many members of the immigrant groups tend to improve their socioeconomic status, only individuals in the Vietnamese and Iranian groups were partly found to relocate according to assumptions in the spatial assimilation model. Whereas members of the Vietnamese group tend to move upwards and westwards, as a response to increased socioeconomic status, members of the Iranian group tend to exhibit the same pattern regardless of socioeconomic gains (Turner and Wessel 2013).

Among the other immigrant groups, Turner and Wessel (2013) identify different mobility paths. Tamils, Pakistanis and Turks move upwards and outwards, but remain chiefly within their eastern bases. Generally, the latter two groups have low labour market participation. The relationship between socioeconomic and spatial integration is especially weak among Pakistanis. In contrast, Filipinos, who often possess higher education and are usually well integrated in the labour market, are usually well situated in the neighbourhood hierarchy. Nevertheless, the link between socioeconomic integration and spatial mobility among Filipinos seems to have stalled and largely reflects previous achievements rather than current socioeconomic gains.

The mobility paths among Somalis, Iraqis and Moroccans contradict the spatial assimilation model in numerous respects. Foremost, they tend to move downwards in the neighbourhood hierarchy, rather than upwards. Moreover, they more often tend to relocate from west to east, rather than in the opposite direction. The labour market participation is admittedly quite low

¹⁰ The on-going gentrification in Oslo's eastern inner-city neighbourhoods implies an exception to this pattern, as many higher education graduates remain in these neighbourhoods (Turner and Wessel 2013:12).

for these groups, but there are a few signs of spatial integration among those who actually experience socioeconomic integration (Turner and Wessel 2013:4).

Turner and Wessel (2013) conclude that spatial integration among the immigrant population in the Oslo region has a contained form, barely transcending the east/west divide. They pose the question of whether ethnic minorities adopt the perception of this symbolic divide, so prevalent among the majority population, and if those who actually do are willing to increase housing expenditures substantially in order to relocate to areas in the west of Oslo. Turner and Wessel (2013) argue that the ‘catching-up’ logic of the spatial assimilation model is best suited for contexts of liberal politics and residual social welfare regimes. Norway, on the contrary, is a social democracy offering comprehensive social welfare benefits. Homeownership in Norway is quite accessible and the redistribution of resources to more deprived districts largely hampers the rationale for spatial mobility. In other words, the Norwegian welfare regime seems to dampen incentives to move to better neighbourhoods.

Although Turner and Wessel (2013:4) controlled for aspects, such as age, gender, family status, origin neighbourhood and nativity status (first and second generation), that have significant impacts on relocation among the immigrant population, they admit to having ‘sacrifice[d] a detailed account of model extensions for a broad overview of socioeconomic and spatial integration.’ In other words, they are interested in ‘aggregated’ mobility patterns among ethnic minority groups as such, rather than illuminating individual differences among group members. It is conceivable that socioeconomic gains and cultural integration are more often associated with spatial integration among immigrant descendants than their parents, for one gender over the other, or for individuals originating in certain neighbourhoods. Such aspects might also be more prevalent among certain country-of-origin groups and will be explored in this study.

3.2 Residential Patterns among non-Western Descendants

Søholt and Astrup (2009b) examined residential patterns of adult descendants of Turkish, Moroccan, Indian, Pakistani and Vietnamese immigrants by employing population data from 2005. These non-Western descendants were compared with descendants of Swedish and Danish immigrants (the Nordic group).¹¹ The age range of the sample was 18 to 40, but many were

¹¹ Swedish and Danish descendants presumably have similar residential patterns as their majority peers (Søholt and Astrup 2009b).

between 18 and 25 years of age. Thus, many still lived with their parents and were in the process of acquiring educational qualifications, starting careers and families, setting up homes, and so on. Nevertheless, many insights from Søholt and Astrup's (2009b) report are valuable in this study.

Søholt and Astrup (2009b) conclude that the non-Western descendants largely reproduce their parents' residential patterns despite some variation across country-of-origin groups. If immigrants reside in areas with high concentrations of ethnic minorities, so do their descendants. Descendants of migrant workers (i.e. Moroccan, Pakistani, Turkish and Indian) predominantly reside in Oslo or the larger Oslo region. The former two groups were mostly found in districts in Oslo with high proportions of non-Westerners, whereas the latter two groups were slightly more represented elsewhere in the region. However, Indian descendants are far more dispersed than the Turkish. Descendants of Vietnamese and Chilean immigrants (usually refugees) exhibited more dispersed residential patterns in both Oslo and other parts of Norway, which reflects the official policy of scattered settlement among refugees.

More than 50 percent of the non-Western descendants in Søholt and Astrup's study still lived with their parents. In comparison, this applied to only 20 percent of the Nordic descendants. Individuals with higher incomes and those who were married had to a larger degree moved out of the parental home. Nevertheless, some high earners, with the exception of Chilean descendants, also shared accommodation with their parents. Generally, those who had established their own homes had settled in smaller dwellings than the Nordic descendants, although these dwellings were larger than those of their parents. A larger percentage of the younger non-Western descendants rented accommodation compared with their Nordic peers. Surprisingly, the highest proportion of homeowners was found among Turkish descendants, including those with fewer socioeconomic assets. The proportion of owner-occupied housing increased with age in all groups. Among non-Western descendants above the age of 30, the highest proportion of homeowners were found among Indian descendants Søholt and Astrup (2009b).

Looking at Oslo alone, Søholt and Astrup (2009b) found descendants from all non-Western groups to be represented in all districts. While Vietnamese and Chilean descendants tended to be more evenly spread across districts, descendants from the other country-of-origin groups were predominantly living in the eastern districts with the highest proportions of non-Westerners. More than half of the Turkish, Indian, Pakistani and Chilean descendants with their

own accommodation had settled in the same city district as their parents. The same applied to 44 percent of Moroccan descendants, which is similar to descendants from the Nordic group. The corresponding figure for Vietnamese descendants was ‘only’ 31 percent. More than half of the non-Western descendants who had settled in the same district as their parents had also settled in the very same neighbourhoods.¹² The same applied to 45 percent of the Nordic descendants.

Although Søholt and Astrup (2009b) generally found limited signs of spatial integration across generations, they did identify some outliers with a deviating settlement pattern. Such a pattern was defined as having settled in municipalities with less than 4-5 percent descendants of the same country-of-origin or districts in Oslo with less than 10 percent non-Westerners. This applied 38 percent of the Indian descendants, followed by Vietnamese descendants at 29 percent. In contrast, only 15 percent of the Pakistani descendants exhibited such a pattern. Multivariate regressions were run to check for specific characteristics among descendants with a deviating pattern and four significant predictors were found: 1) deviating pattern among parents, 2) higher age, 3) mixed marriages, and 4) country-of-origin. The associations were strongest among Indian descendants, followed by Turkish and Moroccan descendants. Country-of-origin had no significant association for descendants from the other three non-Western groups.

To Søholt and Astrup’s (2009b) surprise, the regression did not identify that higher income and education had, in their own words, ‘independent effects’ on the likelihood for descendants to exhibit geographically divergent settlement patterns. A possible explanation, as well as a critical remark to their regression model, might be that income and education are only associated with deviating patterns among descendants in some of the country-of-origin groups. Additionally, there might be gender differences among and within the groups. To test such differences, it is necessary to either employ interaction term between the groups and the variables measuring income and education or run separate regressions for each group. Separate regressions for men and women, or alternatively interaction terms with gender, would test gender differences. The OLS analyses in this study are precisely aimed at exploring such differences by running separate regressions for men and women with interaction terms between groups and, respectively, education and income.

¹² Neighbourhoods measured as basic spatial units (*grunnkretser*)

3.3 Preferences for Co-Ethnic Neighbourhoods

By linking data from a survey and administrative registers, Blom (2012b) found some association between the preferred proportion of *co-ethnics* in neighbourhoods and actual proportions of *non-Westerners* in the neighbourhoods (measured as basic spatial units) among the immigrant population.^{13, 14} Respondents who reported that their ideal neighbourhood would be one with only a few co-ethnics were predicted to live in neighbourhoods with lower proportions of non-Westerners than those expressed that they were indifferent to the issue. Those who expressed that their ideal neighbourhood would have a co-ethnic proportion of 50 percent or less were predicted to live in neighbourhoods with higher non-Western proportions. Meanwhile, there is no statistically significant difference in non-Western proportions when comparing the actual neighbourhoods of those who were indifferent to the issue and those who meant their ideal neighbourhood should consist of more than 50 percent co-ethnics.

Initially, only 15 percent of respondents preferred neighbourhoods with at least 50 percent co-ethnics, whereas one-third preferred just a few co-ethnics. Yet, such preferences varied by individual characteristics. Preferences did not vary appreciably by gender, but preferences for higher proportions of co-ethnics were slightly more common among the elderly. Respondents with strong ties to Norway or higher education and economic strength more often preferred neighbourhoods with lower co-ethnic proportions Blom (2012b).

Furthermore, co-ethnic preferences varied substantially by country-of-origin. Among those who preferred 50 percent or higher co-ethnic proportions, respondents with Somali and Iranian origins were over-represented, whereas respondents of Chilean origin were under-represented. Moderate proportions (13-14 percent) of respondents with Turkish, Pakistani and Vietnamese origins preferred the same, which is particularly relevant for this study as immigrant descendants with these origins are concerned. However, the fact that more or less half the respondents were indifferent to the co-ethnic proportion, regardless of their origin or the actual

¹³ Blom (2012b) based his study on a representative sample of 3053 individuals in the age range 16-70, with origins in Bosnia-Herzegovina, Serbia-Montenegro, Turkey, Iraq, Iran, Pakistan, Vietnam, Sri Lanka, Somalia and Chile. The majority of the sample majority were first generation immigrants and only 9 percent of the respondents were descendants of immigrants.

¹⁴ The survey asked respondents about preferences for immigrants with the same country-of-origin as themselves, not the same ethnicity (co-ethnics). Moreover, as Blom (2012b) points out, the extent in which the respondents emphasize the difference between co-ethnics and non-Westerners when stating their preferences is highly uncertain. It is also important to note that proportions of co-ethnics and non-Westerners in the respondents' neighbourhoods do not necessarily correlate, although correlations might be very high in some neighbourhoods.

non-Western proportion in their neighbourhoods, is perhaps the most startling discovery in Blom's (2012b) report.

By running multivariate OLS regressions, Blom (2012b) found that the respondents' countries-of-origin, as well as their self-evaluated degree of cohesion and solidarity with co-ethnics, were better predictors of *non-Western proportions* in their neighbourhoods than their preferences for *co-ethnic* neighbourhoods. Having a Pakistani origin was associated with the highest average proportion of non-Westerners (33 percent), whereas the lowest association concerned Bosnians (14 percent). Predictions for the other country-of-origin groups were somewhere between these two 'extremes', with Turkish and Vietnamese having predicted average non-Western proportions of respectively about 25 percent and 20 percent.

The respondents' dwelling standards, length of residency and economic strength were also found to be important predictors of non-Western proportions in the respondents' neighbourhoods, although these aspects were subordinate to co-ethnic preferences. Respondents with high economic strength and high dwelling standards were predicted to reside in neighbourhoods with lower non-Western proportions, while increased length of residency predicted higher proportions. Three variables that did *not* predict significant variation in non-Western proportions were respondents' educational level, Norwegian language proficiency, and experiences with discrimination. A critical remark to Blom's (2012b) analysis is that he did not check for specific group differences by running interaction terms between the groups and key 'explanatory' variables.

Overall, Blom (2012b:34) concludes that co-ethnic neighbourhood preferences among the immigrant population seem relevant when it comes to non-Western proportions in neighbourhoods where they choose to live. Yet, he claims that these preferences hold a potential for dismantling, rather than amplifying, ethnic residential segregation. Future trends are, however, difficult to determine without considering preferences among the majority population as well. Several studies (Barstad *et al.* 2006; Sørliie and Havnen 2007; Sundell 2008; Nystad 2014) indicate that the majority population tend to escape neighbourhoods with substantial minority inflow, often referred to as 'white flight', or avoid moving to neighbourhoods with high ethnic proportions, often referred to as 'white avoidance'. Nordvik and Turner (2015), on the other hand, found that outflows of majority households from 'immigrant districts' in Oslo relate more to life-span-cycles than 'white flight'. Additionally, the economic characteristics of neighbourhoods are not without significance.

3.4 Ethnic Discrimination in the Housing Market

Despite strict anti-discrimination laws in Norway, discrimination in the housing market cannot be ruled out as an important factor influencing the residential location of ethnic minorities (Søholt 2001; Søholt and Astrup 2009a). Occasionally the media reports on cases in which vacant rental dwellings are falsely reported as occupied when immigrants show their interest. It has even been claimed that some homeowners allegedly renounce high offers from ethnic minorities when selling their homes out of loyalty to their neighbours. Documenting such discrimination is, however, difficult and the affected individuals often lack the resources to pursue the matter (Blom 2012b:8). Nevertheless, a field experiment conducted by Andersson, Jakobsson, and Kotsadam (2012) revealed that gender, class and ethnic discrimination do exist in the Norwegian rental housing market. Ethnic discrimination seems to be the most prevalent form, due to extensive discrimination against people with Arabic names (versus Norwegian names), controlled for gender and occupation.¹⁵

Several studies of *self-perceived* discrimination among ethnic minorities in the rental housing market also suggest that individuals who display visible characteristics of their ethnic minority status have a lower probability of being registered as potential tenants (Djuve and Hagen 1995; Blom 1998; Søholt 1999; Blom and Henriksen 2008; Søholt and Astrup 2009a).

In 1996, every fifth respondent in Statistics Norway's survey regarding living conditions among immigrants reported that they were either suspicious, or outright certain, of having been discriminated against when renting or buying a dwelling (Blom 1998). When the survey was repeated in 2006 an equal share of respondents reported the same (Blom and Henriksen 2008). However, the numbers fluctuate between immigrant groups. Roughly 30 percent of Somalis, Iraqis and Iranians reported they were certain of having experienced discrimination, whereas only 5 percent of Pakistanis, Sri Lankans and Vietnamese claimed the same (Tronstad 2008:132). In another study, Søholt and Astrup (2009a) conclude that Somalis and Iraqis experience discrimination because proprietors suspect that they are unfit tenants due to their (assumed) Muslim faith, lack of cultural competence and large households. When interviewed some proprietors frankly confirmed that they generally dismiss immigrants.

¹⁵ The field experiment is based on fictitious applicants with typical Norwegian and Arabic names, and thus the findings cannot be generalized to discrimination against ethnic minorities in general.

When specifically addressing immigrant descendants who had moved from their parents homes, Løwe (2008) found that 10 percent of these either suspected, or were sure, they had been discriminated against. Again, the numbers vary by ethnic minority groups. Turkish descendants had the highest share at 22 percent, while 8 and 4 percent of Vietnamese and Pakistani descendants respectively claimed the same. However, it is important to note that the respondents in this survey were only 25 years old or younger and thus had few experiences in the housing market. The scope of discrimination among older immigrant descendants with more experience may actually be more prominent.

This chapter has presented an overview of the relevant previous research from Norway. Chapter 4 presents and discusses eight hypotheses regarding neighbourhood attainment among non-Western descendants that are tested through the analysis in Chapter 8.

4 Expectations and Hypotheses

This chapter presents eight testable hypotheses that address expected differences between the proportion of non-Westerners in the destination neighbourhoods of adult non-Western descendants raised in the Oslo region and their majority peers. The expectations are linked to country-of-origin, level of socioeconomic resources and cultural integration as well as the proportions of non-Westerners in the descendants' origin neighbourhoods. The first three hypotheses are based on the previous Norwegian research presented in Chapter 3 and the subsequent five hypotheses are based on the models presented in Chapter 2.

4.1 Overall Group Differences in Neighbourhood Attainment

Overall, the non-Western descendants are on average expected to settle in neighbourhoods with higher non-Western proportions compared with 'equivalent' majority peers.¹⁶ The reasons for this may be preferences for living close to co-ethnics, actual or perceived discrimination in the housing market, or social exclusion and harassment in neighbourhoods predominated by the majority population. This expectation is addressed in Hypothesis 1:

H1: *Non-Western descendants settle in neighbourhoods with, on average, higher non-Western proportions, compared with equivalent majority peers.*

Moreover, Pakistani descendants are expected to settle in neighbourhoods with higher non-Western proportions, compared with non-Western descendants from the other country-of-origin groups. Blom's (2012b) analyses predicted that individuals of Pakistani origin, albeit without distinguishing between immigrant and immigrant descendants, tend to reside in neighbourhoods with higher non-Western proportions compared with individuals of other non-Western origins. Even though Pakistani descendants may settle in neighbourhoods with lower non-Western proportions than their parents, more than half the Pakistani descendants in Søholt and Astrup's (2009b) report had settled in the same district of Oslo. Many had also settled in the

¹⁶ 'Equivalent' majority peers refer to individuals who have equal observed characteristics. However, it cannot be ruled out that individuals, both within and between groups, differ from each other on other unobserved characteristics.

same neighbourhoods within that district. The expectation about Pakistani descendants is addressed in Hypothesis 2:

H2: *The average difference between non-Western proportions in the destination neighbourhoods of non-Western descendants and equivalent majority peers is greater for Pakistani descendants, compared with descendants from the other non-Western groups.*

Indian and Vietnamese descendants, on the contrary, are expected to settle in neighbourhoods with lower non-Western proportions, compared with descendants from the other non-Western country-of-origin groups. Sørholt and Astrup (2009b) found that Vietnamese and Indian descendants more often than Turkish, Moroccan and Pakistani descendants had settled in districts in Oslo with less than 10 percent non-Westerners. Moreover, Blom's (2012b) analyses predicted that individuals of Vietnamese origin, on average, reside in neighbourhoods with substantially lower non-Western proportions when compared with individuals of Pakistani and Turkish origins. Although Sørholt and Astrup (2009b) found that many Vietnamese and Indian descendants had settled in the same neighbourhoods as their parents, these neighbourhoods are probably marked by moderately higher non-Western proportions, especially among Vietnamese descendants. The expectation about Indian and Vietnamese descendants is addressed in Hypothesis 3:

H3: *The average difference between non-Western proportions in the destination neighbourhoods of non-Western descendants and equivalent majority peers is smaller for Indian and Vietnamese descendants, compared with descendants from the other non-Western groups.*

4.2 Education and Neighbourhood Attainment

Although Sørholt and Astrup (2009b) did not find a significant independent association between higher education or income and what they term deviating residential patterns, it is plausible that non-Western descendants with higher education or income actually do settle in neighbourhoods with lower non-Western proportions. They did not test whether education plays a different role for the various non-Western groups or for male and female descendants.

According to the spatial assimilation model, socioeconomic mobility and cultural integration are two important mechanisms that bring about spatial dispersion in immigrant populations. Higher education might actually be an indicator of both. Higher education is prominent aspect

of individuals' human capital and has increasingly become a necessity to achieve success in the Norwegian labour market. More time spent in the educational system might also imply a higher level of cultural integration, in terms of adaptation to norms and values in the 'mainstream' majority culture (Özüekren and Van Kempen 2002). Non-Western descendants with higher education may therefore have adapted to neighbourhood preferences more in line with the preferences of the majority population. Additionally, socialisation in educational institutions might lead to strong networks anchored in the majority population, fostering incentives to settle in neighbourhoods close to these networks. The expectation related to non-Western descendants with higher education is addressed in Hypothesis 4:

H4: The average difference between non-Western proportions in the destination neighbourhoods of non-Western descendants and equivalent majority peers is smaller for descendants with higher education, compared with descendants with lower education.

4.3 Income and Neighbourhood Attainment

Following the assumptions in the spatial assimilation theory, individuals with higher incomes are to some extent expected to settle in neighbourhoods with higher non-Western proportions. A high income is usually a prerequisite for settling in an attractive neighbourhood. Although neighbourhoods with better amenities do not necessarily correspond with neighbourhoods with lower non-Western proportions, these characteristics tend to coincide.¹⁷ Blom (2012b) predicted that members of the immigrant population with greater economic strength, on average, reside in neighbourhoods with lower non-Western proportions. It is plausible that this applies to a greater extent to immigrant descendants. The expectation related to high incomes among non-Western descendants is addressed in Hypothesis 5:

H5: The average difference between non-Western proportions in the destination neighbourhoods of non-Western descendants and equivalent majority peers is smaller for descendants with higher incomes, compared with descendants with lower incomes.

High incomes are expected to be associated with lower non-Western proportions especially in the neighbourhoods of Indian and Vietnamese descendants. Not only did Søholt and Astrup

¹⁷ Chapters 5 and 7 present variables that measure the non-Western proportions, median net income among residents and the proportions of impoverished individuals in the origin and destination neighbourhoods. The correlations between these variables are quite high (cf. footnote 37 in Section 5.7).

(2009b) find that Indian and Vietnamese descendants tend more often to settle in districts in Oslo with lower non-Western proportions, they also were generally found to have a more dispersed settlement pattern in Oslo. It is a well-known fact that Oslo's western districts are characterised by higher housing prices and lower non-Western proportions (Blom 2012a). Moreover, Turner and Wessel (2013) found that socioeconomic integration among individuals of Vietnamese origin, unlike individuals of Turkish, Moroccan and Pakistani origins, tends to take the form of relocation westward to the more affluent neighbourhoods in the Oslo region. This probably applies to a greater extent to Vietnamese descendants, as they are more likely than their immigrant parents to adopt the majority populations' perception of the symbolic status divide between eastern and western Oslo. The expectation related to Indian and Vietnamese descendants with higher incomes is addressed in Hypothesis 6:

H6: The average difference between non-Western proportions in the destination neighbourhoods of non-Western descendants and equivalent majority peers is smaller for Indian and Vietnamese descendants with high incomes, compared with descendants from the other country-of-origin groups that have high incomes.

4.4 Partners' Country-of-Origin and Neighbourhood Attainment

Søholt and Astrup's (2009b) report indicates that non-Western descendants engaged in mixed marriages more often tend to settle in municipalities characterised by fewer descendants of their own origin or districts in Oslo with low non-Western proportions. By referring to Holloway *et al.* (2005), they suggest that these non-Western descendants may want to avoid negative sanctions from their respective ethnic communities that do not accept mixed marriages. Following the spatial assimilation model, an alternative explanation, solely concerning non-Western descendants with *majority partners*, is that these individuals have reached a higher level of cultural integration. Thus, they may also have adopted residential preferences more in line with the majority population. Intermarriage between ethnic minorities and the majority is often cited as an ultimate example of assimilation (Gordon 1964; Alba and Nee 1997). Moreover, it is plausible that the majority partners may have an equal, or possibly stronger, influence in regards to neighbourhood choice.¹⁸ The expectation related to non-Western descendants with majority partners is addressed in Hypothesis 7:

¹⁸ The term 'partner' includes both spouses and cohabiting partners, as marriage and non-marital cohabitation are both accepted models of family formation in Norway.

H7: *The average difference between non-Western proportions in the destination neighbourhoods of non-Western descendants and equivalent majority peers is smaller for descendants cohabiting with majority partners, compared with descendants cohabiting with non-Western partners.*

4.5 Origin Neighbourhoods vs. Destination Neighbourhoods

According to Blom (2012b), preferences for living close to co-ethnics are relevant for the proportion of non-Westerners in the neighbourhood of individuals with such origins, although other individual characteristics proved to be better predictors. Although individuals who preferred very high co-ethnic proportions (>50%) were *not* predicted to reside in neighbourhoods with higher non-Western proportions when compared with individuals who expressed indifference to the issue, *this did apply* to individuals who preferred a somewhat lower co-ethnic proportions.

It is plausible that immigrant descendants who were raised in neighbourhoods with higher proportions of co-ethnics (or non-Westerners more generally) are more likely to settle in such neighbourhoods as adults. Even if indifferent to the issue when interviewed, they may be indifferent in a positive direction. The respondents in Blom's (2012b) study who claimed to be indifferent tended to reside in neighbourhoods with substantial non-Western proportions. Additionally, individuals with a self-evaluated high degree of cohesion and solidarity with co-ethnics were predicted to reside in neighbourhoods with higher non-Western proportions. This may also be more applicable to some ethnic groups than others. The sense of community is strong in many Asian groups where the concepts of control, family and status dominate. They often cherish collectivistic values, the role of co-ethnics tends to be strong and many settle close to one another and creating local neighbourhoods of ethnic enclaves (Peach 2005b). Based on this brief discussion, an exception regarding non-Western descendants raised in neighbourhoods with high non-Western proportions is addressed in Hypothesis 8:

H8: *The average difference between non-Western proportions in the destination neighbourhoods of non-Western descendants and equivalent majority peers is larger for descendants raised in neighbourhoods with higher non-Western proportions, compared with descendants raised in neighbourhoods with lower non-Western proportions.*

As addressed in the place stratification model, distinguishing between ethnic enclave preferences and structural hindrances to gaining access to desirable neighbourhoods is actually

quite difficult without having specific information on preferences and constraints. However, if place stratification mechanisms were present among certain ethnic minority groups, ‘all’ members of these groups, at least in theory, should be equally impaired from gaining access to those neighbourhoods characterised by higher socioeconomic status and which are usually also characterised by lower proportion of non-Westerners. If it is shown that non-Western descendants who were raised in neighbourhoods with higher non-Western proportions tend to settle in such neighbourhoods as adults, then it is conceivable that ethnic enclave mechanisms are the primary force. However, it is possible that perception of real or imagined structural hindrances (place stratification mechanisms) regarding access to desirable neighbourhoods reinforces the ethnic enclave mechanism. It is plausible that perceived risks of discrimination and harassment outside the ethnic communities strengthen ethnic bonds and help maintain distinctive ethnic identities and lifestyles among co-ethnics.

This chapter has presented eight testable hypotheses based on theory and previous research. In Chapter 5 the data and variables utilised in the analyses are presented, along with the analytical strategies that underlie the analyses.

5 Data, Methods and Analytical Strategies

This chapter presents descriptions of the data, variables and methodological design utilised in the analyses in Chapter 6, 7 and 8. The first part of the chapter gives an account of the dataset, the sample individuals and operationalisation of the variables. The second half of the chapter explains the logic behind the Index of Dissimilarity (employed in Chapter 6 to analyse segregation levels among the immigrant population in the Oslo region), in addition to the ordinary least squares (OLS) method and a modified version of Alba and Logan's (1993) Locational Attainment Model, which are employed in Chapter 8 to analyse neighbourhood attainment among immigrant descendants in the Oslo region.

5.1 Data Extracted from Administrative Registers

The register data utilised in this study are administered and made available by the government agency Statistics Norway through funding by the DISCRIM project of the Norwegian Research Council.¹⁹ The data consist of comprehensive longitudinal population-wide variables on the individual level. They are considered to be very accurate and reliable.²⁰

The dataset has two major disadvantages. First, the dataset only extends to 2010, which means that the findings in this study are not entirely up to date. Nevertheless, the findings are still believed to provide a sufficient picture of the residential patterns and neighbourhood attainment currently taking place among young adult immigrant descendants in the Oslo region.²¹ Second, the income figures in the dataset are only available from 1993 while the analyses actually require income figures from 1990-1992. This deficiency has been remedied by downscaling income figures from 1993, although it is not fully optimal.²²

¹⁹ The DISCRIM project (*Measuring and Explaining Discrimination in the Labour Market*) was led by Professor Gunn Elisabeth Birkelund in the Department of Sociology and Human Geography at the University of Oslo.

²⁰ See Røed and Raaum (2003) for an elaborated discussion of administrative register data.

²¹ The original intention was to utilise data from the project to which this thesis is connected, *Ethnic segregation in schools and neighbourhoods: Consequences and Dynamics*, also directed by Professor Birkelund. These data extend until 2015 and would have yielded a larger and more recent sample of 30-year-old immigrant descendants. Unfortunately, these data did not become available in time.

²² Variables based on downscaled income figures are discussed later in this chapter.

Population-wide administrative register data have several advantages compared with survey data. Common biases in survey data are avoided, such as non-representative sample selections, self-reporting and individuals who withdraw participation from the survey over time (Røed and Raaum 2003:277; Ringdal 2007:140). Moreover, population-wide data is often essential in order to analyse smaller demographic subgroups. Whereas survey samples at best capture a handful of individuals, even small subgroups might become quite extensive when extracting data on all members (Røed and Raaum 2003:273). This is undoubtedly the case in this study, which requires extensive data on immigrant descendants in specific non-Western country-of-origin groups who had reached the age of 30 in 2010. Furthermore, these individuals need to be categorised according to characteristics, such as their educational levels. Nevertheless, it is important to note that some country-of-origin groups still yield very few observations on certain variable values, which affects the statistical power in some of the analyses, as discussed in Chapter 8.

Despite the many advantages, register data have some obvious drawbacks.²³ Registered data do not (usually) provide direct access to people's attitudes, values, beliefs, preferences, political and religious affinities, or many other aspects of life deemed private and subjective. Surveys are often targeted precisely at capturing such personal aspects (Røed and Raaum 2003:277, 279). However, by interpreting register data analyses in light of relevant theories and previous research it is still possible to obtain 'insights' to the mind-set of individuals.

5.2 Data Sample: Immigrant Descendants and Majority Peers (born 1974-1980)

The core sample (employed in Chapters 7 and 8) is comprised of 55,747 individuals, referred to as 'respondents' when describing the variables, who either are descendants of immigrants (N=3579) or belong to the majority population (N=52,168).²⁴ The respondents cover virtually the entire 1974-1980 birth cohorts of immigrant descendants and majority individuals, who resided in Oslo, Drammen and seventeen other sample municipalities in the Oslo region at age

²³ Measuring errors, missing observations, and inconstancies in data collection over time may impair the quality of administrative register data to some extent. Moreover, getting access to sensitive information, such as individuals' criminal records, is often difficult due to strict data protection (Røed and Raaum 2003:277).

²⁴ The majority individuals make up about 93 percent of the entire sample. Individuals born in Norway or abroad by a Norwegian-born *and* a foreign-born parent are excluded from the sample, because their neighbourhood preferences might deviate from individuals with two Norwegian-born parents.

16 (1990-1996).²⁵ It was a sample requirement that respondents lived in Norway at age 30 (2004-2010), but not that they lived in the Oslo region at age of 30.²⁶

Descendants of immigrants from Turkey (N=341), Morocco (N=244), India (N=215), Pakistan (N=1,553) and Vietnam (N=251) are large enough in numbers to be treated as separate country-of-origin groups. An aggregate group is composed of respondents with origins in all other non-Western countries and referred to as the 'non-Western residual' (N=472). Additionally, an aggregate group is composed of respondents with origins in Western countries (N=503), in order to compare non-Western and Western descendants.

The sample also includes the so-called '1.5 generation' of immigrants (Rumbaut 2004) who arrived in Norway at young age, in order to avoid marginally low numbers of respondents in some of the specific non-Western country-of-origin-groups. Previous research indicate that immigrants arriving in Norway before elementary school age, on average, have the same achievement levels in the educational system and the labour market, compared with Norwegian-born children of immigrants in their respective country-of-origin groups (Birkelund and Mastekaasa 2009; Henriksen 2009). The respondents started school at age seven (Nilssen

²⁵ Actually, the full birth cohorts 1974-1980 with mentioned profiles consist of 56,031 individuals. However, 284 individuals had to be excluded from the sample for the following reasons: 124 individuals are not linked to a lower geographical level than a municipality the year they turned 16 years old. Hence, it is impossible to measure the characteristics of their origin neighbourhood; 31 individuals are either deceased or were no longer resided in Norway the year they turn 30 years old; 129 individuals have missing information on their educational qualifications. The individuals excluded from the sample do not impair the relative size of sample groups appreciably, because 221 of them belong to the majority group that still make up 93.3 percent of the sample. The other 63 individuals have a variety of origins and belong to both genders.

²⁶ Oslo is actually the main focus of interest in this thesis, due to the relative size of its non-Western immigrant population. Nevertheless, in order to boost the number of respondents belonging to specific country-of-origin groups, it was necessary to include the following eighteen municipalities in the greater Oslo region: Bærum, Asker, Lørenskog, Skedsmo, Rælingen, Nittedal, Oppegård, Nesodden, Ski, Frogn, Ås, Vestby, Moss, Rygge, Lier, Røyken, Drammen and Nedre Eiker. The municipalities create a contiguous geographic area wrapped around the Oslo Fjord. Drammen, located in Buskerud southwest of Oslo, was selected both in order to boost the sample with Turkish (N=114), Indian (N=26), Vietnamese (N=34) descendants, and because it has for several years had the second largest immigrant population (including Western countries) after Oslo. Moss and Rygge, both located in the county of Østfold southeast of Oslo, were especially selected in order to boost the sample with Vietnamese descendants (N=58). The other municipalities are all located in Akershus county, which stretches from Oslo nearly to Drammen and from Oslo nearly to Moss/Rygge on the west and east sides of the Oslo fjord respectively. These municipalities were selected because they had a non-Western immigrant population exceeding 1 percent of the total population in the years 1990-1996. Hence, municipalities in Akershus with less than 1 percent non-Westerners, such as Enebakk, were excluded, even if located fairly close to Oslo.

2014), which means that immigrants born in 1974-1980 are included in the sample if they arrived in Norway in 1981-1988, respectively.

To create variables measuring the respondents' social background and family status, it is necessary to employ additional samples of their parents and partners. Moreover, samples of the entire population residing in the respondents' neighbourhoods at age 16 (basic spatial units in 1990-1990) and neighbourhoods at age 30 (basic spatial units in 2004-2010) are also employed, in order to measure the proportion of non-Westerners and socioeconomic level among residents in these neighbourhoods.²⁷

5.3 Neighbourhood Size and Segregation Levels

The geographical area defining a neighbourhood is by no means a given size. A neighbourhood is in many respects a subjective sense of belonging. Whereas some people might limit their neighbourhood assessment to a few city blocks, others might consider larger parts of their city district as their neighbourhood (Obst, Smith, and Zinkiewicz 2002). In suburbs and more rural areas, neighbourhood boundaries probably become even more contested and blurred.

The neighbourhoods in this study are defined according to the smallest spatial units used in Norwegian demographic statistics, namely the basic spatial units (*grunnkretser*). Norway is divided in about 13,700 basic spatial units, which are subsumed in subareas (*delområder*), municipalities (*kommuner*) and counties (*fylker*), ordered here by increasing size. In Oslo the basic spatial units also make up sub-districts (*delbydeler*) and districts (*bydeler*). Basic spatial units are quite suitable for studying neighbourhood change over time, because their geographic extent has not changed since their creation in the late 1970s, even if the structure of the larger geographical units have been altered in the meantime (Statistics Norway 1999). However, one disadvantage of comparing basic spatial units is that their area and population sizes vary to

²⁷ Unfortunately, the dataset does not fully cover the entire population in all neighbourhoods. Individuals who were born prior to 1955 and not registered as a family relative of anyone born in 1955 or later are not included in the data. This is due to the data requirements in the DISCRIM project from which the data set originates. This means that the characteristics of certain neighbourhoods might be somewhat biased if the 'missing' individuals predominantly have particular countries-of-origin or low/high incomes. Presumably, the proportion of missing majority individuals is higher than the proportion of minority individuals, because the immigrant population is relatively young, and most immigrants born prior to 1955 have relatives born in 1955 or later. Consequently, the measured proportion of non-Westerners in some neighbourhoods might be slightly higher than what is actually the case.

some extent. For example, some of basic spatial units in Oslo's inner city are no more than a few city blocks.

In academia, there is no consensus regarding whether to measure segregation in smaller or larger geographic units. Smaller units are usually more homogenous and thereby yield higher levels of segregation (Damm and Schultz-Nielsen 2008; Peach 2009; Blom 2012a). However, it makes sense to measure segregation at a level that is small enough to capture the 'granular' segregation experienced in daily life (e.g. in basic spatial units). Yet, seemingly moderate segregation levels might in fact mask higher segregation levels if specific population groups are concentrated in the intersections of smaller units. Conversely, measuring segregation in larger geographic units provides a more accurate picture of the overall segregation. However, a 'bird's eye view' might disguise high segregation levels at the micro-societal level altogether.

In order to capture segregation levels occurring on a level that corresponds to people's immediate sense of a local neighbourhood, basic spatial units seem to be the best option in this study. Yet it is inevitable that some neighbourhoods actually stretch across basic spatial unit boundaries, especially in central parts of Oslo.

5.4 Dependent Variable: Non-Western Population in Destination Neighbourhoods

This variable measures the proportion of non-Westerners in the basic spatial units (*grunnkretser*) in which the respondents resided at age 30 (2004-2010 according to birth cohort). These basic spatial units are referred to as their destination neighbourhoods. The variable is continuous and ranges from 0.000 to 1.000. When multiplied by 100, the values refer to percentages of non-Westerners in the destination neighbourhoods.^{28, 29}

²⁸ The categories Western and non-Western countries refer to the well-established, but highly simplified dichotomy of the world's countries. Western countries include EU/EEA countries, USA, Canada, Australia and New Zealand, whereas non-Western countries include Asia, Africa, Latin America, Oceania except Australia and New Zealand, and Eastern Europe outside the EU/EEA. It is important to note that this dichotomy obscures large variations between individuals within each category. Statistics Norway officially stopped using the terms 'Western' and 'non-Western' countries as of 1. October 2008, because the dichotomy has been attributed greater importance than originally intended (Høydahl 2008). The term 'non-Western' has been criticised in the Norwegian immigration debate for having become a stigmatised label that is attributed to a large proportion of the population. Statistics Norway increasingly reports statistics on the immigrant population grouped by continents or single countries. Yet, they still dichotomise parts of the statistics by referring to countries and continents (listed above) because of a

It is important to note that large variations among individuals are obscured when the entire immigrant population are dichotomised. However, in regards to residential patterns, it appears that non-Westerners, especially individuals with Asian and African origins, exhibit high concentrations in several districts of Oslo and municipalities in the greater region (Blom 2012a; Høydahl 2014). Blom (2012a) has continued to use the Western/non-Western dichotomy in his segregation research to avoid a break in the research series. In line with his reasoning, it is a great advantage that the findings in this study are comparable with previous research as well.

5.5 Independent Variables

5.5.1 Non-Western Population in Origin Neighbourhoods

This variable measures the proportion of non-Westerners in the respondents' basic spatial units, where the respondents resided at age 16 (1990-1996). These basic spatial units are referred to as origin neighbourhoods. The measurement of this variable is identical with the dependent variable (cf. Section 5.4), although it is operationalised in the following four percentage categories: (1) *Less than 10 percent*, (2) *10 - 19 percent*, (3) *20 - 29 percent*, and (4) *30 percent or higher*.²⁹

5.5.2 Country-of-Origin

This variable measures the respondents' countries-of-origin and is operationalised with the following eight categories: (1) *Majority Norwegians*, (2) *Western descendants*, (3) *Turkish descendants*, (4) *Moroccan descendants*, (5) *Indian descendants*, (6) *Pakistani descendants*, (7) *Vietnamese descendants*, and (8) *Non-Western descendants (residual countries-of-origin)*.³⁰

lack of 'neutral' or less cumbersome terms. Particularly, this dichotomy is often still used when presenting statistics on the reasons for immigration and living conditions among immigrants.

²⁹ These categories were chosen because they capture a certain number of respondents within each country-of-origin group. It is reasonable to gather respondents who originate in neighbourhoods with 30 percent or higher non-Western proportions in a residual category titled '30 percent or higher'. Few respondents within each group actually originate in neighbourhoods with 40 percent or higher non-Western proportions, except for a substantial number of Turkish and Pakistani respondents. Appendices 1 and 2 present the distribution of respondents in neighbourhoods with percentage categories of non-Westerners in tenths, according to their gender and group affiliation.

³⁰ A respondent's country-of-origin is defined by his/her parent's country of birth. For a respondent whose parents are born in two different countries, the mother's birth country is given precedence. Western and non-Western immigrant descendants are defined according to the country dichotomy

5.5.3 Sub-Region in the Oslo Region

This variable measures the respondents' sub-regions of residency in the Oslo region at age 16 (1990-1996) and is operationalised in the following three categories: (1) *Oslo*, (2) *Drammen*, and (3) *Suburbia*.³¹

5.5.4 Educational Qualifications

This variable measures respondents' highest completed level of education at age 30 (2004-2010) and is considered to be their principal measure of human capital. Additionally, as discussed in chapter section 4.2, the educational level of immigrant descendants may also be regarded as a measure of cultural integration. The variable is operationalised in the following four categories: (1) *Basic compulsory*, (2) *Upper secondary*, (3) *Postsecondary, BA level*, and (4) *Postsecondary, MA level or higher*.

Both levels of postsecondary education are merged into one category in the OLS models presented in Chapter 8, due to low numbers of respondents with postsecondary education in some of the non-Western country-of-origin groups. Yet, the distribution of respondents with each level of postsecondary education is presented in the descriptive statistics in Chapter 7.

5.5.5 Annual Net Income

This variable measures the respondents' annual net median income at age 30 (2004-2010) and is considered to be an adequate measure of the respondents' purchasing power, which may influence their choice of neighbourhood. The annual net median income combines occupation earnings, investment income and taxable and tax-free public transfers, after deduction of taxes and negative transfers. The variable is operationalised in four income categories: (1) *Less than NOK 200,000*, (2) *NOK 200,000 - 299,999*, (3) *NOK 300,000 - 399,999*, (4) *NOK 400,000 or higher*.³²

outlined in Section 5.4. The non-Western residual category encompasses individuals with origins in all non-Western countries, except Turkey, Morocco, Indian, Pakistan and Vietnam.

³¹ 'Suburbia refers to the following 17 municipalities: Bærum, Asker, Lørenskog, Skedsmo, Rælingen, Nittedal, Oppegård, Nesodden, Ski, Frogn, Ås, Vestby, Moss, Rygge, Lier, Røyken and Nedre Eiker.

³² Overall, many respondents have incomes higher than NOK 400,000. However, the number of non-Western respondents with incomes exceeding NOK 500,000 is very small in some of the country-of-origin groups.

All income figures have been Consumer Price Index (CPI) adjusted to 2010 NOK values, in order to compare the income levels between the birth cohorts. Still, the income figures are not completely comparable, due that the annual wage increases in Norway is greater than the annually consumer price increase.

5.5.6 Partner Status

This variable measures the country-of-origin of the respondents' cohabiting partners and is considered to be a measure of cultural integration among the immigrant descendants. Cohabiting partners are defined as registered spouses and partners, including same-sex partners, who were residing in the respondents' neighbourhoods at age 30 (2004-2010).

The partner variable presented in the descriptive statistics in Chapter 7 is operationalised with six categories: (1) *No partner*, (2) *Non-Western partner (same country-of-origin)*, (3) *Non-Western partner (different country-of-origin)*, (4) *Western partner (same country-of-origin)*, (5) *Western partner (different country-of-origin)*, and (6) *Majority partner*.

Due to very few observations in some categories, especially among non-Western descendants with majority partners, categories 2 and 3 are merged into one category and categories 4, 5 and 6 are merged into another category in the OLS models presented in Chapter 8. Unfortunately, merging the Western partner category with the majority partner category probably weakens the strength of the partner variable somewhat. However, as will become obvious in Chapter 7, the characteristics of the Western respondents are pretty similar to the majority respondents in many respects. Hence, the difference between having a non-Western partner versus having a majority partner is assumedly less distinct than the difference between having a Western partner versus having a majority partner. Additionally, the numbers of respondents who are registered with a Western-partner in each non-Western descendant group are primarily quite low.

5.6 Control Variables

5.6.1 Birth Cohort (1974-1980)

This variable measures the respondents' birth cohort affiliations according to their year of birth, ranging from 1974 to 1980. The variable is employed in the OLS regressions in Chapter 8 in

order to take into account that the non-Western proportions gradually increases in the neighbourhoods for each year of measurement.

5.6.2 Parents' Educational Qualifications

This variable is the first of two variables that measure the respondents' social background at age 16 (2004-2010). It measures the highest completed level of education among the respondents' parents and represents the human capital and cultural resources available in the respondents' families of origin during adolescence.³³ The variable is operationalised in four educational levels, plus a fifth category for parents with missing information on educational qualifications: (1) *Basic compulsory*, (2) *Upper secondary*, (3) *Postsecondary, BA level*, (4) *Postsecondary, MA level or higher* and (5) *Missing information*.

Both levels of postsecondary education are merged into one category in the OLS regressions presented in Chapter 8, due to low numbers of parents with postsecondary education in some of the non-Western country-of-origin groups (cf. Appendices 2 and 3). Yet, the distribution of parents with each level of postsecondary education is presented in the descriptive statistics in Chapter 7.

5.6.3 Parents' Annual Net Income

This variable is the second variable used as a measure of the respondents' social background at age 16 (2004-2010). It measures the combined annual net income of the respondents' parents and represents the economic resources available in a respondent's family of origin during adolescence. The annual net income is composed of occupational earnings, investment incomes, taxable and tax-free public transfers, after deduction of taxes and negative transfers.

³³ The educational levels are based on the parent with the highest level, be it the mother or the father. A general source of bias regarding the educational qualifications of immigrants is that the register data does not distinguish between education acquired in Norway and abroad. Educational degrees received abroad are only included in the Norwegian national education database (NUDB) if an application for approval of the degree has been made to the Norwegian Agency for Quality Assurance in Education (NOKUT). The 'value' of education received abroad is probably slightly overestimated as human capital in the Norwegian labour market (Statistics Norway 2003). Furthermore, administrative records lack information on education received abroad by many immigrants. This is actually the case for both parents of quite a few of the respondents (N=340). It is usually assumed that immigrants with missing information generally have low educational qualifications.

The income figures for one or both parents is lacking for many respondents.³⁴ The variable is operationalised in five income categories plus one ‘missing category’: (1) *Less than NOK 300,000*, (2) *NOK 300,000 - 399,999*, (3) *NOK 400,000 - 499,999*, (4) *NOK 500,000 - 599,999*, (5) *NOK 600,000 or higher*, and (6) *Missing information*.

The income figures for each year (1990-1996) have been CPI adjusted to the 2010 NOK value. As already mentioned, the figures are not fully comparable between years, due to the annual wage increase is greater than the annual CPI increase. Another source of bias is that the dataset lacks income figures from 1990-1992. As a substitute income figures for parents of the birth cohorts 1974-1976 are drawn from 1993. The figures were first CPI adjusted respectively to 1990-1992 NOK values, before CPI adjusted to NOK 2010. However, it cannot be ruled out that parents may have lost, gained or switched employment and other income sources between 1990-1992 and/or during 1993.

5.7 Descriptive Variables

5.7.1 Median Income in Origin Neighbourhoods

This variable measures the annual median net income among residents of working age in the respondents’ origin neighbourhoods at age 16 (1990-1996). It is considered a measure of the socioeconomic level in the respective neighbourhoods. The variable is continuous and ranges from NOK 64,902 to NOK 397,169.^{35 36}

³⁴ The main reason for operationalising the income of parents as a categorical variable, instead of a continuous variable, is that the lacking income figures of both parents (N=2,588) would otherwise have to be excluded from the OLS regressions that will be presented in Chapter 8.

³⁵ In order to exclude as many students and pensioners as possible, the working age is defined as 25-65. Unfortunately, the dataset does not contain a variable with the work status of individuals, so there may still be students and pensioners among the 25-65 years-olds, as well as individuals who for various reasons do not have regular occupational earnings. The net income measure also includes investment incomes, taxable and tax-free public transfers.

³⁶ All four variables presented in Section 5.7 were considered and tested as control variables for the OLS models. These variables were deemed unsuitable due to strong correlations with the variables measuring non-Western proportions in the either the origin and destination neighbourhoods respectively. Hence, these variables are merely presented as descriptive variables in Chapter 7. Correlations:

Section 5.7.1 - Variable measuring net median income among residents in origin neighbourhoods: Pearson’s R = -0.443

Section 5.7.2 - Variable measuring net median income among residents in the destination neighbourhoods: Pearson’s R = -0.490

The income figures for 2004-2009 have been CPI adjusted to the NOK value in 2010. Moreover, due to lacking income figures for residents in 1990-1992, income figures from 1993 are used instead and were CPI adjusted in the same manner as described above in Section 5.6.3. The income figures are measured for respondents who were living in the neighbourhoods during 1990-1992, even if they had moved out of the neighbourhoods by 1993. As mentioned previously, this is a pragmatic but not ideal solution.

5.7.2 Median Income in Destination Neighbourhoods

This variable measures the annual median net income among residents of working age in the respondents' destination neighbourhoods at age 30 (2004-2010). As with the corresponding variable for the origin neighbourhoods, this is considered to be a second measure of the socio-economic level in the respective neighbourhoods and operationalised in the exact same way (cf. Section 5.7.1). However, this variable contains actual income figures among residents in each year.

5.7.3 Deprivation Levels in Origin Neighbourhoods

This variable measures the proportion of impoverished individuals in the respondents' origin neighbourhoods at age 16 (1990-1996). This variable provides a third measurement of the neighbourhood socioeconomic level. The variable is continuous and ranges from *0.000* to *1.000*. When multiplied by 100, the values refer to percentages of impoverished individuals in the destination neighbourhoods.

The proportions are calculated according to EU's poverty measure (Kirkeberg, Epland, and Normann 2012:10), but the variable is measured at the individual level rather than at the household level. Individuals included in the calculations are minimum 25 years of age. Those who do not have a registered spouse or cohabiting partner (single individuals) constitute 1.0 consumption unit, and their poverty threshold is 60 percent of the annual national median net income according to the official EU scale.³⁷ Individuals with cohabiting partners (including

Section 5.7.3 - Variable measuring proportions of impoverished residents in origin neighbourhoods: Pearson's R = 0.471

Section 5.7.4 - Variable measuring proportions of impoverished residents in destination neighbourhoods: Pearson's R = 0.581

³⁷ Since 1996, Statistics Norway has annually calculated a national figure denoted 'the median income per consumption unit' according to the official EU scale. In 1996 this figure was NOK 148,000

spouses) have economic benefits from sharing households and these individuals together with their partner thereby constitute 1.5 consumption units. At the individual level, this is broken down to 0.75 consumption unit. The annual net income per individual in the cohabiting couple is calculated as half the sum of the couple's joint income. This income is measured against their poverty threshold, which is 45 percent ($0.75 * 60 \text{ percent} = 45 \text{ percent}$) of the national annual median net income.

Additionally, both single individuals and cohabiting individuals with children in their households have a higher poverty threshold because of higher household expenditures (Kirkeberg, Epland, and Normann 2012:10). This means that they require higher incomes compared with individuals without children in order to not be considered impoverished. For single individuals with children, the poverty threshold is calculated by multiplying the poverty threshold for single individuals *without* children by 0.3 for each child. Cohabiting individuals share the extra household expenditures with their partner. Therefore, their poverty threshold is calculated by multiplying the poverty threshold for cohabiting individuals *without* children by 0.15 for each child. The children included in the calculation have a maximum age of 18.

Again, CPI adjusted income figures from 1993 are utilised when calculating the proportion of impoverished individuals in the origin neighbourhoods in 1990-1992. Another possible source of error is that the data set is lacking information on whether children share households with their parents. Instead, children who reside in the same basic spatial units as their parents are linked, assuming that they share households on full-time basis. Although divorced/separated parents (assumably) rarely share the same spatial unit, those who do might be attributed children in their households that, for example, only spend every other weekend with them. Thus, their ascribed poverty threshold is biased.

5.7.4 Deprivation Levels in Destination Neighbourhoods

This variable measures the proportion of impoverished individuals in the respondents' destination neighbourhoods at age 30 (2004-2010). It was constructed in the same manner as

(Kirkeberg, Epland, and Normann 2012:11). This figure has been converted to figures for 1990-1995, by revising it down according to the difference in the median net income among the entire population above the age of 25 in the dataset for 1996 (N=2,956,874) and respectively for 1990-1995 (N=2,796,378 - 2,930,102).

the corresponding variable for the origin neighbourhoods (cf. Section 5.5.6). The income figures from 2004-2009 are CPI adjusted to 2010 NOK values.

5.8 Index of Dissimilarity (D-index)

How segregation is conceptualised is important because indexes are operationalised from the concept. No single index can represent all aspects of unevenness, the central attribute of segregation. (Peach 2009:1382)

Scholars have proposed various measures of segregation but the *index of dissimilarity* is undoubtedly the most commonly used. In Chapter 6, this index is employed to analyse segregation levels among various immigrant groups in both Oslo and the larger Oslo region. It measures the extent to which a (minority) population group is evenly distributed with a reference population, usually the majority population, across component geographic areas that make up a larger area. The index is most typically applied to cities and metropolitan areas with neighbourhoods as components. The value of the index, called 'D', actually measures the degree of *dissimilar* distribution between the two groups; ranging from zero, indicating a perfectly even distribution of group members, to one, indicating that group members do not share any common neighbourhood and thus are completely segregated from one another (Blom 2006a:35; Damm, Schultz-Nielsen, and Tranæs 2006:44).

When multiplied by 100 the D-value indicates the percentage of members in the minority group that would have to relocate to another neighbourhood in order for all members to be evenly distributed with members of the reference group (Blom 2006a:35; Damm, Schultz-Nielsen, and Tranæs 2006:46). Usually, segregation is considered to be low when less than 30 percent would have to relocate. Percentages between 30 and 60 are considered to reflect moderate levels of segregation, whereas 60 percent or higher indicate high levels of segregation (Blom 2006a:35). However, D-values should be read with some caution, as the index is sensitive to the average size of neighbourhoods and how their boundaries are drawn. The smaller the neighbourhood, the higher the D-value turns out. Moreover, the index does not allow for comparisons of more than two population groups at a time (Bolt, van Kempen, and van Ham 2008:1365).

In this study, limitations to the D-index are somewhat remedied by calculating and comparing D-values for various segments and groups in the immigrant population. Additionally, the D-values calculated for Oslo are compared with the D-values calculated for the larger Oslo region. Basic spatial units (*grunnkretser*) are employed as neighbourhood units in all calculations.

The D-values are calculated by the following formula as per Glaeser, Cutler, and Vigdor (2008:4) and Damm, Schultz-Nielsen, and Tranæs (2006:44-45):

$$D = \frac{1}{2} \sum_i^I \left[\frac{x_i}{X} - \frac{(t_i - x_i)}{(T - X)} \right]$$

The number of neighbourhoods in the city/region is represented by i . x_i is the number of individuals belonging to the minority group in neighbourhood i . t_i is the total number of individuals from both groups in neighbourhood i . X the number of individuals belonging to the minority group in the city/region. Finally, T is the total number of individuals from both groups in the city/region.

The formula calculates the difference between the proportions of the minority group in question and the majority population within each neighbourhood. Subsequently, the sum of (numeric) differences in all neighbourhoods is divided by two because an over-representation of the minority group in one neighbourhood always matches an under-representation in another. Thus, the D-index is unaffected by the fact that there might be few minority group members in the city/region as a whole because it strictly calculates the difference in the relative distribution of the two population groups (Damm, Schultz-Nielsen, and Tranæs 2006:44-45).

5.9 Ordinary Least Squares (OLS)

The strength of multivariate regression is the ability to explore whether, and to what extent, variation in more than one independent variable accounts for the variation in the dependent variable.³⁸ The analysis highlights the association between each independent variable and the dependent variable by keeping associations with the other independent variables constant. Extension of a regression model by adding more independent variables might reveal spurious associations or hidden mechanisms between the other independent variables and the dependent variable already included in the model (Skog 2004:258-259). Moreover, the method is well

³⁸ Causation is here merely understood as *statistical associations*, defined as the likelihood of a specific event (Y) to occur more frequently if another factor (X) is present than if X were not present. If X is temporally prior to A, the task at hand is to explore whether this association actually is one of *robust dependence* where B is causally significant for Y (either directly or indirectly), while keeping other factors constant (Skog 2004:28-37). However, statistical association as *robust dependence* does not provide an actual explanation of the phenomenon at hand without at least providing some kind of evidence of the *generative* process or mechanism producing the observed association (see e.g. Lieberman 1985; Sørensen 1988; Goldthorpe 2001).

suited to predict outcomes of the dependent variable, given various combinations of observed values of the independent variables included in the regression model (Skog 2004:230-231).³⁹

When the dependent variable is continuous, Ordinary Least Squares (OLS) is considered to be the most reliable linear regression method. OLS estimates a regression line that predicts the best possible parameters in an arbitrary dataset by minimising errors (i.e. the vertical distance) between the actual data point of each observation and the predicted point in the linear approximation. The smaller the errors, the better the model fits the data. Technically, the method squares all errors and summarises them to yield the regression line with the *ordinary least squares* (Skog 2004:222-223).

OLS regressions are calculated by the following equation (Skog 2004:261):

$$Y = b_0 + b_1 * X_1 + b_2 * X_2 + \dots + b_k * X_k + \epsilon$$

The coefficient b_0 is the intercept that denotes the average Y-value among all the observations (individuals) in the sample with the value of zero on all independent variables ($X_1 = 0$, $X_2 = 0$, ..., and $X_k = 0$). The coefficient b_1 measures how much Y increases if variable X_1 increases by one unit, while keeping all the other independent variables constant. Similarly, coefficient b_2 measures how much Y increases if variable X_2 increases by one unit, while keeping all the other independent variables constant, and so forth (Skog 2004:261).⁴⁰

The error term ϵ denotes all unobserved variables associated with the dependent variable (Y). An objection against the validity of any regression model is the uncertainty as to whether unobserved variables ‘hiding’ in ϵ actually correlate with independent variables (X_1 , X_2 , ... and X_k) included in the model. If so, an important condition for regressions is violated. Introducing controls in the model remedy this problem to some extent, although it is inevitable to eliminate it. This objection is most relevant when a regression model is aimed at unmasking *causal inferences* between variables (Skog 2004:237). However, the regression models presented in this study are aimed at predicting *statistical associations* between specific characteristics of the sample individuals and the proportion of non-Westerners in their neighbourhoods.

³⁹ It is important to note that there is always some uncertainty related to predictions. Nevertheless, regressions consider prediction errors, expressed as standard deviation affiliated with the predicted parameters for each independent variable (Skog 2004:230-231).

⁴⁰ Skog denotes the intercept as the *constant* and coefficients as *parameters*.

5.10 The Locational Attainment Model

The Locational Attainment Model was constructed by Alba and Logan (Alba and Logan 1993; Logan and Alba 1993) to study the assumed relocation path of racial/ethnic (minority) groups in the United States from city ‘slums’ toward more favourable neighbourhood locations in the suburbs.⁴¹ The model is based on the OLS equation outlined above and estimates the (destination) neighbourhood characteristics of individuals (Y) as a function of human capital consisting of various socioeconomic (X_1) and cultural (X_2) resources.

Alba and Logan (Alba and Logan 1993; Logan and Alba 1993) estimate separate equations for the non-Hispanic White majority and various minority groups. By comparing equation outcomes, they examine whether members of minority groups adapt to the residential pattern of the majority in accordance with rising socioeconomic and cultural assets, as is assumed in the classic *spatial assimilation model*. This entails relocation to neighbourhoods with higher socioeconomic characteristics, which are also typically characterised by higher proportions of majority population. Conversely, minority groups that do not follow such a pattern despite having high levels of socioeconomic resources and cultural adaptation, are presumably impeded from gaining access to desirable neighbourhoods, as envisioned in the *place stratification model*. As a critical objection to their reasoning, the lack of spatial assimilation among ethnic minorities might also reflect neighbourhood preferences that deviate from the preferences of the majority population. This argument is in line with the *ethnic enclave model*.⁴²

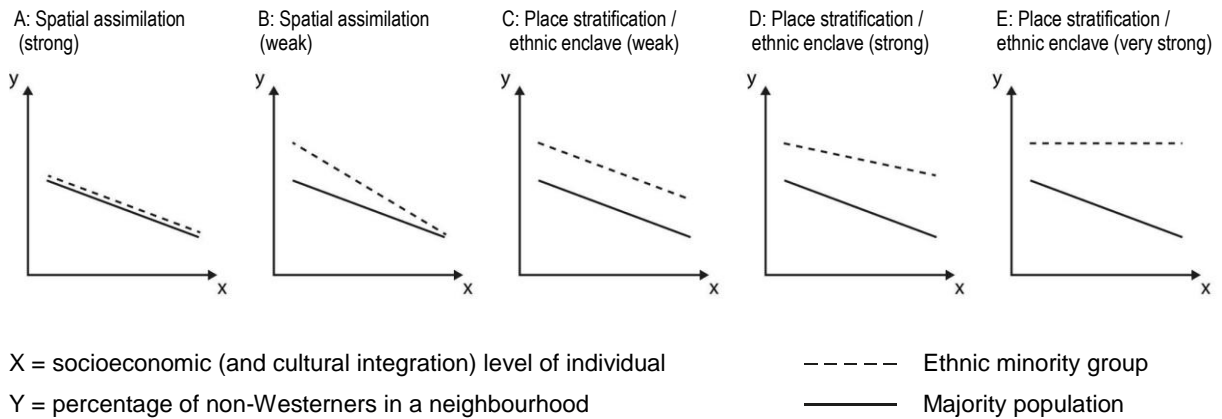
Figure 5.1 is adapted from Zuccotti’s (2016) modified presentation of Logan and Alba’s (1993) hypothesised outcomes of the Locational Attainment Model.⁴³ The y-axis refers to the non-Western proportion in the (destination) neighbourhoods, while the x-axis refers to the levels of

⁴¹ In the U.S. both *race* and *ethnicity* are official descriptive population census categories which are considered to be both social and self-identified definitions (U.S. Census Bureau 2013b, a). In Norway and other European countries both concepts are referred to as ethnicity primarily because race is a detested concept with references to phrenology, anti-Semitism and so forth (Rogstad and Midtbøen 2009).

⁴² As discussed in Chapter 2, the spatial assimilation model and its complementary place stratification model are both strongly influenced by the American ‘melting pot’ metaphor, which holds that all immigrants, sooner or later, will assimilate to mainstream culture. Although Alba and Logan (Logan and Alba 1993:246-247) briefly mention literature that accentuates preferences for enclaves among some ethnic groups, they actually do not implement the ethnic enclave model in their own research.

⁴³ Logan and Alba (1993) operate with a dependent variable that measures the median household income in suburbs, while Zuccotti (2016) operates with a dependent variable that measures the proportion of majority population in neighbourhoods.

FIGURE 5.1 A-E: Models of neighbourhood attainment



Source: Adapted from Zuccotti (2016)

socioeconomic (and cultural) resources of individuals. The figure depicts five sets of plotted regression lines that compare different outcomes for a minority group (dashed line) with the majority population (solid line). The first two outcomes are linked to different interpretations of the spatial assimilation model and the last three outcomes are linked to variations of the place stratification/ethnic enclave models.⁴⁴

Following the classical spatial assimilation model, it is assumed that higher values of socioeconomic (b_1) and cultural resources (b_2) are associated with lower values of Y, representing a neighbourhood with lower proportion of non-Westerners (which presumably also is a neighbourhood with higher socioeconomic characteristics).⁴⁵ In other words, socioeconomic and cultural advances are ‘converted’ into residential advances. Figure 5.1.B illustrates that minority group members with few resources are disadvantaged in terms of neighbourhood attainment, while the gap between the minority group and the majority population is gradually closing in accordance with the more resources the minority group members possess. Zuccotti (2016) describes this outcome as ‘weak’ spatial assimilation. By assuming separate equations for the majority population and the minority group the intercept (b_0), which refers to individuals

⁴⁴ Logan and Alba (1993:245) depict various hypothesised outcomes of the spatial assimilation and place stratification models together in a single figure with multiple graphs. Zuccotti (2016) has rearranged the outcomes in five figures and incorporated the ethnic enclave model.

⁴⁵ Socioeconomic and cultural resources may be measured by a number of different variables, such as income and educational level, class-affiliation, homeownership, majority language proficiency, length of residency and generation.

with fewer socioeconomic and cultural resources, will typically be higher in the minority equation while the values of b_1 and b_2 will be lower.

In a stricter interpretation of the spatial assimilation model which entails a principle of ‘equality of opportunities’, the intercept (b_0) and the coefficients b_1 and b_2 will be equal in the equations of the minority group and the majority population. Figure 5.1.A depicts two overlapping regression lines, which indicate that members of the minority group and the majority population have equal probabilities of residing in neighbourhoods with lower non-Western proportions, given equality of characteristics (*ceteris paribus*). This outcome is referred to as ‘strong’ spatial assimilation (Zuccotti 2016).

The place stratification and ethnic enclave models are also linked to variations in the intercept (b_0) and the coefficients b_1 and b_2 . Figure 5.1.C illustrates an outcome referred to as ‘weak’ place stratification/ethnic enclave.⁴⁶ The regression lines indicate that members of the minority group are always more likely than the majority population to reside in neighbourhoods with higher proportion non-Westerners, *ceteris paribus* (i.e. the intercept and the coefficients b_1 and b_2 are greater in the equation of the majority group). The majority/minority gap might be due to discrimination in the housing market, low acceptance of minorities in affluent neighbourhoods, own preferences of minorities to reside with co-ethnics, or combinations of these explanations (Zuccotti 2016).

Logan and Alba (1993) also refer to more extreme versions of the place stratification model. Members of highly stigmatised minority groups might have lower or no returns from socioeconomic and cultural gains in terms of neighbourhood attainment. Similar outcomes may also be due to strong ethnic bonds that either encourage minority group members to avoid neighbourhoods with low proportions of co-ethnics or prevent them from settling in such neighbourhoods. Figures 5.1.D and 5.1.E depict ‘strong’ and ‘very strong’ versions of the place stratification and ethnic enclave models (Zuccotti 2016).

Zuccotti (2016) argues that the weak version of spatial assimilation (Figure 5.1.B) contains elements of the place stratification and/or ethnic enclave models if spatial assimilation is strictly interpreted as equality of residential attainment given equality of conditions (Figure 5.1.A).

⁴⁶ The outcome of the weak version of the place stratification model follows Logan and Alba’s (1993) classical version of the place stratification model.

The extent to which spatial assimilation versus place stratification/ethnic enclave mechanisms occur, as depicted in Figures 5.1.A – 5.1.E, depend on two interrelated factors. First, it depends on whether minority groups differ from the majority population in terms of the types of neighbourhoods they prefer to live in and have the opportunity to access. Second, it depends on whether all groups (including the majority) have the same residential gains when they experience an increase in socioeconomic and cultural resources. These mechanisms may relate to external factors and constraints (addressed by the place stratification model) but equally well be related to cultural differences and group preferences (addressed by the ethnic enclave model) (Zuccotti 2016).

5.11 Regression Model of Analysis

This section present the regression equations employed in the OLS models presented in Chapter 8 and explain what they test in terms of theory. Instead of estimating separate equations for each minority group (measured as country-of-origin) and the majority population, all individuals are treated together in the same OLS models. Interaction terms are added to predict whether immigrant descendants in various country-of-origin groups have different locational attainment outcomes, in terms of settling in neighbourhoods with high non-Western proportions compared with majority peers on equality of characteristics. Separate OLS models are run for men and women to illuminate gender differences.⁴⁷

D is the dependent variable measuring the non-Western proportion in the destination neighbourhood. **O** refers to the non-Western proportion in the origin neighbourhood. **G** represents country-of-origin group affiliation, while **M₁**, **M₂** and **M₃**, refer to three mediating variables: education (**M₁**), income (**M₂**) and partner status (**M₃**). **R** is a special control variable for the individuals' sub-region of origin in the Oslo region. **C₁** controls for birth cohort affiliation and finally, **S₁** and **S₂** control for social background measured as parents' level of education and total net income during adolescence.

Equation I – Baseline

$$D = b_0 + b_1*O + b_2*C + b_4*S_1 + b_5*S_2 + e$$

⁴⁷ The equations and the theoretical rationale behind them are adapted from Zuccotti's (2016) reworking of Alba and Logan's (1993) original Locational Attainment Model.

Equation 1 serves as a point of reference by establishing the association between the non-Western proportions in the origin (O) and destination neighbourhoods (D), regardless of group affiliation. The equation controls for birth cohort (C) and social background (S₁ and S₂).

Equation II – Main associations with group affiliation

$$\text{Equation I} + b_6 * G + b_7 * R + e$$

Equation II introduces the group variable (G) to establish the main association between group affiliation and the non-Western proportions in the destination neighbourhoods. The equation introduces the special control for sub-region of origin (R), to take into account that Oslo generally has a higher proportion of non-Westerners compared with Drammen and the seventeen municipalities referred to as ‘Suburbia’.

Equation III – Main association with key mediating variables

$$\text{Equation II} + b_8 * M_1 + b_9 * M_2 + b_{10} * M_3 + e$$

Equation III introduces the three key mediating variables M₁, M₂ and M₃ (education, income and partner’s country-of-origin). Mechanisms of place stratification/ethnic enclave are assumed to be present if the G coefficients (b₄) are positive. In other words, being affiliated with a minority group (vs. being a majority individual) is associated with higher non-Western proportions in the destination neighbourhoods, even after controlling for education, income and partner status. Conversely, mechanisms of strong spatial assimilation are assumed to be present if the G coefficient (b₄) is zero. In other words, individuals affiliated with the respective country-of-origin group are predicted to settle in neighbourhoods with similar non-Western proportions, compared with majority peers on equality of characteristics.

Equation IV – Interactions with key mediating variables

$$\begin{aligned} \text{Equation III} + b_{11} * G * M_1 + e & \text{ or} \\ + b_{12} * G * M_2 + e & \text{ or} \\ + b_{13} * G * M_3 + e & \end{aligned}$$

Equation IV refers to three interaction terms between country-of-origin group (G) and, respectively, education (M₁), income (M₂) and partner status (M₃), run in separate OLS models.

Strong or very strong mechanisms of place stratification and/or ethnic enclave mechanisms are assumed to be present if the interaction coefficients (b_{11} , b_{12} and b_{13}) are positive. In other words, immigrant descendants (in the respective country-of-origin groups) with higher education, higher income and/or who are cohabitating with majority partners are predicted to settle in neighbourhoods with higher non-Western proportions, compared with majority peers on equality of characteristics. Conversely, mechanisms of weak spatial assimilation assumed to be present if interaction coefficients (b_{11} , b_{12} and b_{13}) are negative. In other words, immigrant descendants with higher education, higher incomes and/or who are cohabitating with a majority partner are predicted to settle in neighbourhoods with equal non-Western proportions, compared with majority peers on equality of characteristics.

Equation V – Interactions with origin neighbourhood

$$\text{Equation III} + b_{14} * G * O + e$$

Equation V serves to test the ethnic enclave model by employing an interaction term between the country-of-origin-groups (G) and non-Western proportions in the origin neighbourhoods (O). Ethnic enclave mechanisms are assumed to be delineated from place stratification mechanisms if the interaction coefficients (b_{14}) are positive. The gap between non-Western proportions in the destination neighbourhoods of immigrant descendants and majority peers with equal characteristics is greater among individuals who were raised in neighbourhoods with high non-Western proportions. In other words, immigrant descendants have strong preferences for settling in multi-ethnic neighbourhoods, potentially with high proportions of co-ethnics, when socialised in such milieus. Conversely, place stratification mechanisms are assumed to be present if the interaction coefficients (b_{14}) are zero. Immigrant descendants affiliated with the country-of-origin group settle in neighbourhoods with higher non-Western proportions, compared with majority peers on equality of characteristics, regardless of non-Western proportions in the origin neighbourhoods. In other word, ‘all’ descendants in a country-of-origin group experience some kind of structural hindrances from accessing neighbourhoods with lower non-Western proportions.

This chapter has provided explanation of the methods used in this study and specific descriptions of the data and variables utilised in the analyses. The next chapter offers a discussion ethnic residential segregation in the Oslo region.

6 Ethnic Segregation in the Oslo Region

This chapter presents the neighbourhood contexts from which the immigrant descendants and majority individuals in this study originate (age 16), and where many of them have subsequently settled as adults (age 30). This chapter begins with a description of the developments in the geographic distribution of non-Westerners in Oslo. Next, in Section 6.2, data regarding the changing segregation levels in Oslo and the Oslo region, among both the immigrant population at large and the non-Western country-of-origin groups with which the immigrant descendants are affiliated. Finally, the chapter concludes with a discussion of whether ethnic enclave tendencies seem to be prevalent in the origin and destination neighbourhoods among the immigrant descendants in the non-Western groups.

6.1 Distribution of Non-Westerners in Oslo's Neighbourhoods: 1990 vs. 2010

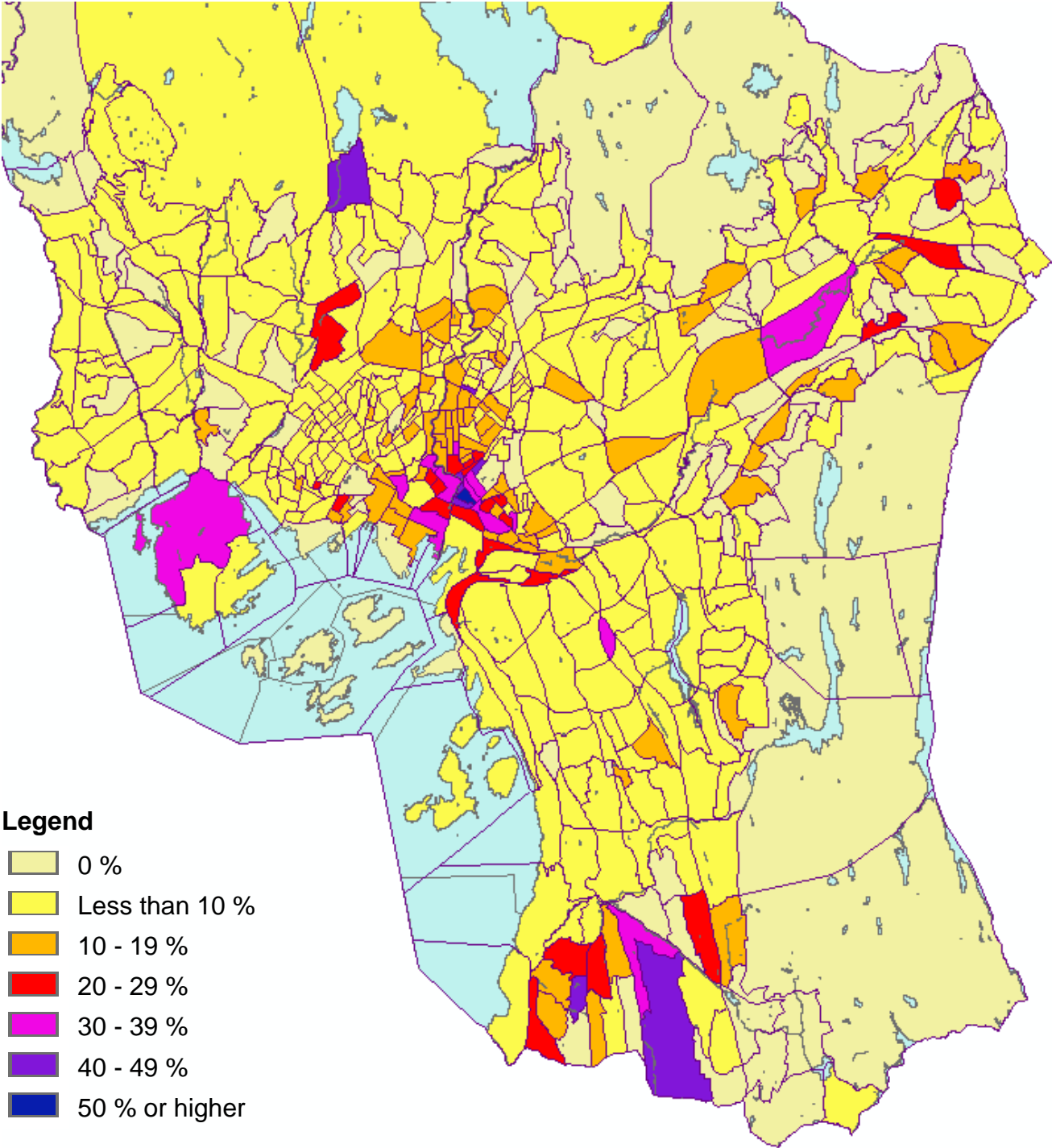
Figures 6.1 and 6.2 depict the geographical distribution of non-Westerners in the neighbourhoods of Oslo, in 1990 and 2010, respectively.^{48, 49} Figure 6.1 shows the Oslo neighbourhood contexts of the individuals in the oldest birth cohort (1974) at age 16. Figure 6.2 illustrates the growth in the non-Western population during the preceding twenty years, as well as changes in their distribution. It shows the neighbourhood contexts in which many of the individuals in the youngest birth cohort (1980) resided in at age 30.⁵⁰

⁴⁸ The maps in Tables 6.1 and 6.2 were produced in the geographic information system (GIS) software package ArcGIS, by plotting the non-Western population shares of each basic spatial unit (*grunnkrets*) in Oslo in 1990 and 2010 respectively. The majority population is probably slightly underestimated, due to fact that the dataset lacks observations on individuals born in 1955, unless they are registered as (family) relatives of individuals born after 1954 (cf. footnote in chapter section 5.3). Nonetheless, the relative distribution of the majority population is presumably rather unaffected.

⁴⁹ Ideally, this study should also present similar maps with distributions of the non-Western population in Drammen and the other seventeen sample municipalities in 1990 and 2010. Unfortunately, the author has not been able to obtain access to GIS files with the coordinates of the basic spatial units (*grunnkretser*) in these municipalities. Maps created by Statistics Norway with population data from the end of 2014 indicate that the non-Western populations in Drammen, Asker, Bærum, Lørenskog and Skedsmo were unevenly distributed across these five municipalities (Høydahl 2014). Nevertheless, Figure 6.2 accurately represents the geographical landscape to which a great proportion of the individuals originating in the other municipalities relocated.

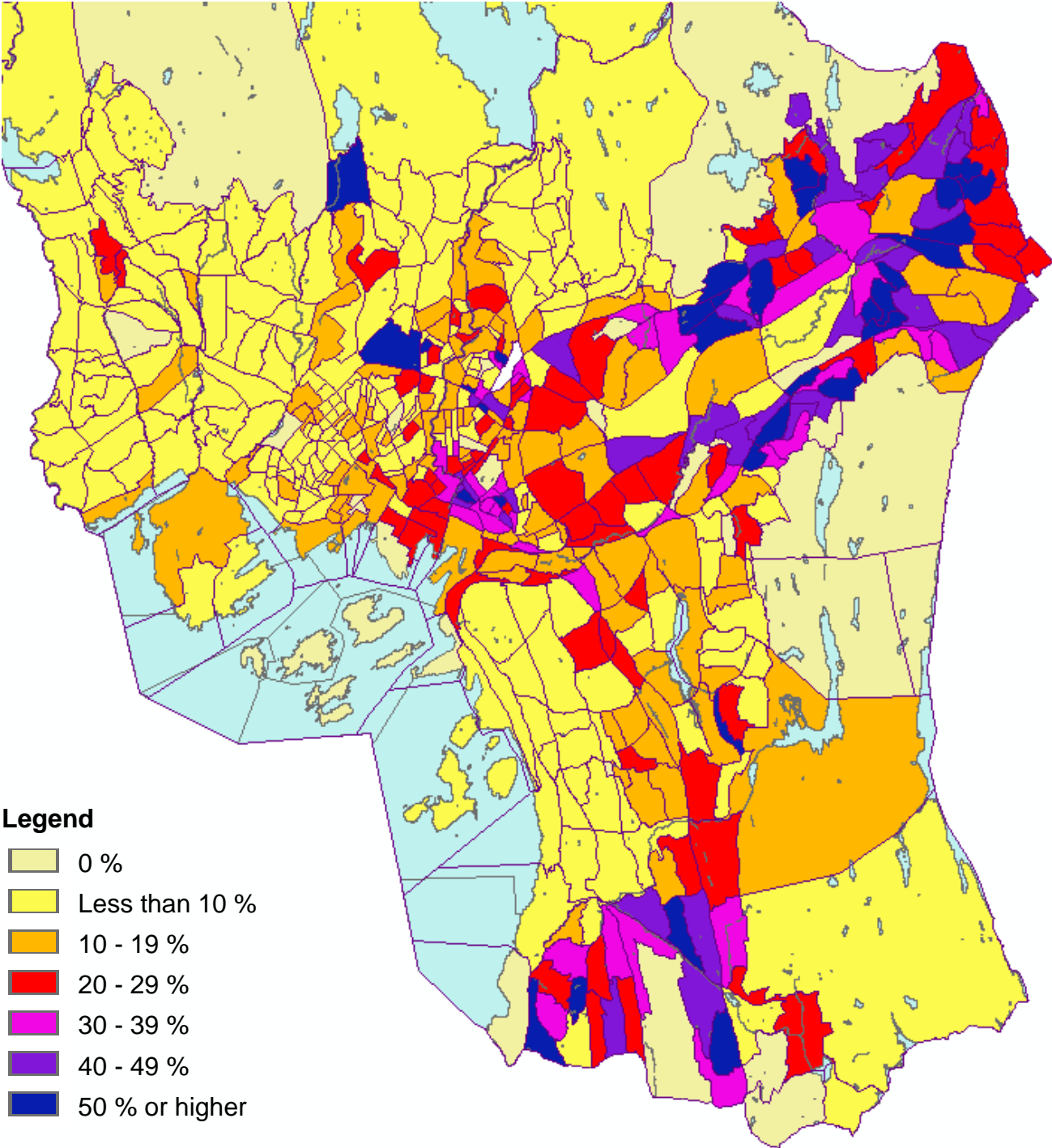
⁵⁰ Although Figure 6.1 in a strict sense only applies to the birth cohort of 1974, just as Figure 6.2 only applies to the birth cohort of 1980, changes in the non-Western demography between 1990 and 2010 nonetheless apply to all birth cohorts in this study (1974-1980).

FIGURE 6.1 Distribution of non-Westerners in the neighbourhoods of Oslo in 1990 (source: author's research)



Note: Many neighbourhoods (basic spatial units) with zero representation of non-Westerners consist of farmland, woodland, industrial zones, parks or recreational areas, and are thus uninhabited or sparsely inhabited

FIGURE 6.2 Distribution of non-Westerners in the neighbourhoods of Oslo in 2010 (source: author's research)



Note: Many neighbourhoods (basic spatial units) with zero representation of non-Westerners consist of farmland, woodland, industrial zones, parks or recreational areas, and are thus uninhabited or sparsely inhabited.⁵¹

⁵¹ The only white coloured neighbourhood in the inner northern east contains zero non-Western proportions. It was supposed to be in beige colour.

Figure 6.1 shows that, in 1990, neighbourhoods with 10 percent or higher non-Western proportions were primarily located in the inner eastern, southeastern and northeastern areas of Oslo. Just one neighbourhood in the entire municipality exceeded 50 percent non-Westerners (represented in blue in Figure 6.1).⁵² This particular neighbourhood is located in Grønland, which is the heart of the immigrant ‘core area’ that began to develop through the settlement of foreign ‘guest workers’ in the 1970s (Bø 1980). Figure 6.1 also shows relatively high concentrations of non-Westerners (<20 - ≥50 %) in adjacent neighbourhoods. A cluster of neighbourhoods in the southeastern district of Søndre Nordstrand was also characterised by high non-Western proportions. Additionally, a few neighbourhoods with relatively high non-Western proportions were scattered across the east/west axis.⁵³

Figure 6.2 indicates a formidable expansion of Oslo’s non-Western population in the twenty-year period between 1990 and 2010, mainly in the eastern and southeastern districts.⁵⁴ Whereas only one neighbourhood had a non-Western proportion exceeding 50 percent in 1990, the same applied to thirty-three neighbourhoods in 2010.⁵⁵ The inner eastern ‘core area’ of immigrants has expanded somewhat and the proportion of non-Westerners has increased in some of its neighbourhoods. The same trend applies to neighbourhoods in the district of Søndre Nordstrand, which is currently one of three districts in Oslo where the proportion of the immigrant population (Westerners and non-Westerners combined) exceeds 50 percent (Høydahl 2015). Yet, the increase in non-Western proportions has undoubtedly been greatest in the northeastern neighbourhoods of Oslo, located in the Grorud valley. At the end of 2013 two of Grorud valley’s four city districts (Stovner and Alna) that occupy the valley’s total area also had immigrant population proportions exceeding 50 percent (Høydahl 2015). Descendants

⁵² The exact proportion of the non-Western population in the neighbourhood in Grønland was 52 percent.

⁵³ The neighbourhoods in the northeast with higher non-Western proportions (light purple and red colours) are located in the Grorud valley and marks the dawning density of non-Westerner population that characterises this valley today (Wiggen *et al.* 2015a). The northwestern neighbourhood with a non-Western population that exceeded 40 percent (dark purple colour) is home to the student housing area of Kringsjø, where many international students enrolled at the University of Oslo live (Lie 2003; Nordre Aker Budstikke 2007). The 37 percent non-Western proportion in the western neighbourhood on the peninsula of Bygdøy (light purple colour) is harder to explain. It is a relatively sparsely populated area (N=208) and is mainly occupied by the royal estate Kongsgården.

⁵⁴ The accumulated ‘belt’ of neighbourhoods with less than 10 percent non-Westerners along the Oslo Fjord to the south of the city centre is located in the district of Nordstrand, which has the lowest proportion of the immigrant population among all fifteen districts in Oslo (Høydahl 2015). The socioeconomic profile of Nordstrand is high compared with the other districts in the east/southeast, and it is therefore often considered a part of the affluent West End (Turner and Wessel 2013).

⁵⁵ The non-Western proportions in these thirty-three neighbourhoods range from 50 to 78 percent.

of immigrants constitute a substantial proportion of the immigrant population in these districts (Wiggen *et al.* 2015a).

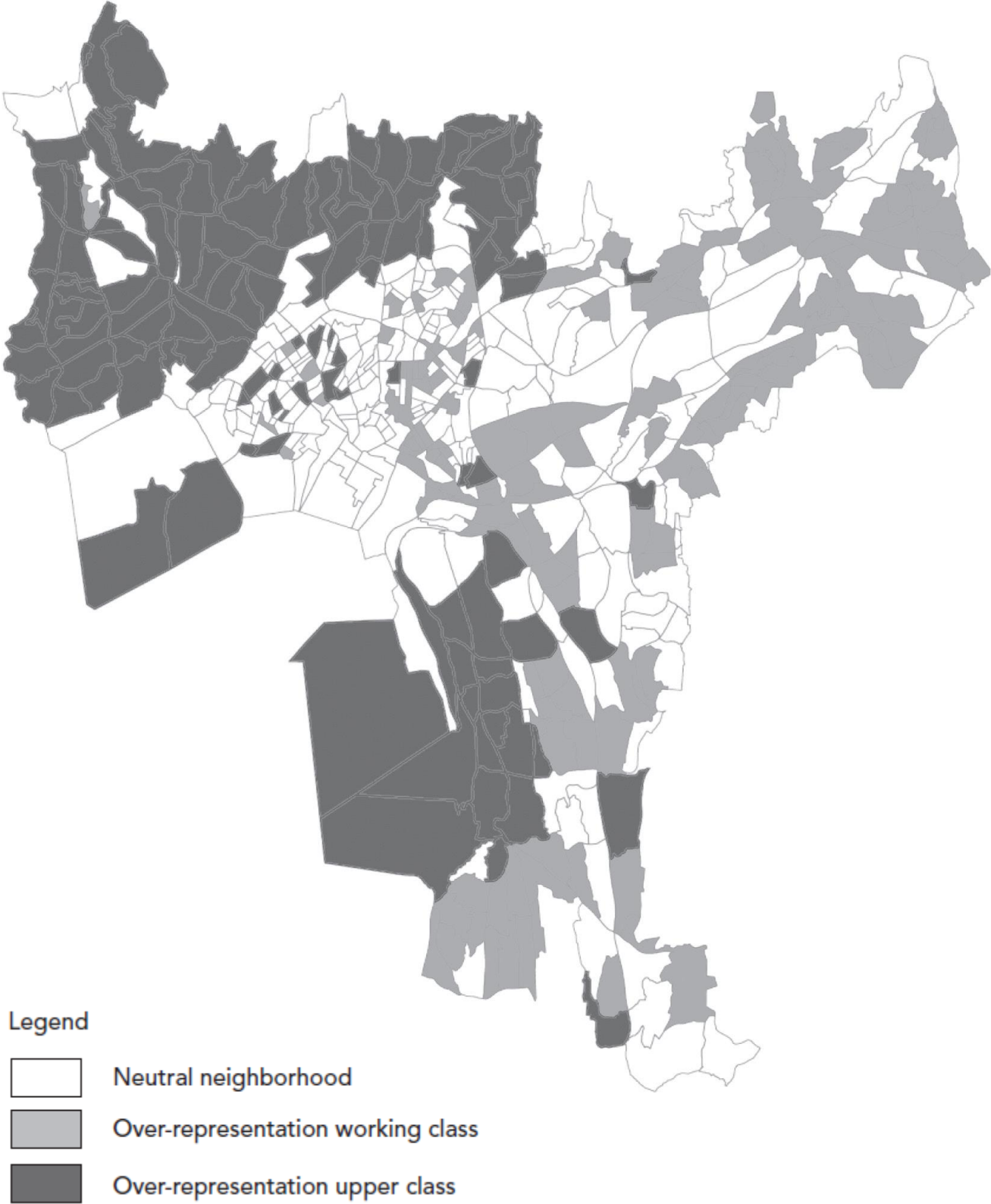
Although the immigrant population in the eastern districts of Oslo (excluding Nordstrand) predominantly have origins in Asian and African countries. As many as 150-160 countries and self-governing territories, both Western and non-Western, are represented. In other words, these districts are characterised by a multicultural blend, rather than ‘ghetto conditions’ in the sense that one single country-of-origin group fully dominates. However, individuals from Pakistan make up the country-of-origin group with the highest proportion in the eastern districts of Oslo. Individuals affiliated with the Pakistani group, as well as other country-origin groups, have relatively high concentrations in certain sub-districts (Wiggen *et al.* 2015a).⁵⁶

It is important to emphasise that the distribution of non-Westerners, as illustrated in Figure 6.2, largely follows the traditional east/west socioeconomic division of Oslo (Kjeldstadli and Myhre 1995). Figure 6.3 is lent from a socioeconomic segregation study of Oslo conducted by Ljunggren and Andersen (2015:315). It depicts the distribution of neighbourhoods in Oslo with an over-representation of the working class or the upper class in 2003. The neighbourhoods in western/northwestern districts, as well as in Nordstrand to the south of the city centre, showing an over-representation of the upper class (dark grey colour) largely coincide with the low-proportion non-Western neighbourhoods (yellow and orange colours) in Figure 6.2. Conversely, many neighbourhoods with an over-representation of the working class (light grey colour) overlap with high-proportion non-Western neighbourhoods (light/dark purple and blue colours) in Figure 6.2. This dual socioeconomic and ‘ethnic’ division of Oslo is shaped as the letter ‘S’. The upper curve of the ‘S’ encircles the inner east, while the lower curve separates most of Nordstrand from the other eastern districts.

Socioeconomic factors have undoubtedly been important in shaping the ethnic division of Oslo. Housing prices have traditionally been, and still are, lower in the eastern districts (excluding Nordstrand) (Blom 2006b; Nordstrøm 2015) and it is a well-known fact that non-Westerners generally have lower socioeconomic status than members of the ethnic Norwegian majority

⁵⁶ At the end of 2013, 15 percent of Norway’s immigrant population of Pakistani origin were living in the district of Søndre Nordstrand alone (Høydahl 2014:748) and constitute 27 percent of the immigrant population in the district. Corresponding figures for Stovner and Alna were 25 and 21 percent respectively. Individuals of Turkish, Moroccan, Indian and Vietnamese descent also make up substantial proportions of the immigrant population in the eastern districts of Oslo (Wiggen *et al.* 2015a).

FIGURE 6.3 Over-representation of working class and upper class in the neighbourhoods of Oslo: men 33-48 years in 2003 (source: Ljunggren and Andersen 2015:315)



population. The average unemployment rate is higher and the average income is lower (Omholt and Strøm 2014b; Thorsen 2014; Omholt 2016). Moreover, poverty is more wide-spread among non-Western households (Bhuller and Brandsås 2013). Yet large socioeconomic differences among non-Westerner households affect the settlement patterns. More successful immigrant households have been able to improve their housing by selling off small and weary dwellings in the inner east and purchasing spacious and more modern dwellings in the ‘satellite towns’ east of the city centre or in suburbs outside the city limits (Blom 2006b; Stambøl 2013).⁵⁷

6.2 Ethnic Neighbourhood Segregation in the Oslo Region: 1990-1996 vs. 2004-2010

Tables 6.1 and 6.2 present segregation levels among the entire immigrant population, the Western and non-Western immigrant populations separately, as well as the segregation levels for the five non-Western country-of-origin groups with which the immigrant descendants in this study are affiliated.⁵⁸ The segregation levels are calculated by the index of dissimilarity (D-index), for the larger Oslo region and the municipality of Oslo, respectively. When multiplied by 100, the D-index values (D-values) indicate the percentage of members in the immigrant groups that would have to relocate to another neighbourhoods, to distribute all members of the groups evenly with the majority population throughout the region/municipality.⁵⁹ D-values are calculated for the years in which the birth cohorts (1974-1980) in this study turned 16 and 30 years old (periods 1974-1980 and 2004-2010, respectively). The D-value difference between corresponding years (e.g. 1974 vs. 2004) for each cohort is also indicated.

D-values are greater in Table 6.1 than in Table 6.2 for all groups and indicate that their members are more segregated in the larger region than in the municipality of Oslo alone. An important reason for this is that all groups, some more than others, have higher representation within Oslo. The smallest differences between the tables concern the Western immigrant population. The D-values have been fluctuating about 0.200 during both periods and signalise a low segregation

⁵⁷ Housing prices in many neighbourhoods in the inner east have increased due to gentrification. For first-time buyers in the housing market it is cheaper to start out directly in the outer northeast/southeast. Yet, many marginalised immigrant households, among both established and newly arrived non-Western immigrants, are still located in municipal social housing in the inner east (Søholt and Astrup 2009b).

⁵⁸ ‘Immigrant population’ refers to the combination of immigrants and Norwegian-born to immigrant parents. ‘Western’ and ‘non-Western’ countries are divided by the country dichotomy of Statistics Norway (cf. Section 5.4).

⁵⁹ The rationale of the D-index is thoroughly explained in Section 5.8.

TABLE 6.1 D-index calculations of immigrant population groups in the Oslo region. Years 1990-1996 compared with 2004-2010, respectively.

Immigrant group	Entire immigrant population	Western countries	Non-Western countries	Turkey	Morocco	India	Pakistan	Vietnam
Year								
1990	0.317	0.219	0.494	0.690	0.696	0.628	0.636	0.766
2004	0.367	0.204	0.485	0.658	0.687	0.609	0.633	0.621
<i>Diff.</i>	<i>+0.050</i>	<i>-0.015</i>	<i>-0.009</i>	<i>-0.032</i>	<i>-0.009</i>	<i>-0.019</i>	<i>-0.003</i>	<i>-0.145</i>
1991	0.329	0.216	0.498	0.679	0.696	0.633	0.640	0.749
2005	0.368	0.202	0.481	0.657	0.683	0.608	0.636	0.613
<i>Diff.</i>	<i>+0.039</i>	<i>-0.014</i>	<i>-0.017</i>	<i>-0.022</i>	<i>-0.013</i>	<i>-0.025</i>	<i>-0.004</i>	<i>-0.136</i>
1992	0.338	0.215	0.504	0.680	0.688	0.633	0.645	0.729
2006	0.366	0.201	0.476	0.650	0.678	0.597	0.636	0.602
<i>Diff.</i>	<i>+0.028</i>	<i>-0.014</i>	<i>-0.028</i>	<i>-0.030</i>	<i>-0.010</i>	<i>-0.036</i>	<i>-0.009</i>	<i>-0.127</i>
1993	0.346	0.217	0.511	0.690	0.688	0.634	0.647	0.713
2007	0.363	0.203	0.473	0.652	0.681	0.587	0.638	0.604
<i>Diff.</i>	<i>+0.017</i>	<i>-0.014</i>	<i>-0.038</i>	<i>-0.038</i>	<i>-0.009</i>	<i>-0.047</i>	<i>-0.009</i>	<i>-0.109</i>
1994	0.356	0.210	0.520	0.692	0.696	0.642	0.656	0.707
2008	0.355	0.208	0.468	0.650	0.684	0.578	0.636	0.593
<i>Diff.</i>	<i>-0.001</i>	<i>-0.002</i>	<i>-0.052</i>	<i>-0.042</i>	<i>-0.012</i>	<i>-0.064</i>	<i>-0.020</i>	<i>-0.114</i>
1995	0.359	0.211	0.519	0.699	0.708	0.638	0.664	0.700
2009	0.350	0.216	0.463	0.644	0.684	0.566	0.630	0.584
<i>Diff.</i>	<i>-0.009</i>	<i>+0.005</i>	<i>-0.056</i>	<i>-0.055</i>	<i>-0.024</i>	<i>-0.072</i>	<i>-0.034</i>	<i>-0.116</i>
1996	0.365	0.211	0.520	0.690	0.711	0.639	0.673	0.700
2010	0.349	0.218	0.459	0.641	0.686	0.562	0.633	0.579
<i>Diff.</i>	<i>-0.016</i>	<i>+0.007</i>	<i>-0.061</i>	<i>-0.049</i>	<i>-0.025</i>	<i>-0.077</i>	<i>-0.040</i>	<i>-0.121</i>

level among the Western immigrant population. Only 20 percent of its members would have to relocate to another neighbourhoods in order to be fully spatially integrated with the majority population. The D-values of non-Westerners are considerably higher, and slightly more so in the Oslo region as a whole than in the municipality Oslo. Still, the segregation level in the larger region has declined somewhat during the second period (2004-2010) and the D-values have declined such that they are nearly on par with the D-values in Oslo by 2010. However, this is also due to increasing D-values in Oslo during both periods (1990-1996 and 2004-2010). About 45 percent of non-Westerners would have had to relocate to other neighbourhoods to be evenly

TABLE 6.2 D-index calculations of immigrant population groups in the municipality of Oslo. Years 1990-1996 compared with 2004-2010, respectively.

Immigrant group	Entire immigrant population	Western countries	Non-Western countries	Turkey	Morocco	India	Pakistan	Vietnam
Year								
1990	0.270	0.203	0.412	0.551	0.540	0.512	0.509	0.704
2004	0.349	0.188	0.447	0.571	0.547	0.535	0.564	0.572
<i>Diff.</i>	+0.079	-0.015	+0.035	+0.020	+0.007	+0.023	+0.055	-0.132
1991	0.280	0.203	0.415	0.543	0.542	0.523	0.513	0.677
2005	0.352	0.184	0.447	0.578	0.543	0.538	0.571	0.562
<i>Diff.</i>	+0.072	-0.019	+0.032	+0.035	+0.001	+0.015	+0.058	-0.115
1992	0.288	0.199	0.421	0.546	0.535	0.530	0.515	0.659
2006	0.354	0.181	0.449	0.577	0.535	0.528	0.580	0.554
<i>Diff.</i>	+0.066	-0.018	+0.028	+0.031	0.000	-0.002	+0.065	-0.105
1993	0.297	0.200	0.428	0.558	0.528	0.522	0.516	0.647
2007	0.355	0.186	0.453	0.584	0.542	0.521	0.587	0.557
<i>Diff.</i>	+0.058	-0.014	+0.025	+0.026	+0.014	-0.001	+0.071	-0.090
1994	0.316	0.195	0.438	0.567	0.536	0.538	0.524	0.631
2008	0.349	0.193	0.450	0.588	0.551	0.512	0.592	0.548
<i>Diff.</i>	+0.033	-0.002	+0.012	+0.021	+0.015	-0.026	+0.068	-0.083
1995	0.320	0.194	0.439	0.580	0.552	0.531	0.530	0.629
2009	0.342	0.199	0.446	0.587	0.550	0.507	0.597	0.540
<i>Diff.</i>	+0.022	+0.005	+0.007	+0.007	-0.002	-0.024	+0.067	-0.089
1996	0.323	0.194	0.445	0.579	0.555	0.541	0.542	0.629
2010	0.343	0.203	0.444	0.592	0.558	0.502	0.604	0.534
<i>Diff.</i>	+0.020	+0.009	-0.001	+0.013	+0.003	-0.039	+0.062	-0.095

distributed with the majority population in 2010, which is nonetheless considered to be a moderate level of segregation. Considering segregation among Westerners and non-Westerners together (the entire immigrant population), D-values in the Oslo region and municipality of Oslo have almost converged between 1990 and 2010 as well, ending at a D-value of roughly 0.350. In 1990 the segregation level was higher in the larger region and it increased slightly during the first period, before declined during the second period. The segregation level in Oslo has gradually increased during both periods. This reflects the high influx of immigrants from non-Western countries, many of which have settled in Oslo. Yet, the

trend seems to be that non-Westerners have become more widely distributed throughout the larger region, as demonstrated by the D-values of non-Westerners alone, due to both domestic migration and the fact that non-Westerners increasingly settle at the outset in the larger region outside of Oslo (Stambøl 2013).

Taking a closer look at the five non-Western country-of-origin groups, the tables reveal that each group had higher segregation levels than the non-Western immigrant population as a whole during both periods. Yet, the groups are characterised by different trends. The Vietnamese group had the highest segregation level among all five groups in 1990, in both Oslo and the larger region. By 2010 this group had become the second least segregated, after individuals of Indian origin. Moreover, the Vietnamese group became more evenly distributed in the larger region by 2010, as indicated by a D-level which is only slightly higher than the D-level in Oslo (0.579 vs. 0.534). Conversely, the Pakistani group had the lowest segregation level in Oslo among all five groups in 1990, but became the most segregated by 2010 (0.604). The D-values of the Pakistani group have been rather high in the larger region during both periods. Nearly 70 percent of the Pakistani group members would have to relocate in order to end segregation.

The Indian population has been the least segregated among the five groups in the larger region during both periods. Yet, their D-value was rather high in 1990 (0.628). The D-values have declined during both periods and become more similar to the D-values in Oslo by 2010 (0.562 vs. 0.502). This means that the Indian population has become more widely dispersed in the larger region between 1990 and 2010. In 1990 this was the second least segregated group in Oslo, and became the least segregated by 2010.

The segregation level amongst the Turkish population is quite high. Nevertheless, they became slightly more spread between neighbourhoods in the larger region between 1990 and 2010 (0.690 vs. 0.641), despite the fact that the Turkish population in Oslo became more segregated in the same period (0.551 vs. 0.592). The Moroccan population have had a high segregation level in the larger region during both periods. They were the most segregated among all five groups in 2010, with a D-value of 0.686. The segregation level among Moroccans in Oslo is more moderate and has been fairly stable during both periods. Their D-value in 2010 was 0.558.

6.3 Co-Ethnic Neighbourhoods among Non-Western Descendants

Table 6.3 displays the mean proportions of co-ethnics for Turkish, Moroccan, Indian, Pakistani and Vietnamese descendants, in origin and destination neighbourhoods that with 30 percent of higher non-Western proportions.⁶⁰ It is reasonable to assume that ethnic enclave preferences are prevalent among the immigrant parents, if descendants were raised in neighbourhoods with high co-ethnic proportions. Likewise, such preferences are probably also prevailing among the descendants themselves if they tend to settle in neighbourhoods with high co-ethnic proportions as well.

Mean co-ethnic proportions are highest in the origin neighbourhoods of Turkish and Pakistani descendants. These proportions are 17 and 16 percent, respectively. The standard deviation indicates that some origin neighbourhoods had considerably higher proportions, especially among Turkish descendants. About one-third of the Turkish descendants originate in such neighbourhoods, and the same applies to more than 20 percent of the Pakistani descendants. This might be interpreted as moderate ethnic enclave tendencies among the Turkish and Pakistani descendants' parental households. The rather high segregation levels in 1990-1996 among Turkish and Pakistani immigrant populations support this assumption (cf. Tables 6.1 and 6.2).

The mean co-ethnic proportions in the destination neighbourhoods are also highest among Turkish and Pakistani descendants, compared with descendants in the other three groups. The average of 14 percent co-ethnic among the Pakistani descendants is almost as high as in their origin neighbourhoods. A standard deviation of 7 percentage points indicates that the percentage age of co-ethnics is higher in some neighbourhoods. The mean co-ethnic proportion among Turkish descendants is 12 percent and the standard deviation is quite high at 11 percentage points. More than half the descendants in both groups have settled in neighbourhoods with high percentages of both co-ethnics and non-Westerners, which are considerably higher than the proportion of Turkish and Pakistani descendants who originate in such neighbourhoods. Although the non-Western proportion, including individuals of Turkish and

⁶⁰ Similar calculations have been done for immigrant descendants whose origin and destination neighbourhoods have non-Western proportions of a) less than 10 percent, b) 10-19 percent, and c) 20-29 percent. The mean co-ethnic proportions in such neighbourhoods are generally lower, with the exception of slightly higher co-ethnic proportions among Vietnamese descendants who originate and/or settle in neighbourhoods with 20-29 percent non-Western proportions.

TABLE 6.3 Co-ethnic proportions in origin and destination neighbourhoods with 30 percent or higher non-Western proportions, for descendants of Turkish, Moroccan, Indian, Pakistani and Vietnamese immigrants, by country-of-origin group and gender

Country-of-origin	Men				
	Turkey	Morocco	India	Pakistan	Vietnam
Origin neighbourhood					
<i>Mean percentage of 'co-ethnics'</i>	16.9	4.8	2.5	15.8	7.8
<i>Variation (Std. Dev.)</i>	10.1	3.6	1.2	7.1	6.2
<i>Share of group N (men)</i>	36.3	21.3	11.4	23.4	13.0
Destination neighbourhood					
<i>Mean percentage of 'co-ethnics'</i>	12.2	3.3	2.6	13.6	3.0
<i>Variation (Std. Dev.)</i>	10.7	1.4	1.7	6.4	2.4
<i>Share of group N (men)</i>	47.0	40.5	33.4	50.0	28.5
Country-of-origin	Women				
	Turkey	Morocco	India	Pakistan	Vietnam
Origin neighbourhood					
<i>Mean percentage of 'co-ethnics'</i>	16.5	4.1	4.5	16.3	6.6
<i>Variation (Std. Dev.)</i>	11.3	3.5	3.2	6.7	3.2
<i>Share of group N (women)</i>	32.9	19.4	6.4	20.4	16.4
Destination neighbourhood					
<i>Mean percentage of 'co-ethnics'</i>	11.5	3.1	1.9	14.0	3.2
<i>Variation (Std. Dev.)</i>	10.7	1.2	1.5	6.7	1.7
<i>Share of group N (women)</i>	46.2	56.5	29.1	55.4	21.9

Note: The share of group N (by gender) indicate the share of immigrant descendants residing in origin and destination neighbourhoods with non-Western populations exceeding 30 percent

Pakistani origin, has generally increased in many neighbourhoods, it is reasonable to suspect that ethnic enclave preferences are present among the second generation as well. In comparison, immigrant descendants in the other three groups tend to settle in neighbourhoods with lower co-ethnic proportions. Persistent high segregation levels among the Turkish and Pakistani immigrant populations in the larger Oslo region during 2004-2010, as well as increasing segregating levels within the municipality of Oslo support this interpretation (cf. Tables 6.1 and 6.2).

The mean co-ethnic proportions in the origin and destination neighbourhoods of Moroccan, Indian and Vietnamese descendants are no more than 2-5 percent, with the exception of the origin neighbourhoods of Vietnamese descendants, which are slightly higher at 7-8 percent. Interestingly, the proportion of individuals who have settled in neighbourhoods in which the non-Western proportion is 30 percent or higher is quite high, regardless of the co-ethnic proportion. This might imply that many prefer multicultural neighbourhoods, or it may simply coincide with socioeconomic factors.

6.4 Chapter Summary

This chapter has demonstrated that the growth in the non-Western immigrant population in Oslo has been formidable during the twenty-year period between 1990 and 2010. In 1990, the small number of neighbourhoods with higher non-Western concentrations were mainly located in the eastern inner city and in the southeast district of Søndre Nordstrand. By 2010, higher proportions of non-Westerners had spread to many neighbourhoods throughout the eastern districts of Oslo (with the exception of Nordstrand), particularly in the Grorud valley. The ethnic division of Oslo coincides with the traditional socioeconomic east/west division, whereby many neighbourhoods with higher non-Western proportions overlap with working class neighbourhoods.

Furthermore, this chapter has revealed that the non-Westerners became slightly more dispersed in neighbourhoods in the larger Oslo region during both the periods examined in this study. In 2010, about 45 percent all non-Westerners would have had to relocate to other neighbourhoods in order to become completely spatially integrated with the majority population. In comparison, segregation levels among the Westerners been very low during both periods.

Segregation levels among the five specific non-Western country-of-origin groups are generally higher, compared with the non-Western immigrant population as a whole. However, segregation levels vary between groups. The Vietnamese group started out as the most segregated group in 1990, and became the second least segregated both in Oslo and the larger region by 2010. The Indian group experienced more moderate segregation levels all along and was the least segregated in 2010. In contrast to the Vietnamese, Pakistanis started out as the least segregated group within Oslo, but became the most segregated by 2010. In the larger region Pakistanis are less dispersed than the Indians and Vietnamese. Yet, the Turkish and

Moroccan populations are the most segregated in the larger region. In 2010, 64 and 68 percent of the groups' members, respectively, would have had to relocate in order to become fully spatially integrated with the majority population. In 2010 the Moroccans had the highest segregation level among all five groups in the larger region.

Finally, the data presented in Section 6.3 indicate moderate ethnic enclave tendencies among Turkish and Pakistani descendants. Higher non-Western proportions in the origin and destination neighbourhoods are associated with considerably higher co-ethnic proportions among Turkish and Pakistani descendants, compared with Moroccan, Indian and Vietnamese descendants. Nevertheless, many of the Moroccan, Indian and Vietnamese descendants have settled in neighbourhoods with high non-Western proportions which may indicate preferences for multi-ethnic neighbourhoods.

Having discussed developments in ethnic residential segregation in the Oslo region in this chapter, Chapter 7 moves on to a presentation of descriptive statistics for the groups that constitute the population in this study.

7 Descriptive Statistics: Group Differences

This chapter presents descriptive statistics on the individuals examined in this study, including neighbourhood characteristics, social background, educational qualifications, income and partner status. Table 7.1 presents the values of the various variables sorted by country-of-origin and gender. Most of these variables are employed in the OLS models that will be presented in Chapter 8, while some are included to provide a deeper descriptive account of differences between the groups (e.g. the socioeconomic status of origin and destination neighbourhoods). Discussion of Table 7.1 is presented in brief sections that respectively outline the main characteristics of the majority individuals and descendants from each country-of-origin groups.

7.1 Majority Individuals

Majority individuals make up 93.5 percent of the entire sample, of which 58 percent originate from ‘Suburbia’. Fifteen percent of men and 10 percent of women still reside in their origin neighbourhood and some slightly higher proportions share neighbourhoods with their parents.⁶¹ Roughly 86 percent of these individuals (both genders) originate from neighbourhoods with non-Western proportions of less than 10 percent, whereas slightly more than 1 percent originate from neighbourhoods with non-Western proportions of 30 percent or higher. The average proportion of non-Westerners in their *destination* neighbourhoods is 11 percent, which is slightly higher than the average in their parents’ neighbourhoods.

The socioeconomic status in their origin and destination neighbourhoods is higher relative to the other groups, as indicated by higher annual median net incomes among residents and lower proportions of impoverished individuals. In regards to the majority individuals’ own socioeconomic status, 53 percent of women possess a Bachelor’s degree or higher education, and the corresponding figure is 41 percent among men. Their mean incomes are relatively high and their social background, measured as parents’ educational and income levels, are also relatively higher. Finally, their registered partners are usually also majority individuals.

⁶¹ The extent to which the individuals residing in the origin neighbourhoods coincide with those who share destination neighbourhoods with their parents has not been measured. However, it is plausible that these two measures coincide for many individuals, regardless of whether they live in the same household as their parents or not.

TABLE 7.1 Descriptive statistics on majority individuals and immigrant descendants, by country-of-origin group and gender (N=55,747)

Country-of-origin group affiliation	Men							Women								
	Majority	Western countries	Turkey	Morocco	India	Pakistan	Vietnam	Non-Western residual	Majority	Western countries	Turkey	Morocco	India	Pakistan	Vietnam	Non-Western residual
Birth cohort affiliation (% by row)																
1974	96.1	0.8	0.4	0.4	0.1	1.4	0.3	0.5	96.2	0.7	0.4	0.2	0.2	1.4	0.2	0.6
1975	95.1	0.9	0.4	0.4	0.1	2.0	0.3	0.9	96.0	0.8	0.3	0.3	0.3	1.7	0.3	0.5
1976	93.8	0.8	0.7	0.6	0.5	2.8	0.3	0.6	94.0	0.9	0.6	0.3	0.4	2.6	0.5	0.7
1977	92.7	1.1	0.5	0.5	0.4	3.6	0.4	0.8	93.2	1.0	0.9	0.5	0.4	2.6	0.5	0.8
1978	91.8	0.7	0.7	0.5	0.6	4.2	0.4	1.1	93.0	1.1	0.6	0.3	0.5	3.3	0.5	0.7
1979	91.7	1.1	0.7	0.5	0.5	3.6	0.9	1.1	91.6	1.0	0.8	0.6	0.6	3.6	0.7	1.0
1980	92.0	1.0	0.8	0.6	0.4	3.4	0.5	1.4	91.7	0.7	0.9	0.7	0.4	3.5	0.6	1.4
Sub-region of the origin neighbourhood (% by column)																
Oslo	36.0	45.7	44.6	96.3	61.9	80.6	29.3	69.0	36.4	47.3	39.3	96.3	66.4	80.4	36.7	69.1
Drammen	5.9	6.6	31.6	0.7	15.2	4.4	13.0	5.1	6.1	2.9	35.3	0.9	9.1	4.0	14.1	4.2
Suburbia**	58.1	47.7	23.8	3.0	22.9	15.0	57.7	25.9	57.5	49.8	25.4	2.8	24.5	15.6	49.2	26.7
Sub-region of the destination neighbourhood (% by column)																
Oslo	47.1	60.1	40.0	90.4	59.1	69.4	41.4	72.5	45.0	55.1	41.0	88.9	60.9	71.7	45.3	75.1
Drammen	5.1	5.8	29.2	1.5	15.2	4.6	5.7	4.7	5.0	2.0	28.9	0.9	7.3	4.3	7.0	4.2
Suburbia**	34.5	21.3	24.4	2.9	20.9	21.6	42.3	16.9	33.3	29.8	24.3	6.5	23.6	18.9	34.4	16.1
<i>Moved out of the sample region</i>	13.3	12.8	2.4	5.2	4.8	4.4	10.6	5.9	16.7	13.1	5.8	3.7	8.2	5.1	13.3	4.6
Proportion of respondents still residing in the origin neighbourhood (% by column)																
Yes	15.3	14.0	33.3	25.7	33.3	21.4	23.6	23.5	10.3	11.0	19.1	14.8	15.5	16.1	7.0	16.1
No	84.7	86.0	66.7	74.3	66.7	78.6	76.4	76.5	89.7	89.0	80.9	85.2	84.5	83.9	93.0	83.9
Proportion of parents still residing in the origin neighbourhood (% by column)																
Yes	21.8	27.5	48.2	42.7	68.5	60.1	44.7	45.9	14.9	22.9	29.5	26.8	34.5	38.9	33.6	32.7
No	77.3	64.7	42.9	54.4	30.5	38.2	54.5	51.0	84.1	71.8	63.6	70.4	65.5	60.3	66.4	62.7
Missing information	0.9	7.8	8.9	2.9	1.0	1.7	0.8	3.1	1.0	5.3	6.9	2.8	0.0	0.8	0.0	4.6
Proportion of respondents sharing desination neighbourhood with parents (% by column)																
Yes	21.7	27.1	47.0	57.3	68.6	60.1	47.7	45.9	14.9	22.9	28.9	26.9	34.6	38.9	33.6	32.7
No	78.0	71.7	49.4	42.7	31.4	39.9	55.3	53.7	84.7	76.7	70.5	72.2	65.4	61.1	66.4	66.4
Missing information	0.3	1.2	3.6	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.6	0.9	0.0	0.0	0.0	0.9

Table 7.1 continued

Country-of-origin group affiliation	Men							Women								
	Majority	Western countries	Turkey	Morocco	India	Pakistan	Vietnam	Non-Western residual	Majority	Western countries	Turkey	Morocco	India	Pakistan	Vietnam	Non-Western residual
Non-Western proportion in the origin neighbourhood (% by column)																
Less than 10 %	86.5	77.9	20.8	25.0	47.6	23.9	38.2	39.2	86.3	69.8	28.9	24.1	51.8	25.1	29.7	46.1
10 - 19 %	9.7	14.3	28.6	35.3	34.3	34.8	24.4	35.3	9.9	20.0	22.0	38.9	37.3	36.6	29.7	29.0
20 - 29 %	2.7	3.1	14.3	18.4	6.7	17.9	24.4	16.1	2.6	6.5	16.2	17.6	4.5	17.9	24.2	14.8
30 % or higher	1.1	4.7	36.3	21.3	11.4	23.4	13.0	9.4	1.2	3.7	32.9	19.4	6.4	20.4	16.4	10.1
Mean percentage of non-Westerners	4.3	6.6	25.8	19.3	13.3	21.1	16.5	14.0	4.4	7.6	23.6	19.5	11.7	20.2	18.8	13.7
Variation (Std. Dev.)	0.6	8.6	17.3	12.4	11.0	14.9	12.5	11.0	6.5	9.3	16.7	13.3	11.7	14.3	13.6	11.5
Non-Western proportion in the destination neighbourhood (%)***																
Mean percentage of non-Westerners	11.4	13.9	32.5	26.4	22.7	31.0	21.7	22.8	10.7	14.0	31.1	33.8	19.7	34.3	19.5	23.0
Variation (Std. Dev.)	11.5	13.4	22.1	17.3	16.8	20.0	15.9	17.1	11.1	14.5	22.4	18.8	16.7	20.9	15.6	17.2
Non-Western proportion in the (destination) neighbourhood of parents (%)																
Mean percentage of non-Westerners	7.9	10.5	35.8	33.1	24.4	32.6	23.6	23.6	8.0	13.2	35.0	35.8	19.2	32.5	24.6	24.3
Variation (Std. Dev.)	11.1	12.4	21.5	17.5	18.6	21.1	17.5	17.7	11.4	16.2	23.0	17.2	15.3	19.5	19.0	18.9
Proportion of 'co-ethnics' in the in the destination neighbourhood (%)																
Turkish minorities (mean percentage)	0.7	0.1	6.8	1.7	1.9	2.3	1.4	1.5	0.7	0.8	6.7	2.3	1.2	2.8	1.2	1.6
Variation (Std. Dev.)	1.5	1.9	9.1	1.7	3.1	3.8	1.7	3.0	1.5	1.4	8.8	1.3	1.6	4.3	1.7	2.1
Moroccan minorities (mean percentage)	0.5	0.6	1.1	2.0	0.7	1.3	0.9	1.0	0.4	0.6	1.0	2.3	0.8	1.5	0.8	1.2
Variation (Std. Dev.)	0.9	0.9	1.2	1.6	1.0	1.4	1.3	1.2	0.9	1.1	1.4	1.4	1.1	1.5	1.1	1.4
Indian minorities (mean percentage)	0.4	0.4	1.0	0.6	1.9	1.0	0.7	0.7	0.4	0.5	1.1	0.9	1.2	1.1	0.7	0.7
Variation (Std. Dev.)	0.7	0.6	0.6	0.8	1.5	1.1	1.1	1.0	0.7	0.9	1.2	1.2	1.2	1.1	1.1	0.9
Pakistani minorities (mean percentage)	1.6	2.2	5.6	5.5	4.6	8.4	3.5	4.6	1.5	2.4	5.5	7.4	4.1	9.1	3.6	4.3
Variation (Std. Dev.)	3.0	3.6	5.8	6.4	5.4	7.1	5.2	5.6	2.9	4.1	6.5	6.7	5.6	7.6	5.0	5.5
Vietnamese minorities (mean percentage)	7.8	0.9	1.9	1.2	1.2	1.9	3.2	1.3	0.7	0.9	1.7	1.7	1.4	2.1	2.3	1.3
Variation (Std. Dev.)	1.4	1.5	2.0	1.2	1.3	1.8	4.2	1.4	1.4	1.5	1.9	1.5	1.9	1.9	2.7	1.5

Table 7.1 continued

Country-of-origin group affiliation	Men						Women									
	Majority	Western countries	Turkey	Morocco	India	Pakistan	Vietnam	Non-Western residual	Majority	Western countries	Turkey	Morocco	India	Pakistan	Vietnam	Non-Western residual
Annual median net income of residents in the origin neighbourhood****																
Mean median income in NOK	220,000	217,000	187,000	196,000	207,000	198,000	202,000	210,000	220,000	217,000	188,000	199,000	214,000	199,000	201,000	211,000
Variation (Std. Dev.)	20,000	20,000	23,000	24,000	21,000	23,000	19,000	18,000	20,000	22,000	23,000	23,000	17,000	21,000	21,000	21,000
Annual median net income of residents in the destination neighbourhood****																
Mean median income in NOK	277,000	276,000	249,000	262,000	274,000	260,000	288,000	267,000	278,000	277,000	254,000	257,000	273,000	257,000	269,000	270,000
Variation (Std. Dev.)	29,000	30,000	29,000	33,000	30,000	32,000	32,000	28,000	29,000	28,000	33,000	24,000	30,000	30,000	21,000	30,000
Proportion of impoverished residents in the origin neighbourhood (%)																
Mean percentage of impoverished	9.9	11.0	19.9	19.2	13.0	16.6	12.6	12.7	9.9	11.3	19.1	17.9	11.5	16.3	13.3	12.6
Variation (Std. Dev.)	5.1	5.9	8.4	9.0	6.7	8.7	6.3	6.3	5.1	6.0	8.6	7.8	6.0	8.2	6.6	7.0
Proportion of impoverished residents in the destination neighbourhood (%)																
Mean percentage of impoverished	12.0	13.1	17.1	16.6	12.7	15.8	12.8	14.0	11.7	12.7	16.6	16.7	12.8	15.8	12.6	14.2
Variation (Std. Dev.)	5.9	6.6	7.5	7.5	5.5	8.0	6.8	6.3	5.7	6.0	7.5	5.6	6.3	7.4	6.2	6.0
Respondents' highest completed level of education (% by column)																
Basic compulsory	22.0	24.0	62.5	51.5	25.7	45.0	20.3	35.3	17.0	15.5	50.2	43.5	15.4	35.9	18.1	23.9
Upper secondary	36.6	34.9	29.2	36.8	24.8	31.8	28.4	34.5	30.0	29.0	33.0	36.1	28.2	36.4	30.5	35.0
Postsecondary, short (≤3 yrs)	27.2	23.3	7.1	8.8	27.6	14.3	35.0	19.6	38.0	40.0	13.3	15.8	36.4	18.5	29.7	30.0
Postsecondary, long (≥4 yrs)	14.2	17.8	1.2	2.9	21.9	8.9	16.3	10.6	15.0	15.5	3.5	4.6	20.0	9.2	22.7	11.1
Respondents' annual net income (% by column)****																
Less than NOK 200,000	21.0	24.0	21.4	37.5	27.6	24.3	30.1	29.8	22.6	24.1	44.5	18.5	23.6	41.5	23.5	25.8
NOK 200,000 - 299,999	29.7	31.4	42.9	33.1	18.1	26.4	26.8	25.9	44.3	42.4	35.3	55.6	34.5	36.5	29.7	37.3
NOK 300,000 - 399,999	31.5	27.9	29.2	20.6	23.8	29.8	26.0	30.2	26.1	25.3	15.0	23.1	36.4	16.3	32.8	29.5
NOK 400,000 or higher	17.8	16.7	6.5	8.8	30.5	19.5	17.1	14.1	7.0	8.2	5.2	2.8	15.5	5.7	14.0	7.4
Mean income in NOK	315,000	292,000	264,000	247,000	300,000	301,000	263,000	283,000	270,000	256,000	226,000	255,000	289,000	219,000	283,000	258,000
Variation (Std. Dev.)	480,000	159,000	108,000	140,000	172,000	173,000	162,000	310,000	266,000	116,000	105,000	85,000	137,000	120,000	138,000	125,000

Table 7.1 continued

Country-of-origin group affiliation	Men						Women									
	Majority	Western countries	Turkey	Morocco	India	Pakistan	Vietnam	Non-Western residual	Majority	Western countries	Turkey	Morocco	India	Pakistan	Vietnam	Non-Western residual
Partners' country-of-origin (% by column)																
No partner	57.6	62.6	29.1	67.7	48.6	30.0	64.2	56.1	43.9	45.3	13.3	23.2	28.2	20.4	42.2	48.9
Non-Western partner - same country	N/A*	N/A*	61.3	22.8	40.0	61.1	24.4	16.5	N/A*	N/A*	79.2	71.3	41.8	75.3	32.0	14.3
Non-Western partner - different country	1.4	2.0	3.6	1.5	1.9	3.2	3.3	8.2	1.8	3.2	2.3	3.7	14.6	2.5	6.2	11.5
Western partner - same country	N/A*	3.1	N/A*	N/A*	N/A*	N/A*	N/A*	N/A*	N/A*	3.7	N/A*	N/A*	N/A*	N/A*	N/A*	N/A*
Western partner - different country	2.0	2.7	2.4	0.7	0.9	3.0	3.2	1.9	3.0	3.7	1.7	0.0	0.0	0.3	1.6	6.4
Majority partner	39.0	30.6	3.6	7.3	8.6	2.7	4.9	17.3	51.3	44.1	3.5	1.8	15.4	1.5	18.0	18.9
Parents' highest completed level of education (% by column)																
Basic compulsory	33.3	20.9	76.8	72.8	20.0	53.2	52.0	40.4	33.5	28.2	78.0	73.1	30.0	56.1	54.7	44.7
Upper secondary	21.9	19.4	7.1	9.6	26.7	13.2	22.0	20.0	21.5	22.4	5.8	13.9	6.4	15.1	19.5	16.6
Postsecondary, BA level ≤3 yrs	27.6	28.3	1.2	0.7	41.9	17.8	13.0	24.3	27.5	30.2	5.8	0.0	53.6	17.4	14.1	25.3
Postsecondary, MA level or higher ≥4 yrs	17.1	27.1	0.0	1.5	6.7	2.5	4.9	8.6	17.4	15.1	0.6	0.0	8.2	1.4	2.3	7.4
Missing information	0.1	4.3	14.9	15.4	4.7	13.3	8.1	6.7	0.1	4.1	9.8	13.0	1.8	10.0	9.4	6.0
Parents' combined annual net income (% by column)****																
Less than NOK 300,000	7.6	8.1	61.3	43.4	27.6	42.6	34.2	22.8	7.3	12.2	50.9	47.2	22.7	44.7	32.8	16.6
NOK 300,000 - 399,999	17.0	16.7	23.8	37.5	29.5	37.2	33.3	25.5	16.7	20.0	28.9	31.5	24.6	33.8	37.5	27.7
NOK 400,000 - 499,999	27.8	20.9	8.9	14.0	27.6	13.2	14.6	26.7	27.4	24.1	9.2	15.7	31.8	12.1	14.8	24.9
NOK 500,000 - 599,999	20.5	20.6	0.6	0.7	5.7	3.1	8.9	8.2	21.4	10.2	2.9	2.8	10.0	2.3	1.6	7.8
NOK 600,000 or higher	22.9	14.3	0.0	0.0	2.9	1.3	2.5	4.7	22.8	14.3	1.2	0.0	5.5	1.0	1.6	4.6
Missing information	4.2	19.4	5.4	4.4	6.7	7.6	6.5	12.1	4.4	19.2	6.9	2.8	5.4	6.1	11.7	18.4
Mean income in NOK	551,000	494,000	280,000	315,000	357,000	315,000	348,000	385,000	559,000	490,000	306,000	312,000	386,000	310,000	328,000	395,000
Variation (Std. Dev.)	638,000	246,000	90,000	78,000	126,000	115,000	134,000	156,000	615,000	464,000	108,000	94,000	143,000	103,000	103,000	129,000
Individuals (N)	26,508	258	168	136	105	833	123	255	25,660	245	173	108	110	720	128	217
Percentage by gender	93.4	0.9	0.6	0.5	0.4	2.9	0.4	0.9	93.8	0.9	0.6	0.4	0.4	2.6	0.5	0.8

Notes: * N/A: Partner categories addressing minority partners with the same country-of-origin do not apply to majority individuals, nor do the categories apply to more than one descendant group each.

** Suburbia refers to the following seventeen municipalities: Bærum, Asker, Lørenskog, Skedsmo, Rælingen, Nittedal, Oppegård, Nesodden, Ski, Frogn, Ås, Vestby, Moss, Rygge, Lier, Røyken and Nedre Eiker

*** Destination neighbourhood refers to the neighbourhood of residency at age 30, regardless of whether the individual is still residing in the origin neighbourhood (measured at age 16).

**** All income figures are adjusted to 2010 NOK values according to the Consum Price Index. The annual net income of residents in a neighbourhood is calculated for individuals between 25 and 65 years old.

7.2 Western Descendants

On the whole, the variable values for Western descendants do not differ much from the values of majority individuals. Nearly half of Western descendants originate in Oslo and their origin neighbourhoods are characterised by slightly higher non-Western proportions on average and slightly lower socioeconomic status, relative to majority individuals. The same applies to their destination neighbourhoods. However, it is important to note this group is composed of individuals who originate from a range of Western countries and is thus presumed to be quite heterogeneous. The Western descendants tend to have settled in neighbourhoods with slightly higher non-Western proportions than their parents. Fourteen percent of men and 11 percent of women share destination neighbourhoods with their parents.

The average educational achievements of Western descendants are more or less on par with their majority peers, although their mean income is lower. The gap between educational and income levels is larger for their parents, compared with majority parents. Finally, among those registered with a partner, the partners are most often majority individuals.

7.3 Turkish Descendants

Slightly more than three-fourths of Turkish descendants originate from Oslo and Drammen. About one-third of Turkish descendants were raised in neighbourhoods with non-Western proportions of 30 percent or higher, and the corresponding figures for their destination neighbourhoods are almost equally high. The average proportion of Turkish immigrant population in their destination neighbourhoods is 7 percent (standard deviation of nine percentage points). Nearly one-half of men and one-third of women share destination neighbourhoods with their parents. These proportions are higher than the proportions of men and women who still reside in their origin neighbourhoods. This means that many, and men in particular, have relocated to the same neighbourhoods as their parents.

Regarding neighbourhood socioeconomic status, Turkish descendants, on average, were raised and have subsequently settled in the most deprived neighbourhoods, compared with the other groups. The socioeconomic status (income and education) of the Turkish descendants themselves is also generally low, and the same applies to their parents during the descendants' adolescence. The Turkish descendants have the overall lowest educational levels among all

groups. Although female Turkish descendants have more education than their male counterparts, on average, they have the lowest mean income among all groups.

Finally, Turkish descendants have the highest proportion of partners from their own immigrant group, compared with the other groups. As much as 61 percent of men and 79 percent of women are registered with partners of Turkish origin.

7.4 Moroccan Descendants

Moroccan descendants predominantly originate from Oslo (96.3 percent). Otherwise, their profiles resemble those of the Turkish descendants in many respects. One-fourth of men still reside in their origin neighbourhoods, and 42 percent share destination neighbourhoods with parents. Corresponding figures are substantially lower among female Moroccan descendants. However, the average non-Western proportions are higher in the destination neighbourhoods of women (34 percent) than in the destination neighbourhoods of men (26 percent).

The socioeconomic status in the origin and the destination neighbourhoods of Moroccan descendants is, on average, almost as low as for the Turkish descendants. Male Moroccan descendants have the lowest mean incomes compared with male peers in the other groups. However, female Moroccan descendants have somewhat higher incomes and considerably more education than their Moroccan male counterparts. When considering social background, Moroccan descendants were on average raised in quite marginalised households, although not as marginalised as the households of Turkish descendants.

Slightly more than two-thirds of male Moroccan descendants are not registered with a partner. Among those who are, 23 percent have partners of Moroccan origin and 7 percent have partners from the majority population. Almost none of the female Moroccan descendants are registered with a majority partner, while 71 percent are registered with partners of Moroccan origin.

7.5 Indian Descendants

Nearly two-thirds of Indian descendants originate from neighbourhoods in Oslo and nearly one-fourth from 'Suburbia'. Their origin neighbourhoods had an average of 12-13 percent non-Westerners, which is the lowest average proportion among all non-Western groups. As much as 67 percent of male Indian descendants share destination neighbourhoods with their parents.

The average non-Western proportions in their destination neighbourhoods is 23 percent for men and 20 percent for women, which is moderate compared with the Turkish, Moroccan and Pakistani descendants. The socioeconomic status of these neighbourhoods was also on average higher than the destination neighbourhoods of other non-Western groups, with the exception of the Vietnamese descendants. Moreover, the proportion of Indian descendants with post-secondary education is even higher than among the majority individuals. The average income of female Indian descendants is also higher than that of female majority peers. Their social background is higher on average than that of descendants from the other non-Western groups.

Fourty percent of both genders are registered with partners of Indian origin. The corresponding figure for their female counterparts is 27 percent. Almost half of the men are registered without a partner and this might indicate that many still share accommodations with their parents. This gender difference might in part reflect a common Indian family tradition in which a married woman moves into the household of her husband's parents (Finney 2011). Part of the reason why many female Indian descendants do not share neighbourhoods with their parents may also stem from the fact that 15 percent are registered with a majority partner, and an additional 15 percent are registered with a non-Western partner with a different origin from their own. These women, especially those with a majority partner, may be less attached to traditional Indian family values.

7.6 Pakistani Descendants

The Pakistani descendants predominantly originate from Oslo (80 percent) and Drammen (15 percent). The men, similar to their male peers in the Indian group, tend to share destination neighbourhoods with their parents (60 percent). Many have relocated to the same neighbourhoods as their parents, as only 20 percent still reside in their origin neighbourhoods. The same trend applies to a lesser extent to female Pakistani descendants (39 percent). The average non-Western proportions in the destination neighbourhoods of Pakistani descendants are 31 and 34 percent for men and women, respectively. Moreover, the average proportion of co-ethnics in their destination neighbourhoods is higher than for the other non-Western groups.

The average socioeconomic profiles of the origin and destination neighbourhoods of Pakistani descendants are more or less on par with Moroccan descendants and slightly higher than among Turkish descendants. Male Pakistani descendants themselves also have, on average, higher

education and incomes than male Turkish and Moroccan descendants. Interestingly, female Pakistani descendants tend to have higher education than their male group peers, but the gender income gap is the opposite.

When it comes to partner status, Pakistani descendants, similar to Turkish descendants, exhibit high levels of homology. Sixty-one percent of men and 75 percent of women live with partners of Pakistani origin. Only 3 and 2 percent of men and women, respectively, reside with majority partners.

7.7 Vietnamese Descendants

The origin neighbourhoods of Vietnamese descendants are more often located in ‘Suburbia’ (58 percent for men, 49 percent for women), but there are also many in this group who originate from Oslo. Vietnamese descendants have the lowest average non-Western proportions in their destination neighbourhoods, compared with descendants from the other non-Western groups. This probably reflects that neighbourhoods in ‘Suburbia’ have on average lower non-Western proportions. Forty-eight percent of male Vietnamese descendants share neighbourhoods with their parents, while the corresponding figure for women is 34 percent.

The socioeconomic status of the origin and destination neighbourhoods of Vietnamese descendants is similar to that of the Indian descendants, and as such is higher than for the other non-Western groups, with the exception of the residual group. More than half of Vietnamese descendants have acquired postsecondary education, which is also on par with the Indian descendants. Their average incomes are high as well. Female Vietnamese descendants have, on average, higher incomes than their female majority peers. Their family education and income levels tend to be lower than that of the Indian descendants and those in the non-Western residual group, but higher than that of the Turkish, Moroccan and Pakistani descendants.

As much as 18 percent of the female Vietnamese descendants live with majority partners, which is a high proportion compared with women in the other non-Western groups. Sixty-four percent of male Vietnamese descendants are not registered with a partner and only 5 percent live with majority partners.

7.8 Non-Western Descendants: Residual Country-of-Origins

This group is presumed to be quite heterogeneous, as it encompasses a variety of non-Western origins. Sixty-nine percent of both genders were raised in Oslo. Twenty-three and 16 percent of the men and women, respectively, resided in their origin neighbourhoods at age 30. The average non-Western proportion in their destination neighbourhoods is 23 percent and the socioeconomic status in these neighbourhoods was slightly lower, compared with majority peers. Forty-six percent of men and 33 percent of women, share destination neighbourhoods with their parents.

Thirty percent of non-Western residual descendants have acquired postsecondary education and their average income is quite high, although not as high as among their majority peers. Their average social background is usually higher than for individuals in the other non-Western groups. Moreover, descendants in this group more often tend to reside with a majority partner rather than with partners of the same origin as themselves.

7.9 Summary of Descriptive Statistics

The main findings in this chapter can be summarised into the following:

- a) Majority individuals originate and settle in neighbourhoods that have, on average the lowest non-Western proportions and highest socioeconomic status, relative to all other groups. Again, when compared with all other groups, a smaller proportion has settled in their origin neighbourhoods and/or share neighbourhoods with their parents. Their average socioeconomic status and social backgrounds tend to be higher than that which is found among descendants in most non-Western groups.
- b) Western descendants have, on average, quite similar individual, social background and neighbourhood characteristics, compared with their majority peers.
- c) Overall, non-Western descendants clearly differ from their majority peers (and Western descendants). They have more often settled in their origin neighbourhoods and/or share neighbourhoods with their parents. Their origin and destination neighbourhoods have, on average, higher non-Western proportions and lower socioeconomic status. Their socioeconomic status and social background tend to be lower and they usually do not reside with majority partners. Despite the overall contrast between non-Western

descendants and their majority peers, there is quite a lot of variation between the non-Western groups, as well as between genders. Among the non-Western groups, the Indian and Vietnamese descendants have the highest socioeconomic status and social background characteristics. Their origin and destination neighbourhoods are also characterised by lower non-Western proportions and higher socioeconomic status. The opposite trend applies to Turkish and Moroccan descendants.

These are the aggregated patterns among the individuals. The next chapter turns to the individual level analysis, in order to identify which factors are associated with the destination neighbourhoods (i.e. neighbourhood attainment among non-Western descendants).

8 Neighbourhood Attainment

This chapter presents the results from OLS regressions estimating associations with non-Western proportions in the destination neighbourhoods of the immigrant descendants and their majority peers.⁶²

In Section 8.1, Tables 8.1 and 8.2 present the results from four OLS models that predict overall average group differences in non-Western proportions in destination neighbourhoods, given equality of individual characteristics. Figures 8.1 - 8.8, in Section 8.2, present graphs that predict specified average group differences, given specific values of a) educational levels, b) income levels c) partner statuses, and d) non-Western proportions in the origin neighbourhoods, and equality of all other characteristics.

⁶² Majority individuals serve as the reference group in all analyses.

8.1 OLS Regressions: Overall Group Differences

Tables 8.1 and 8.2 present four OLS models with estimated average non-Western proportions in the destination neighbourhoods. The coefficients are presented with robust standard errors and when multiplied by 100 refer to differences in percentage points of non-Westerners with respect to the reference categories (intercepts). All coefficients discussed are significantly different from zero, as indicated by $p < 0.001$ (***) , $p < 0.01$ (**) and $p < 0.05$ (*), unless otherwise stated. Men and women are treated in separate models and commented in tandem.

In all four models, the positive gradient between non-Western proportions in the origin and destination neighbourhoods is striking. However, the coefficients decline noticeably between Models 1 and 2.

The intercepts in **Models 1** predict that individuals (regardless of group affiliation) raised in neighbourhoods with less than 10 percent non-Westerners, settle in (destination) neighbourhoods with, on average, 9-10 percent non-Westerners. ‘Equivalent’ individuals raised in neighbourhoods with 30 percent or higher non-Western proportions are, predicted to settle in neighbourhoods with, on average, 26-28 percent non-Westerners.⁶³ Women are predicted to settle in neighbourhoods with slightly lower proportions compared with men.

By introducing country-of-origin groups in **Models 2**, all coefficients of non-Western percentage categories in the origin neighbourhoods decline compared with Model 1, and relatively more for each percentage category (slightly more in the model for women). These coefficients are controlled for group affiliation and apply to differences in predicted average non-Western proportions in the destination neighbourhoods between majority individuals raised in neighbourhoods with less than 10 percent non-Westerners (intercepts) and neighbourhoods with higher proportions. Majority individual raised in neighbourhoods with less than 10 percent non-Westerners are predicted to settle in neighbourhoods with, on average, 9-10 percent of non-Westerners. In comparison, majority men and women raised in neighbourhoods

⁶³ ‘Equivalent’ individuals refer to individuals with equal values on all covariates (except the group variable as in Models 2) included in the current full OLS model. Appendices 3 and 4 present full versions of Models 1-4 with coefficients of control variables (cf. Models 1e, 2, 3 and 4c). The intercepts in all models embrace reference individuals with ‘middle’ values on all control variables – birth cohort of 1977, parents with upper secondary education and total net incomes of NOK 400,000-499,999 (age 16) – in addition to the reference values on all covariates in the current models. It cannot be ruled out that individuals differ, both within and between groups, on other (unobserved) characteristics not included in the models – be they individual, social background or neighbourhood characteristics.

with 30 percent or higher proportions are predicted to settle in neighbourhoods with, on average, 23 and 20 percent non-Westerners, respectively. Thus, majority individuals tend to settle in neighbourhoods with relatively *lower* proportions compared with their origin neighbourhoods. This is an interesting finding, given that the overall proportion of non-Westerners in the Oslo region has increased steadily during both observation periods (1990-1996 and 2004-2010).⁶⁴

All coefficients associated with country-of-origin are positive and predict that all non-western immigrant descendants settle in neighbourhoods with, on average, substantially *higher* non-Western proportions, compared with equivalent majority peers. The largest group coefficients belong to Turkish and Pakistani descendants (both genders) and female Moroccan descendants. They are predicted to settle in neighbourhoods with non-Western proportions that are, on average, 14-18 percentage points higher.

Female Vietnamese descendants have the lowest average difference of 4 percentage points, closely followed by male Vietnamese descendants and female Indian descendants at 6 percentage points.⁶⁵ In comparison, female Western descendants are predicted to settle in neighbourhoods with average non-Western proportions that are only 2 percentage points higher than that predicted for equivalent female majority peers. The corresponding difference for male Western descendants is non-significant ($p > 0.05$).

Models 2 shows that the predicted differences in non-Western proportions between non-Western descendants and equivalent majority peers are smaller for women than for men in the Indian and Vietnamese groups, while the gender gap is the reverse in the other groups, especially among female Moroccan and Pakistani descendants.

Although Models 2 predicts that non-Western descendants settle in neighbourhoods with, on average, higher non-Western proportions compared with equivalent majority peers, these models cannot determine whether the positive gradient between non-Western proportions in the origin and destination neighbourhoods is equally strong among all groups. The coefficients of

⁶⁴ Part of the lower association between non-Western proportions in the origin and destination neighbourhoods of the majority individuals might be due that a higher proportion of the majority individuals left the Oslo region before age 30. This concerns 13 percent of the majority men and 17 percent of the majority women (cf. Table 7.1).

⁶⁵ Male descendants in the non-Western residual group are predicted to settle in neighbourhoods with slightly lower proportions compared with male Indian descendants. However, this group is composed of individuals with many different countries-of-origin and is thus probably quite heterogeneous.

TABLE 8.1 OLS regressions for men (N=28,386): Estimated non-Western proportions in the destination neighbourhoods of majority individuals and immigrant descendants

	Model 1	Model 2	Model 3	Model 4
Non-Western population share in the origin neighbourhood (ref. = Less than 10 percent)				
10 - 19 percent	0.080*** (0.003)	0.065*** (0.003)	0.052*** (0.003)	0.051*** (0.003)
20 - 29 percent	0.105*** (0.006)	0.080*** (0.005)	0.066*** (0.005)	0.064*** (0.005)
30 percent or higher	0.181*** (0.009)	0.125*** (0.008)	0.111*** (0.008)	0.109*** (0.008)
Country-of-origin (ref. = Majority)				
Western descendants		0.016 (0.008)	0.014 (0.008)	0.014 (0.008)
Turkish descendants		0.143*** (0.016)	0.145*** (0.016)	0.127*** (0.016)
Moroccan descendants		0.094*** (0.015)	0.083*** (0.015)	0.075*** (0.015)
Indian descendants		0.080*** (0.015)	0.076*** (0.015)	0.066*** (0.015)
Pakistani descendants		0.138*** (0.007)	0.133*** (0.007)	0.117*** (0.008)
Vietnamese descendants		0.058*** (0.013)	0.065*** (0.013)	0.057*** (0.013)
Non-Western descendants (residual)		0.073*** (0.010)	0.070*** (0.010)	0.063*** (0.010)
Sub-region (ref. = Oslo)				
Drammen			-0.018*** (0.003)	-0.017*** (0.003)
Suburbia			-0.030*** (0.002)	-0.029*** (0.002)
Education (ref. = Basic compulsory)				
Upper secondary				-0.004 (0.002)
Postsecondary				-0.003 (0.002)
Income (ref. = Less than NOK 200,000)				
NOK 200,000 - 299,999				0.007*** (0.002)
NOK 300,000 - 399,999				0.006** (0.002)
NOK 400,000 or higher				-0.004 (0.002)
Partner status (ref. = No partner)				
Non-Western partner				0.018** (0.006)
Majority partner				-0.017*** (0.001)
Intercept	0.103*** (0.003)	0.104*** (0.003)	0.125*** (0.003)	0.132*** (0.003)
Adjusted R2	0.115	0.151	0.162	0.168
Individuals (N)	28386	28386	28386	28386

Note: All models control for birth cohort affiliation, median net income in the origin neighbourhoods, and social background (education and income of parents). Postsecondary education applies to individuals with completed BA or higher degrees. *p<0.05, **p<0.01, ***p<0.001. Robust standard errors in parentheses.

TABLE 8.2 OLS regressions for women (N=27,361): Estimated non-Western proportions in the destination neighbourhoods of majority individuals and immigrant descendants

	Model 1	Model 2	Model 3	Model 4
Non-Western population share in the origin neighbourhood (ref. = Less than 10 percent)				
10 - 19 percent	0.070*** (0.003)	0.053*** (0.003)	0.041*** (0.003)	0.040*** (0.003)
20 - 29 percent	0.116*** (0.006)	0.085*** (0.006)	0.072*** (0.006)	0.070*** (0.006)
30 percent or higher	0.170*** (0.009)	0.110*** (0.008)	0.096*** (0.008)	0.093*** (0.008)
Country-of-origin (ref. = Majority)				
Western descendants		0.019* (0.009)	0.018* (0.009)	0.018* (0.009)
Turkish descendants		0.144*** (0.016)	0.148*** (0.016)	0.099*** (0.017)
Moroccan descendants		0.175*** (0.017)	0.166*** (0.017)	0.118*** (0.018)
Indian descendants		0.064*** (0.015)	0.060*** (0.015)	0.026 (0.015)
Pakistani descendants		0.181*** (0.008)	0.176*** (0.008)	0.129*** (0.009)
Vietnamese descendants		0.036** (0.013)	0.042*** (0.013)	0.018 (0.013)
Non-Western descendants (residual)		0.087*** (0.011)	0.083*** (0.011)	0.066*** (0.011)
Sub-region (ref. = Oslo)				
Drammen			-0.020*** (0.003)	-0.018*** (0.003)
Suburbia			-0.027*** (0.002)	-0.026*** (0.002)
Education (ref. = Basic compulsory)				
Upper secondary				-0.002 (0.002)
Postsecondary				-0.004 (0.002)
Income (ref. = Less than NOK 200,000)				
NOK 200,000 - 299,999				0.010*** (0.002)
NOK 300,000 - 399,999				0.012*** (0.002)
NOK 400,000 or higher				-0.006* (0.003)
Partner status (ref. = No partner)				
Non-Western partner				0.049*** (0.006)
Majority partner				-0.026*** (0.001)
Intercept	0.092*** (0.003)	0.094*** (0.003)	0.114*** (0.003)	0.121*** (0.004)
Adjusted R2	0.112	0.169	0.178	0.195
Individuals (N)	27361	27361	27361	27361

Note: All models control for birth cohort affiliation, median net income in the origin neighbourhoods, and social background (education and income of parents). Postsecondary education applies to individuals with completed BA or higher degrees.
*p<0.05, **p<0.01, ***p<0.001. Robust standard errors in parentheses.

the non-Western percentage categories are mainly driven by the majority individuals, as they comprise about 93 percent of the sample. The gradient for each group is therefore explored later in term of interaction effects (cf. Figures 8.7 and 8.8).

Models 3 distinguishes between individuals originating in Oslo, Drammen, or one of the other seventeen sample municipalities subsumed under the category ‘Suburbia’. The coefficients predict that individuals raised in Drammen and Suburbia, settle in neighbourhoods with, on average, 2 and 3 percentage points lower non-Western proportions, respectively, compared with equivalent individuals raised in Oslo. The group coefficients are just slightly adjusted (+/-) compared with Models 2, which indicates that non-Western descendants settle in neighbourhoods with, on average, *higher* non-Western proportions compared with equivalent majority peers, regardless of sub-regions of origin.⁶⁶

Models 4 introduces the three key mediating variables (i.e. education, income and partner status) that are believed to have an impact on destination neighbourhoods.⁶⁷ However, *education does not predict* significant differences in non-Western proportions, while *income only predicts moderate differences*. Men cohabiting with majority partners are, on average, predicted to settle in neighbourhoods with 2 percentage points lower non-Western proportions compared with equivalent men without a cohabiting partner. Women have a corresponding difference of 3 percentage points. Conversely, men cohabiting with non-Western partners are predicted to settle in neighbourhoods with, on average, 2 percentage points higher non-Western proportions. The corresponding difference for women is 5 percentage points. In other words, *non-Western partners seem to matter slightly more for women*.

All non-Western group coefficients decreased in Models 4, especially for women. The coefficients for female Indian and Vietnamese descendants are no longer significant ($p > 0.05$), which means that they are predicted to settle in, on average, similar neighbourhoods as female

⁶⁶ Models 3 and 4 do not determine the extent to which non-Western descendants originating in Oslo, Drammen and Suburbia settle in neighbourhoods with higher non-Western proportions, compared with equivalent majority individuals raised within the same sub-regions. As majority individuals mainly drive the sub-region coefficients, the average differences in non-Western proportions associated with origins in the sub-regions might actually be different for non-Western descendants than for the majority individuals. This could be explored further by employing interaction terms between the groups and the sub-regions, but this falls outside the range of this study. However, the interaction terms between the groups and the percentage categories of non-Westerners in the origin neighbourhoods largely embrace such differences (cf. Figures 8.7 and 8.8).

⁶⁷ The mediating variables are introduced individually in Models 4a, 4b and 4c in Appendices 3 and 4.

majority peers, *ceteris paribus*.⁶⁸ Since the majority individuals are over-represented, the coefficients of the mediating variables are mainly driven by them. In Section 8.2, interaction terms between each group and each category of the mediating variables will explore whether education, income and partner status are, in fact, associated with more variation in non-Western proportions among non-Western descendants (cf. Figures 8.1 - 8.8).

The coefficients of the other non-Western groups (including male Indian and Vietnamese descendants) are significant and predict that individuals affiliated with these groups settle in neighbourhoods with, on average, *higher* proportions than majority peers, *ceteris paribus*. The greatest differences still apply to Turkish and Pakistani descendants (both genders) and female Moroccan descendants.

8.1.1 Summary of OLS Models 1-4

- All models predict a positive gradient between non-Western proportions in the origin and destination neighbourhoods. This gradient is moderate for majority individuals and stronger for descendants in all non-Western groups. Models 2-4 predict that non-Western descendants settle in neighbourhoods with, on average, higher non-Western proportions than equivalent majority peers. Hypothesis 1 is thus confirmed: *(H1) Non-Western descendants settle in neighbourhoods with, on average, higher non-Western proportions, compared with equivalent majority peers.*
- The greatest group differences between predicted destination neighbourhoods of majority peers and the other groups are found for Turkish men, female Pakistani descendants, and female Moroccan descendants. Hypothesis 2 is thus only confirmed for female Pakistani descendants: *(H2) The average difference between non-Western proportions in the destination neighbourhoods of non-Western descendants and equivalent majority peers is greater for Pakistani descendants, compared with descendants from the other non-Western groups.*
- The smallest predicted group differences are found for Indian and Vietnamese descendants. Female Indian and Vietnamese descendants are, on average, not predicted

⁶⁸ The group coefficients for female Indian and Vietnamese descendants are significant until the partner status variable is introduced in Model 4c (cf. Appendix 4).

to have any differences at all. Male descendants in the non-Western residual country-of-origin group are predicted to have a slightly lower average difference than male Indian descendants: Hypothesis 3 is considered confirmed: *(H3) The average difference between non-Western proportions in the destination neighbourhoods of non-Western descendants and equivalent majority peers is smaller for Indian and Vietnamese descendants, compared with descendants from the other non-Western groups.*

8.2 Interactions: Specific Group Differences

Figures 8.1 - 8.8 present predicted group differences in non-Western proportions in the destination neighbourhoods, based on interaction terms between the country-of origin groups and, respectively, a) education, b) income, c) partner status, and d) non-Western proportions in the origin neighbourhoods.⁶⁹ Estimated group differences from each interaction term are presented in dual sets of graphs, in which the point estimates of each immigrant descendant group is separately compared with the corresponding point estimates of the majority group. Moreover, the point estimates of men and women are presented in separate sets of graphs. The y-axis refers to percentages of non-Westerners in the destination neighbourhoods and the x-axis refers to different values on the interacting variables (a-d).

The group estimates are calculated and graphed by the ‘margins’ and ‘coefplot’ commands in the statistical software package Stata 14.1 (e.g. Jann 2013; Jann 2014; Stata.com 2016b).

It is important to note that the purpose of the graphs is to illustrate predicted *differences* between immigrant descendants affiliated with the various country-of-origin groups and equivalent majority individuals, rather than the actual predicted average proportion of non-Westerners in the destination neighbourhoods of immigrant descendants in each group. The point estimates themselves are predictions of ‘ideal types’ that do not represent many individuals in each group (i.e. individuals with concrete values on the interacting variable in question a, b, c *or* d in addition to the sample average on all other covariates).

As the majority individuals make up 93 percent of the sample and score, overall, lower/higher on most covariates (cf. Table 7.1), their mean values affect the point estimates of all groups.

⁶⁹ The interaction terms are run in separate OLS models and group margins have been estimated from these models. These models are run according to Equation IV and V presented in Section 5.11 and the results from the full models are included in Appendices 3 and 4 (cf. Models 5-8).

Nevertheless, estimated group differences between individuals with corresponding values on the interacting variable are isolated from the other covariates in the current OLS model. Hence, the group differences are ‘constant’ in the sense that they predict average differences non-Western proportions in destination neighbourhoods, *ceteris paribus*.

The point estimates in Figures 8.1 - 8.8 are presented with 95 percent confidence intervals. A common misconception is that differences in the corresponding point estimates are only statistically significant if their confidence intervals do not overlap, and vice versa. However, the confidence intervals are strictly for the point estimates, not for the differences between them. There is a covariance between the differences that must be considered in order to make statements about them (e.g. Stata.com 2016b: 10-11). The covariance of the difference between all corresponding point estimates in Figures 8.1 - 8.8 have been significance tested separately (F-tests). Results from these tests underlie statements about significant/non-significant group differences in the subsequent review of the figures.⁷⁰

Nevertheless, in some cases group differences cannot be disregarded despite the fact that the confidence intervals of corresponding point estimates of an immigrant descendant group and the majority individuals group overlap, and the F-test result is negative. This applies in cases where the point estimate of an immigrant descendant group is positioned *much* higher on the y-axis and has a large confidence interval that overlaps with the confidence interval of the corresponding point estimate of the majority individuals. Such cases are due to very few individuals in the immigrant descendant groups with a specific value on the interacting variable in question and/or a high degree of heterogeneity in non-Western proportions in the destination neighbourhoods among individuals with this specific value.

Finally, it is important to note that the scaling of the y-axis is, unfortunately, not consistent through Figures 8.1 - 8.2, due to some technical issues with the graph editor in Stata 14.1. The scaling is determined by the lower/upper values of the confidence intervals related to the point estimates. Several attempts were made to rescale the all graphs in order to present them with

⁷⁰ Appendices 5 and 6 present results from the F-tests and overviews of the exact predicted difference in percentage points between corresponding point estimates of the majority group and each country-of-origin group in Figures 8.1 - 8.8, respectively. These F-tests and group differences were estimated by using a ‘contrast’ command in Stata (e.g. Stata.com 2016a: 9-10). The non-significant group differences are largely congruent with overlapping confidence intervals related to the point estimates.

similar percentage scales. However, this was only possible for the first row of graphs in each figure. The reader should bear in mind the scaling of the axes when interpreting the figures.

8.2.1 Education and Proportions of Non-Westerners

Figures 8.1 and 8.2 display predicted average group differences in non-Western proportions in the destination neighbourhoods between individuals with 1) basic compulsory education, 2) upper secondary education, or 3) postsecondary education, *ceteris paribus*. Each immigrant descendant group is compared separately with the majority individuals.

In these interaction models, the dashed lines represent majority individuals, who in these models are predicted to settle in neighbourhoods with similar non-Western proportions regardless of their educational levels, *ceteris paribus*.⁷¹ Moreover, these graphs are almost identical with the graphs of Western descendants. The point estimates of Western descendants are positioned slightly higher on the y-axis (1-2 percentage points), yet these differences are non-significantly different for the majority ($p > 0.05$). Thus, Western descendants are, on average, predicted to settle in neighbourhoods with similar proportions as their majority peers, *ceteris paribus*.

The lines representing all the non-Western groups are positioned *higher* on the y-axis, compared with the lines representing majority individuals, and more or less shaped as negative gradients. This indicates that the overall predicted differences between non-Western descendants and majority peers are by and large reduced for each higher level of education, *ceteris paribus*. However, the gradients of all non-Western groups are not equally steep, and some lines are placed higher on the y-axis. Additionally, there are some within-group gender differences. Moreover, larger confidence intervals related to some point estimates indicate that there is considerable variation in non-Western proportions in the neighbourhoods of descendants in some of the non-Western groups.

Turkish and Pakistani descendants (both genders) and female Moroccan descendants with *basic compulsory education* are predicted to have, on average, the greatest difference in non-Western

⁷¹ These estimates are in line with the education coefficients in Models 4 in Tables 8.1 and 8.2.

proportions (13-16 percentage points) compared with equivalent majority peers.⁷² However, the corresponding differences for Turkish descendants (both genders) and female Moroccan descendants with *postsecondary education* are reduced to 3-4 percentage points.⁷³ Thus, education matters.

The differences for Pakistani descendants (both genders) with *postsecondary education* are only reduced to 10 percentage points. It is important to note that about one-fourth of the Pakistani descendants have acquired postsecondary education, as compared with roughly one-fifth of the female Turkish and Moroccan descendants and just 8 percent of the male Turkish descendants (cf. Table 7.1). Moreover, the most prevalent educational level for male Turkish and female Moroccan descendants is postsecondary education.

Male Moroccan descendants, on the other hand, do not have a predicted negative gradient. Regardless of educational levels they are predicted to settle in neighbourhoods with, on average, 7-8 percentage points higher non-Western proportions, compared with equivalent male majority peers. The difference for male Moroccan descendants with postsecondary education is non-significant ($p>0.05$), yet should be read with caution, since there are very few male Moroccan descendants with postsecondary education.

Vietnamese descendants and male Indian descendants with basic compulsory education are also predicted to settle in neighbourhoods with, on average, substantially higher non-Western proportions, compared with equivalent majority peers (9-10 percentage points). The corresponding differences among *male* Vietnamese and Indian descendants with *postsecondary education* are, on average, *reduced* to 4 and 6 percentage points, respectively.⁷⁴ Female Vietnamese descendants with postsecondary education, on the other hand, are predicted to *fully close* the neighbourhood attainment gap, in terms of settling in neighbourhoods with non-Western proportions *similar* to equivalent female majority peers. The same applies to female Indian descendants with postsecondary education. In comparison, their male group peers with

⁷² Sixty-three percent of male Turkish descendants, roughly one-half of male Pakistani and female Moroccan descendants, and roughly one-third of female Pakistani descendants have basic compulsory education as their highest completed level of education (cf. Table 7.1).

⁷³ The predicted differences for female Turkish and Moroccan descendants with postsecondary education are non-significant ($p>0.05$) and should be read with caution. Large confidence intervals indicate heterogeneity among these women.

⁷⁴ Male Indian descendants with upper secondary education are also predicted to have a difference of 6 percentage points. However, their point estimate is non-significant ($p>0.05$) due to heterogeneity.

FIGURE 8.1 Predictions with 95 % confidence intervals for men (N=28,386): Estimated group differences in non-Westerners proportions in the destination neighbourhoods of immigrant descendants and equivalent majority peers according to educational level.

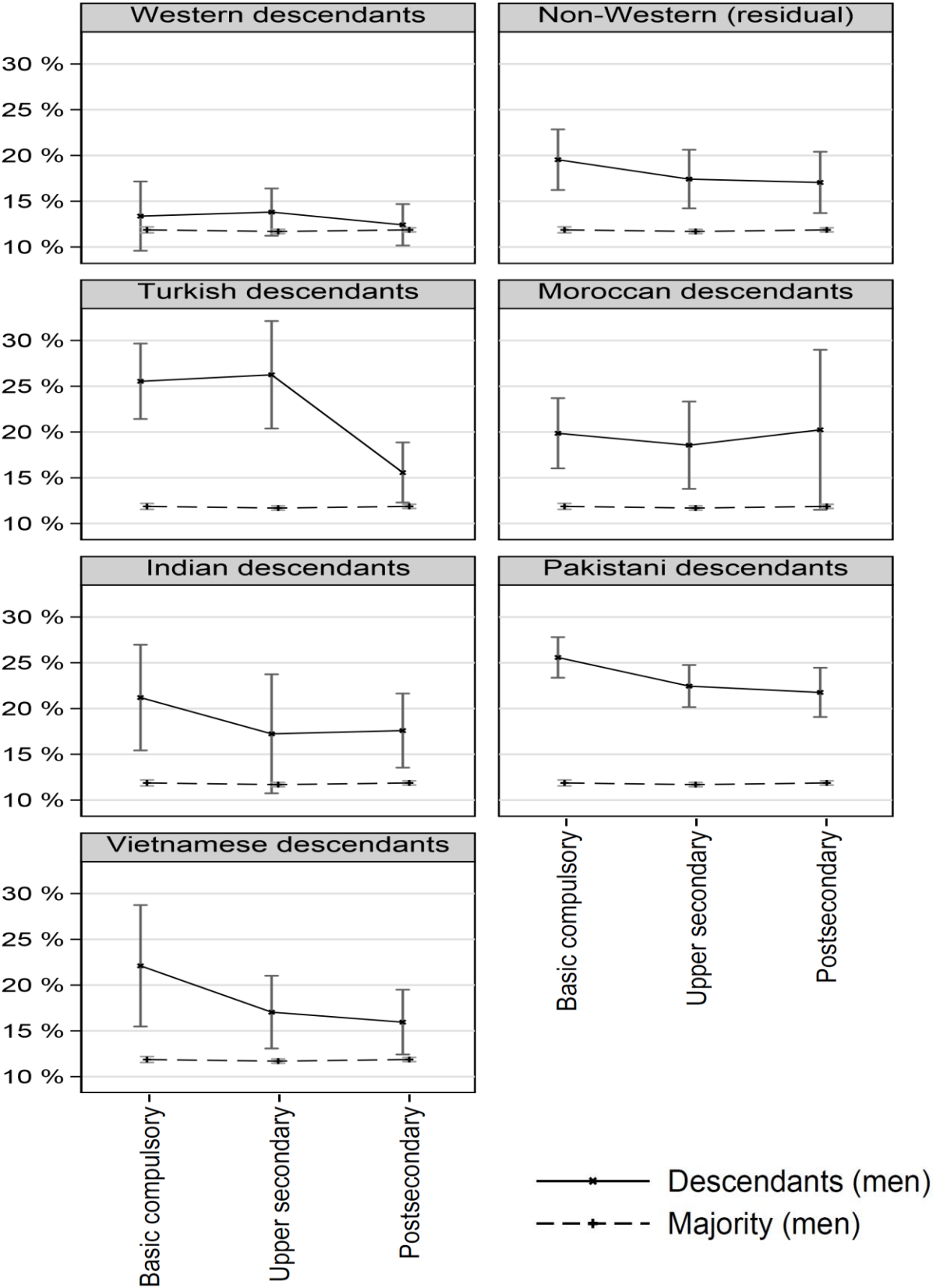
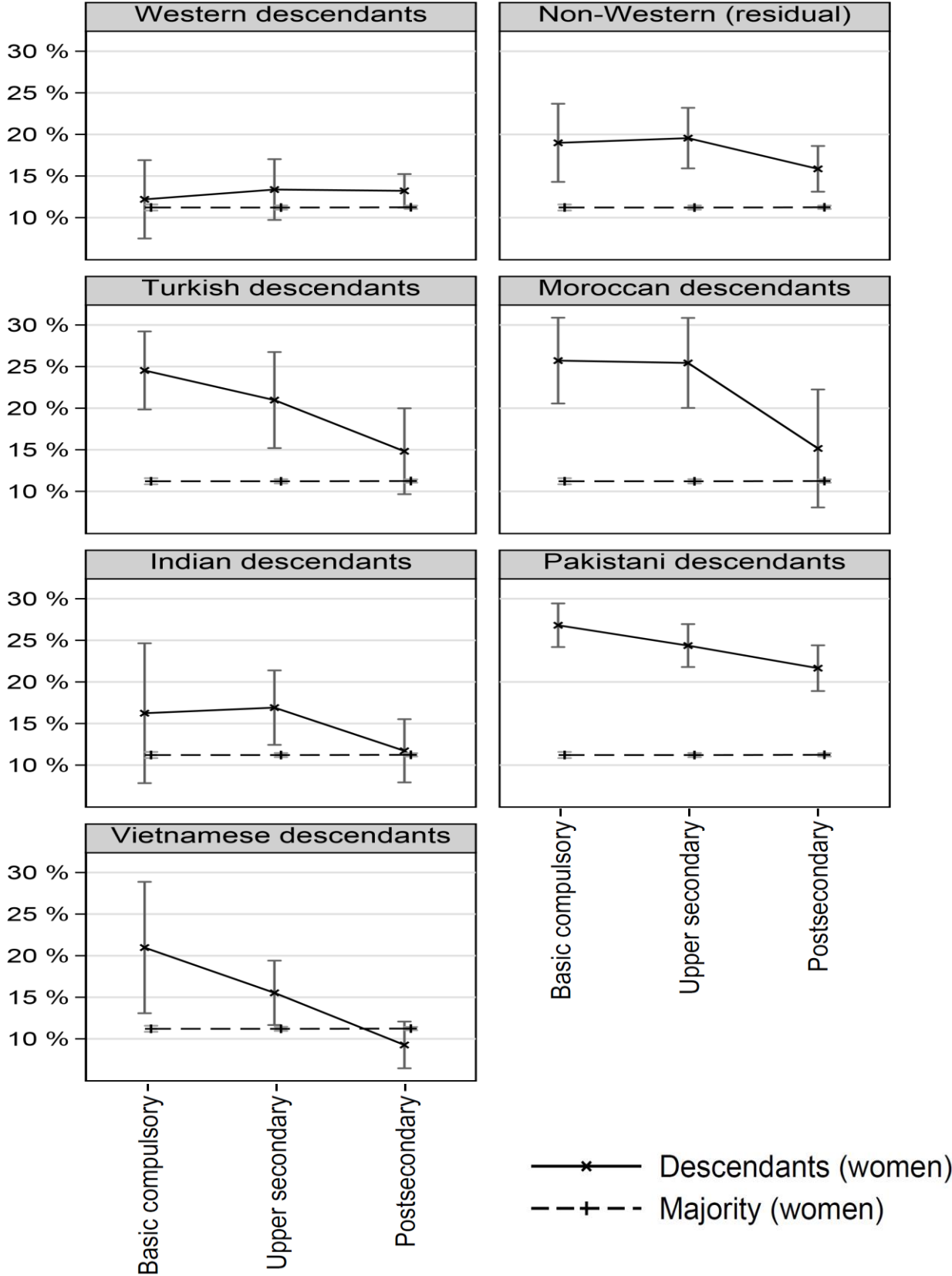


FIGURE 8.2 Predictions with 95 % confidence intervals for women (N=27,361): Estimated group differences in non-Westerners proportions in the destination neighbourhoods of immigrant descendants and equivalent majority peers according to educational level.



less education are predicted to have an average difference of 5-6 percentage points. More than half the of female Indian and Vietnamese descendants have acquired postsecondary education (cf. Table 7.1).^{75, 76}

Education is predicted to play a *minor role* among non-Western descendants in the residual country-of-origin group. When compared with equivalent majority peers, the average differences in non-Western proportions are only reduced from 8 to 5 percentage points between individuals with the lowest and highest educational level, respectively. However, it is important to remember that this is, presumably, a very diverse group in terms of other characteristics and not only countries-of-origin.

In sum, education mediates the association between origin and destination neighbourhood, but this association is heterogeneous: postsecondary education closes the neighbourhood attainment gap for female Indian and Vietnamese descendants, while it narrows the gap for descendants in the other non-Western groups, particularly Turkish descendants (both genders) and female Moroccan descendants. Education, however, does not seem to have an effect for male Moroccan descendants.

8.2.2 Income and Proportions of Non-Westerners

Figures 8.3 and 8.4 display predicted average group differences in non-Western proportions in the destination neighbourhoods between individuals with annual net incomes of 1) less than NOK 200,000, 2) NOK 200,000-299,999, 3) NOK 300,000-399,999, or (4) NOK 400,000, *ceteris paribus*. As above, each immigrant descendant group is compared separately with majority individuals.

The dashed lines are almost level and indicate that majority individuals settle in neighbourhoods with, on average, similar non-Western proportions regardless of income level, *ceteris paribus*.⁷⁷

⁷⁵ The predicted difference among Vietnamese descendants with postsecondary education is actually minus 2 percentage points, but non-significant ($p > 0.05$).

⁷⁶ The predicted difference for female Indian descendants with basic compulsory education is non-significant ($p > 0.05$) due to heterogeneity.

⁷⁷ These estimates are in line with the income coefficients in Models 4 in Tables 8.1 and 8.2.

Again, the lines representing Western descendants are quite similar to those representing the majority.⁷⁸

The lines representing all the non-Western groups are positioned *higher* on the y-axis, compared with the majority. With two exceptions, the main finding is that there is no consistent negative gradient between income levels and predicted non-Western proportions in the destination neighbourhoods. On the contrary, female Indian descendants are predicted to have a slack positive gradient. The other lines are rather randomly shaped. Some lines predict that individuals with the *highest level of income* (\geq NOK 400,000) settle in neighbourhoods with, on average, substantially lower non-Western proportions. Yet these and many point estimates have large confidence intervals. The two exceptions are Pakistani descendants (both genders) and female Vietnamese descendants.

Male and female Pakistani descendants with the *lowest income level* ($<$ NOK 200,000) are predicted to settle in neighbourhoods with, on average, 14 and 16 percentage points *higher* non-Western proportions, respectively, compared with equivalent majority peers. The gap is reduced to 10 percentage points among male Pakistani descendants with the highest income level (\geq NOK 400,000). The corresponding difference is only 5 percentage points among female Pakistani descendants. Yet, the latter difference is non-significant and should be read with caution ($p>0.05$).⁷⁹

Female Vietnamese descendants with the highest two income levels are predicted to *fully close* the neighbourhood attainment gap with equivalent female majority peers. Their female group peers with the two lowest income levels are predicted to settle in neighbourhoods with, on average, only slightly higher proportions (6 and 2 percentage points, respectively). An opposite trend applies to female Indian descendants. Yet, this means that female Indian and Vietnamese descendants are predicted to settle in neighbourhoods with *similar or slightly higher* non-Western proportions compared with female majority peers, given equality of income levels and

⁷⁸ The predicted average difference between Western descendants and equivalent majority peers ranges between -3 and $+3$. However, these differences are non-significant ($p>0.05$), except for female Western descendants with incomes between NOK 200,000 and 299,999 ($p<0.05$).

⁷⁹ Only 6 percent of the female Pakistani descendants have incomes in the highest level (cf. Table 7.1). Although many have settled in neighbourhoods with lower non-Western proportions, there are quite a few outliers.

FIGURE 8.3 Predictions with 95 % confidence intervals for men (N=28,386): Estimated group differences in non-Westerners proportions in the destination neighbourhoods of immigrant descendants and equivalent majority peers according to income level.

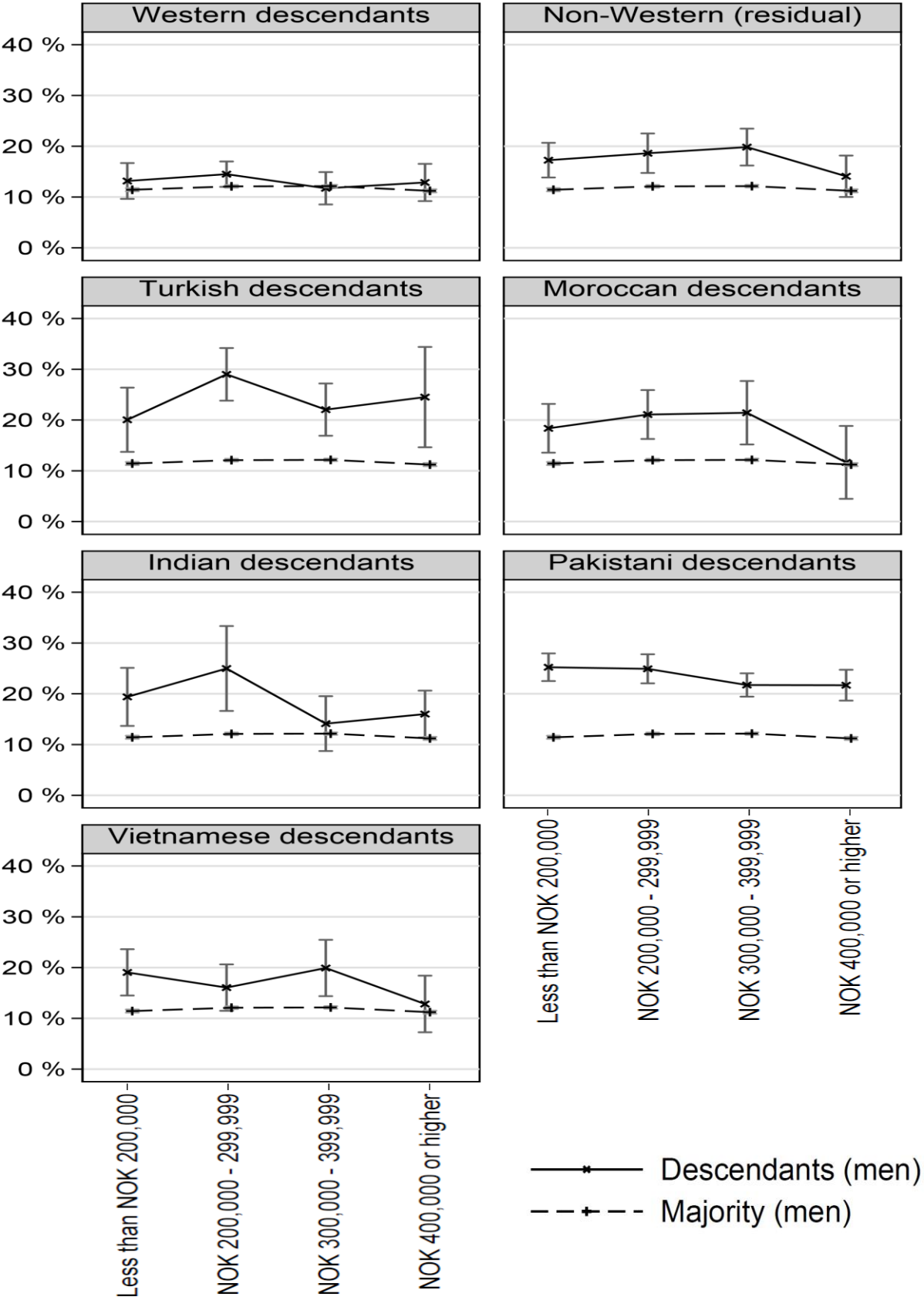
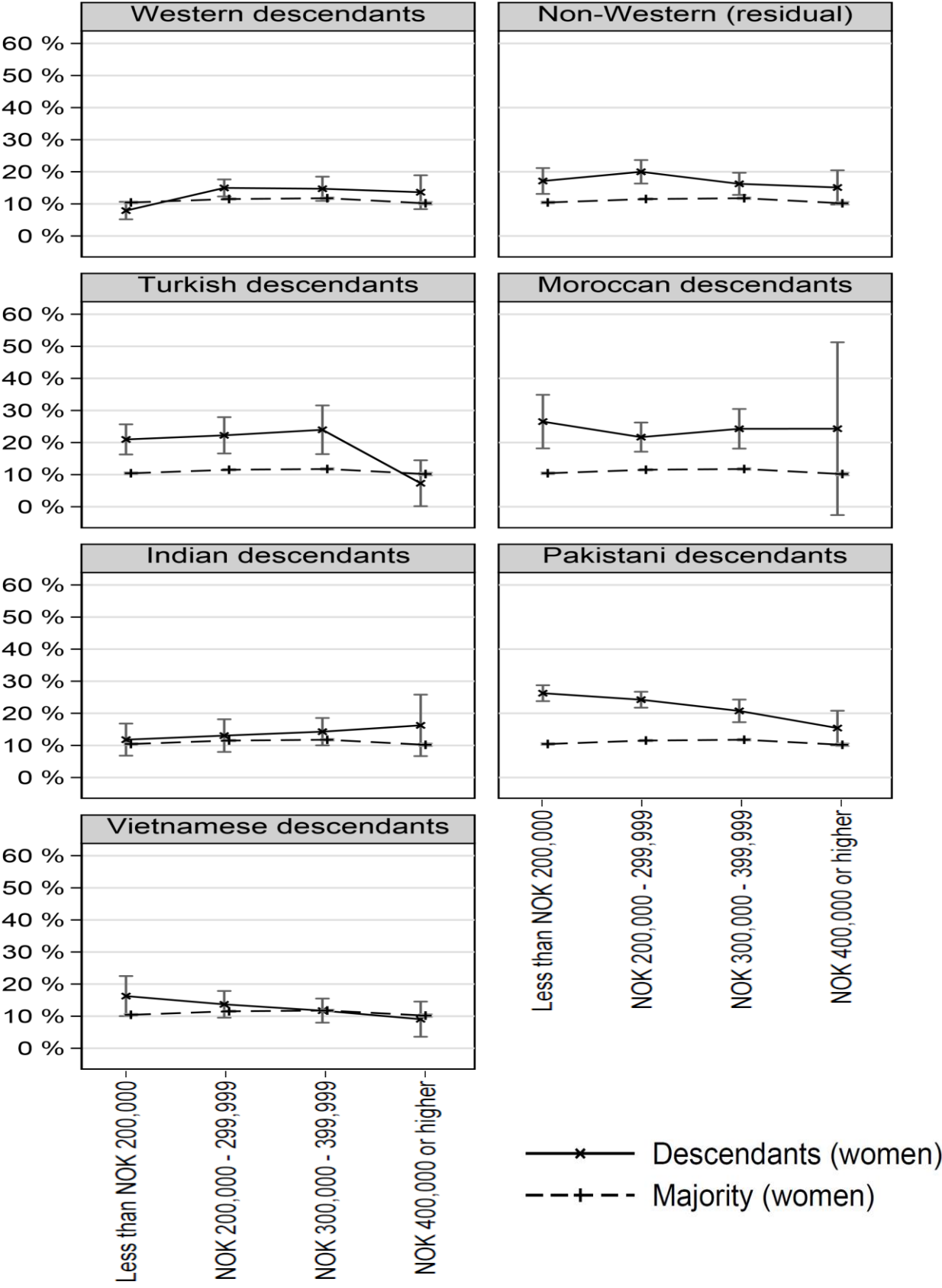


FIGURE 8.4 Predictions with 95 % confidence intervals for women (N=27,361): Estimated group differences in non-Westerners proportions in the destination neighbourhoods of immigrant descendants and equivalent majority peers according to income level.



other characteristics. In fact none of these differences are significant ($p > 0.05$).⁸⁰

The predicted differences for male Indian and Vietnamese descendants are more random, although not all of them are significant. There is, however, a predicted tendency that those with the highest income level (and more precisely the second highest income level among male Indian descendants) settle in neighbourhoods with *similar or just slightly* higher non-Western proportions, compared with equivalent male majority peers.

Turkish and Moroccan descendants are predicted to settle in neighbourhoods with substantially higher non-Western proportions compared with majority peers, on equality of income levels and other characteristics. The greatest differences concern male Turkish and female Moroccan descendants (ranging between 9 and 17 percentage points). However, *female* Turkish and *male* Moroccan descendants with the highest income level (\geq NOK 400,000) are predicted to settle in neighbourhoods with, on average, *similar* proportions as equivalent majority peers.⁸¹

As with education, income plays a minor role among non-Western descendants in the residual country-of-origin group in terms predicting lower non-Western proportions in their destination neighbourhoods. However, male descendants with the highest income level in this group have the lowest predicted difference compared with equivalent male majority peers.⁸²

In sum, income seems less important as a mediating variable between origin and destination neighbourhoods than one might expect if economic resources and opportunities were decisive. This might imply that other factors, such as preferences, play a larger role.

⁸⁰ The female Vietnamese descendants actually have settled in neighbourhoods with, on average, low non-Western proportions, regardless of their income level. There is slightly more heterogeneity among female Indian descendants with the lowest income level.

⁸¹ The predicted differences for female Turkish and male Moroccan descendants with the highest income level are non-significant ($p > 0.05$) and should be read with caution. Very few of the female Turkish (N=9) and male Moroccan descendants (N=12) have incomes this high. The same applies to female Moroccan descendants with the highest income level (N=3), as indicated by the huge confidence interval.

⁸² The predicted differences for non-Western descendants in the residual group (both genders) with the highest income level are non-significant ($p > 0.05$) due to heterogeneity among the few individuals with this income level.

8.2.3 Partner Status and Proportions of Non-Westerners

Figures 8.5 and 8.6 display predicted average group differences in non-Western proportions in the destination neighbourhoods for individuals 1) without cohabiting partners, 2) cohabiting with non-Western partners, or 3) cohabiting with majority partners, *ceteris paribus*. As above, each immigrant descendant group is compared separately with the majority individuals.^{83, 84}

The dashed lines show that majority individuals cohabiting with non-Western partners are predicted to settle in neighbourhoods with, on average, slightly higher non-Western proportions than majority individuals without cohabiting partners, *ceteris paribus*. This applies to a greater extent to women. Majority individuals cohabiting with majority partners are, on the other hand, predicted to settle in neighbourhoods with slightly lower non-Western proportions.⁸⁵

Western descendants are overall predicted to settle in neighbourhoods with *similar* non-Western proportions as majority peers, given equality of partner status and other characteristics. There is one exception: male Western descendants cohabiting with majority partners have an average difference in the proportion of non-Westerners that is 4 percentage points higher.⁸⁶

Looking at the non-Western descendants, two trends are obvious among individuals cohabiting with *majority partners*. First, they are predicted to settle in neighbourhoods with, on average, lower non-Western proportions, compared with *group peers* cohabiting with non-Western partners, *ceteris paribus*. Second, the predicted average differences between non-Western descendants and equivalent majority peers are smaller among those who reside with majority

⁸³ It is important to note that the partner variable is nominal, unlike the other interacting variables that are ordinal (cf. Figures 8.1-8.4 and 8.7-8.8). Therefore, the graphs in Figures 8.5 and 8.6 cannot really be interpreted as gradients. However, provided that immigrant descendants cohabiting with majority partners are presumed to have reached a higher level of cultural integration than their group peers cohabiting with non-Western partners, the lines that stretch between the point estimates of individuals with these two partner statuses may still be regarded as gradients.

⁸⁴ The interactions with the partner status categories are very explorative and the interpretation of some point estimates should be read with caution. The number of individuals cohabiting with majority partners (including a smaller number of partners of other Western origins) is very low in some of the non-Western groups. This especially applies to Turkish and Moroccan descendants (both genders), female Pakistani descendants and male Indian and Vietnamese descendants. Research on marriage patterns in Norway's immigrant population revealed generally high degrees of endogamy among non-Western immigrant descendants, including extensive spouse import from their parents' birth countries (Mohn 2016).

⁸⁵ These estimates are in line with the partner status coefficients in Models 4 in Tables 8.1 and 8.2.

⁸⁶ Only 4 percent of the male Western descendants are cohabiting with non-Western partners (N=8).

FIGURE 8.5 Predictions with 95 % confidence intervals for men (N=28,386): Estimated group differences in non-Westerners proportions in the destination neighbourhoods of immigrant descendants and equivalent majority peers according to partner status.

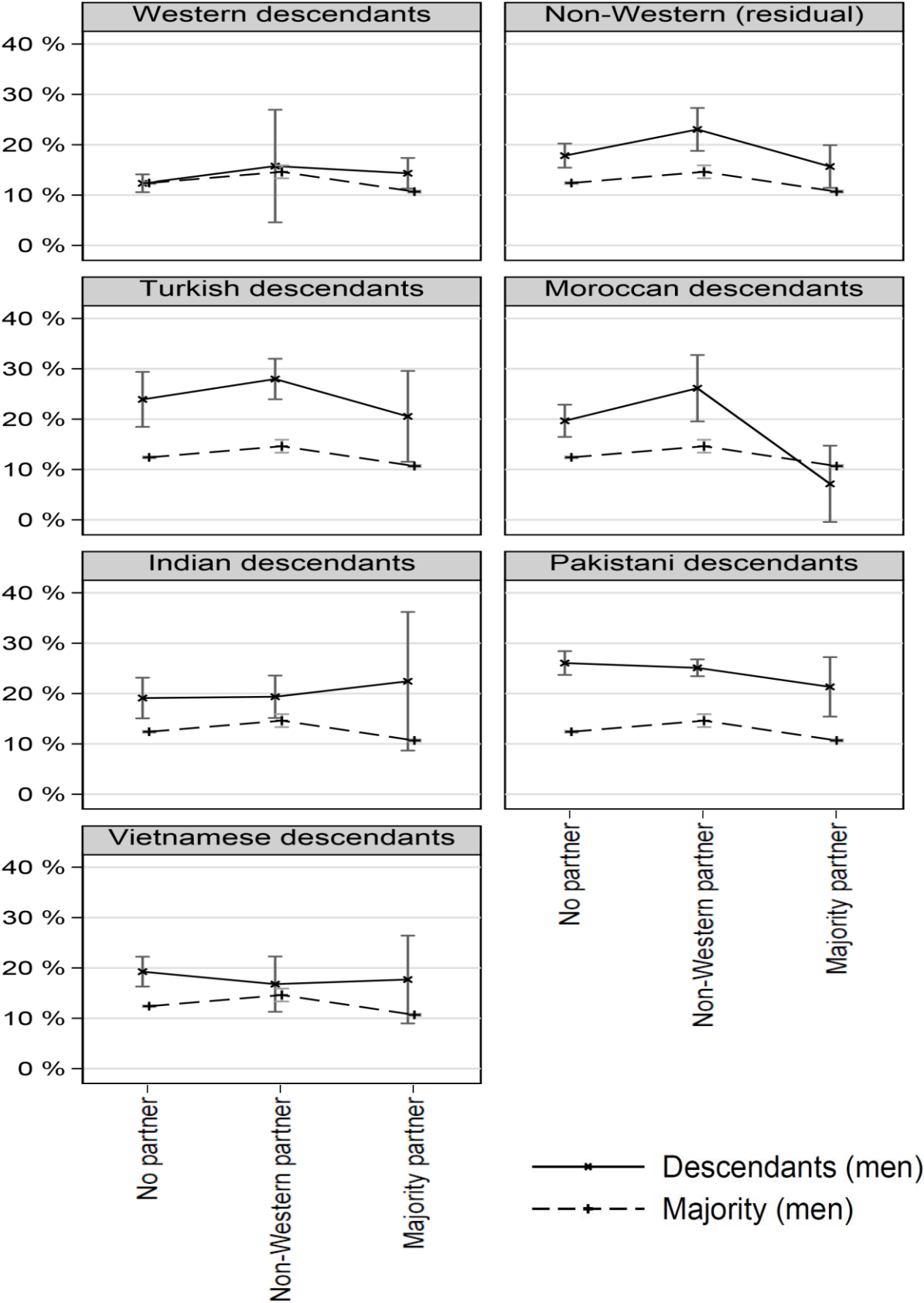
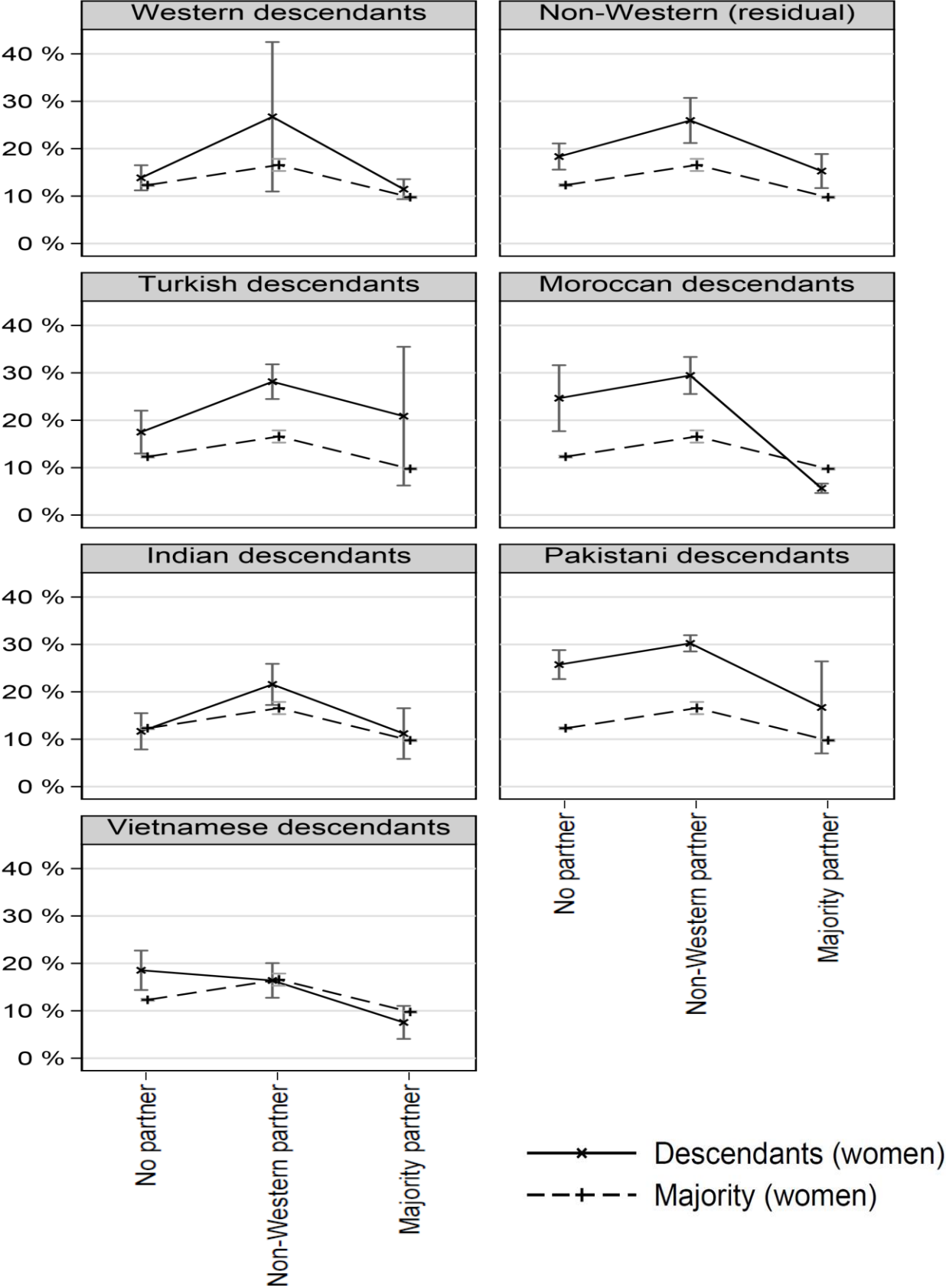


FIGURE 8.6 Predictions with 95 % confidence intervals for women (N=27,361): Estimated group differences in non-Westerners proportions in the destination neighbourhoods of immigrant descendants and equivalent majority peers according to partner status.



partners than for group peers with the other two partner statuses.⁸⁷ Looking at specific country-of-origin groups, none of these trends apply to male Indian and Vietnamese descendants, and only the first trend applies to male Pakistani and female Turkish descendants.

Moroccan descendants (both genders) as well as female Indian and Vietnamese descendants cohabiting with majority partner are actually predicted to settle in neighbourhoods with, on average, *similar* non-Western proportions as equivalent majority peers.⁸⁸ This does not apply to male Indian and Vietnamese descendants.⁸⁹ About 15 and 18 percent of the female Indian and Vietnamese descendants, respectively, are cohabiting with majority partners (cf. Table 7.1). Additionally, female Indian descendants without cohabiting partners and Vietnamese female descendants cohabiting with non-Western partners are also predicted to settle in neighbourhoods with, on average, *similar* non-Western proportions, compared with equivalent female majority peers.

Turkish and Pakistani descendants as well as non-Western descendants in the residual country-of-origin group with *all three partner statuses* are predicted to settle in neighbourhoods with, on average, *higher* non-Western proportions than equivalent majority peers, regardless of partner status. This applies to male Turkish and Pakistani descendants, in particular, with average differences ranging between 10 to 14 percentage points. Nevertheless, the smallest differences among male Turkish and female Pakistani descendants applies to individuals cohabiting with majority partners.⁹⁰

⁸⁷ Interestingly, non-Western descendants without cohabiting partners in some groups are also predicted to have a smaller difference than group peers cohabiting with non-Western partners. This could imply that traditional ethnic values and ethnic enclave tendencies are more prevalent among non-Western couples compared with single non-Western descendants. Alternatively, these couples might move closer to family and relatives due to practical reasons, such as receiving help with childcare.

⁸⁸ The differences for male Moroccan, and female Indian and Vietnamese descendants cohabiting with majority partners, as well as Vietnamese descendants (both genders) cohabiting with non-Western partners are non-significant ($p > 0.05$). The average difference of -4 percentage points for female Moroccan descendants should be read with caution although it is significant ($p < 0.001$). Only two individuals ($N=2$) are registered with this partner status.

⁸⁹ The differences for male Indian and Vietnamese descendants cohabiting with majority partners are non-significant ($p > 0.05$) due to heterogeneity among the few individuals with this partner status.

⁹⁰ The average difference of 10 percentage points for male Turkish descendants cohabiting with majority partners must be read with caution. Only ten individuals ($N=10$) are registered with this partner status. The difference for female Pakistani descendants is non-significant (> 0.05) due to heterogeneity among the small proportion of individuals cohabiting with majority partners (less than 2 percent).

In sum, cohabitation with majority partners mediates the association between origin and destination neighbourhood. This association, however, is also heterogeneous and does not apply to descendants in all non-Western groups. Moroccan descendants (both genders), female Indian and female Vietnamese descendants cohabiting with majority partners are fully closing the neighbourhood attainment gap, while others are narrowing the gap. Nevertheless, female Indian and Vietnamese descendants with other partner statuses are also closing the gap. Majority partners, however, do not seem to play a significant role for female Turkish and male Pakistani, Indian and Vietnamese descendants.

8.2.4 Origin vs. Destination Neighbourhoods: Proportions of Non-Westerners

Figures 8.7 and 8.8 display predicted average group differences in non-Western proportions in the destination neighbourhoods between individuals raised in neighbourhoods with non-Western proportions of 1) less than 10 percent, 2) 10-19 percent, 3) 20-29 percent, or 4) 30 percent or higher, *ceteris paribus*. Each immigrant descendant group is compared separately with the majority individuals.

The dashed lines predict a *slack positive gradient* between non-Western proportions in the origin and destination neighbourhoods among the majority individuals. This gradient is slightly less potent for each percentage category of non-Westerners in the origin neighbourhoods. Given equality of other characteristics, majority individuals raised in neighbourhoods with the highest non-Western proportions ($\geq 30\%$) are predicted to settle in neighbourhoods with, on average, 7 percentage points higher non-Western proportions than equivalent majority individuals raised in neighbourhoods with the lowest non-Western proportions ($< 10\%$). In other words, majority individuals raised in neighbourhoods with higher non-Western proportions are predicted to settle in neighbourhoods with relatively lower non-Western proportions.

The lines representing Western descendants deviate somewhat from the lines representing majority individuals. However, all predicted differences between Western descendants and equivalent majority peers raised in similar neighbourhoods are non-significant ($p > 0.05$), except for female Western descendants raised in neighbourhoods with 10-19 percent non-Westerners. This means that Western descendants overall are predicted to settle in neighbour-

⁹¹ These estimates are in line with the percentage category coefficients (of non-Westerners in the origin neighbourhoods) in Models 4 in Tables 8.1 and 8.2.

FIGURE 8.7 Predictions with 95 % confidence intervals for men (N=28,386): Estimated group differences in non-Westerners proportions in the destination neighbourhoods of immigrant descendants and equivalent majority peers according to non-Western proportions in origin neighbourhoods.

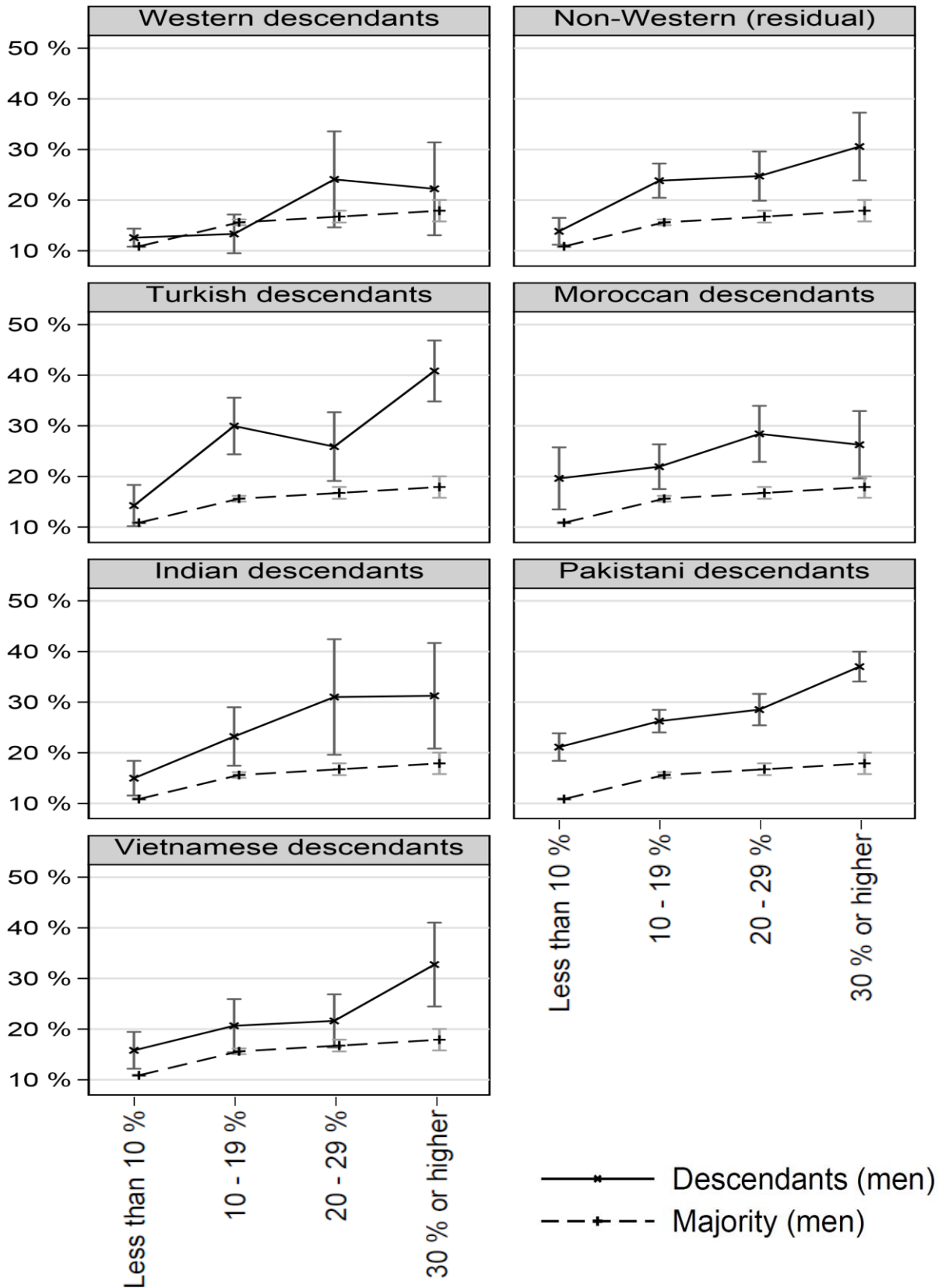
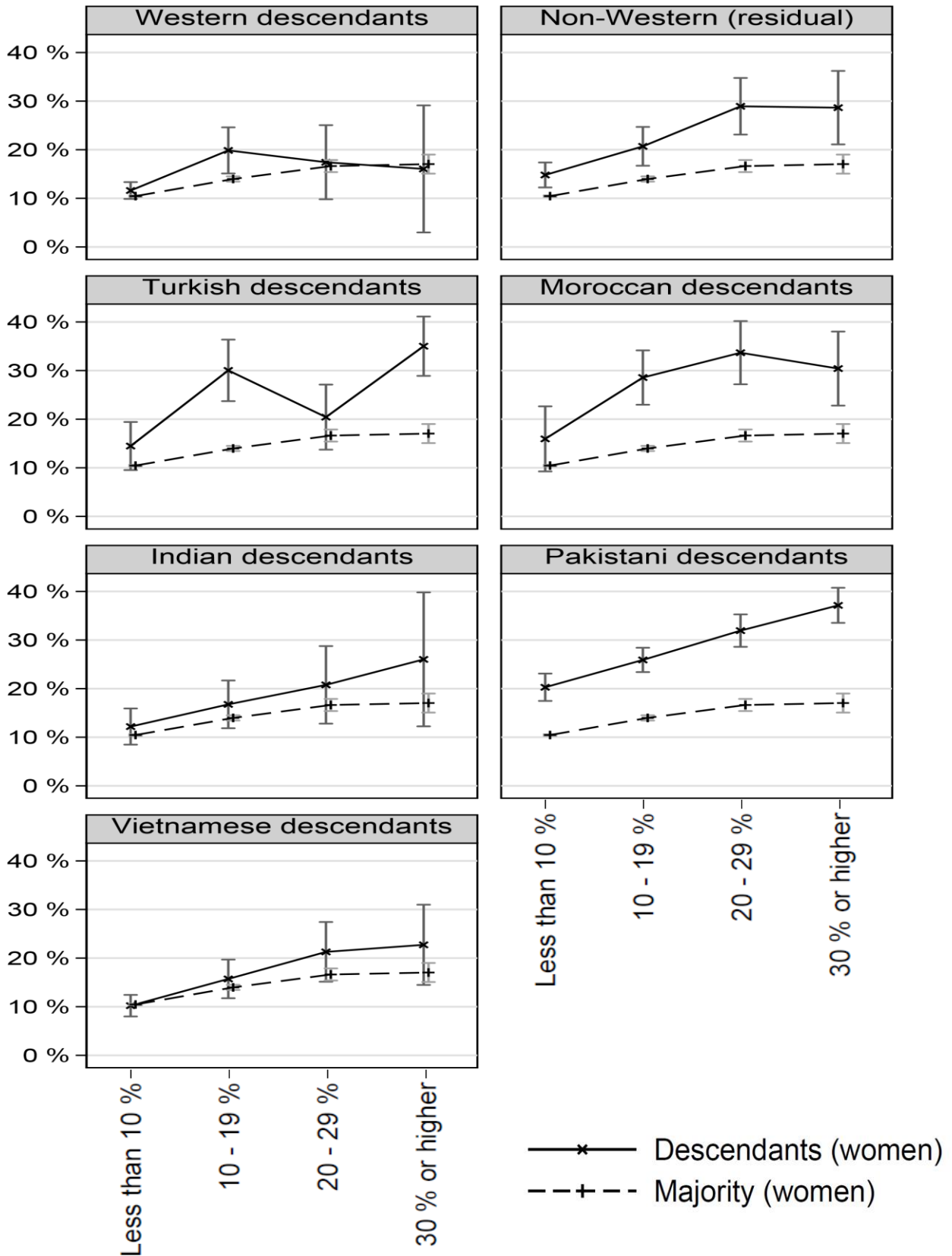


FIGURE 8.8 Predictions with 95 % confidence intervals for women (N=27,361): Estimated group differences in non-Westerners proportions in the destination neighbourhoods of immigrant descendants and equivalent majority peers according to non-Western proportions in origin neighbourhoods.



hoods with non-Western proportion that are rather similar to the non-Western proportions in the destination neighbourhoods of equivalent majority peers, regardless of non-Western proportions in the origin neighbourhoods.⁹²

The lines representing all the non-Western groups are positioned *higher* on the y-axis and are overall shaped as *steeper and more potent gradients*, compared with the lines representing the majority. This means that the predicted average differences in destination neighbourhoods between non-Western descendants and equivalent majority peers increase for each percentage category of non-Westerners in their origin neighbourhoods. However, the lines representing the non-Western groups are not equally steep and some of the lines are not completely consistent. Moreover, there are some within-group gender differences. Large confidence intervals related to point estimates indicate heterogeneity in non-Western proportions across the neighbourhoods of individuals.

The *steepest* lines belong to Turkish descendants, although the gradient is not consistent. Turkish descendants raised in neighbourhoods with less than 10 percent non-Westerners are predicted to settle in neighbourhoods with, on average, 4 percentage points higher non-Western proportions, compared with equivalent majority peers. The corresponding difference for descendants raised in neighbourhoods with the highest non-Western proportions ($\geq 30\%$) is 22 percentage points among men and 17 percentage points among women. Individuals raised in neighbourhoods with 20-29 percent non-Westerners have a smaller predicted difference than individuals raised in neighbourhoods with 10-19 percent non-Westerners. There is no immediate explanation for these patterns and this could be an area of research for future studies.⁹³

The predicted average difference between Pakistani descendants and equivalent majority peers raised in neighbourhoods with the highest non-Western proportions ($\geq 30\%$) is also quite large (19-20 percentage points). However, the average difference is also considerable (10 percentage points) among individuals raised in neighbourhoods with the lowest proportions ($< 10\%$). The

⁹² The differences for male Western descendants raised in neighbourhoods with 20-29 percent or 30 percent or higher non-Western proportions are non-significant due to heterogeneity among the few individuals raised in such neighbourhoods.

⁹³ The differences for Turkish descendants raised in neighbourhoods with less than 10 percent non-Westerners are non-significant ($p > 0.05$). The same applies to the difference for female Turkish descendants raised in neighbourhoods with 20-29 percent non-Westerners, which is due to heterogeneity.

predicted differences *increase* as the percentage of non-Westerners in the origin neighbourhoods increase. Small confidence intervals related to the point estimates of Pakistani descendants, compared with the other groups, indicate that their gradient is more rigid.

Moroccan descendants, as the Pakistani descendants, are also predicted to settle in neighbourhoods with *substantially higher* non-Western proportions, compared with equivalent majority peers raised in similar neighbourhoods. However, the lines representing Moroccan descendant do not increase relative to the increases in the percentage categories. Moreover, the gradient descends between the second highest and highest percentage categories, which indicates that the greatest difference does not concern individuals raised in neighbourhoods with the highest proportions. The differences are large for women, except among those raised in neighbourhoods with the lowest non-Western proportions.⁹⁴

The greatest within-group gender differences concern Indian and Vietnamese descendants. The lines representing Indian descendants increase as the percentage of non-Westerners in the origin neighbourhoods increase (except between the second highest and highest percentage categories among male Indian descendant). However, the line representing male Indian descendants is steeper and predicts average differences ranging from 4 to 14 percentage points. Corresponding differences among female Indian descendants range between 2 and 4 percentage points from the lowest to the *second* highest category, whereas a difference of 9 percentage points concerns female Indian descendants raised in neighbourhoods within the highest non-Western proportions. Nonetheless, all predicted differences for female Indian descendants are non-significant ($P > 0.05$). This indicates that female Indian descendants overall tend to settle in neighbourhoods with similar or just slightly higher non-Western proportions, when compared with equivalent female majority peers, especially those raised in neighbourhoods with less than 30 percent non-Westerners.⁹⁵

Male Vietnamese descendants are predicted to settle in neighbourhoods with, on average, 4-5 percentage points higher non-Western proportions, compared with equivalent male majority peers, with the exception of those raised in neighbourhoods with the highest non-Western

⁹⁴ The average difference of 6 percentage points for female Moroccan descendants raised in neighbourhoods with less than 10 percent non-Westerners is non-significant ($p > 0.05$) due to heterogeneity.

⁹⁵ The predicted difference for female Indian descendants raised in neighbourhoods with more than 30 percent non-Westerners is mainly non-significant ($p > 0.05$) due to heterogeneity.

proportions ($\geq 30\%$). The average difference for individuals raised in neighbourhoods with the highest non-Western proportions is as high as 15 percentage points.⁹⁶ Female Vietnamese descendants, on the other hand, are overall predicted to settle in neighbourhoods with rather similar non-Western proportions, compared with equivalent female majority peers, regardless of their origin neighbourhoods. Their predicted differences, ranging from 0 to 5 percentage points, are non-significant ($p > 0.05$).

Finally, the lines representing non-Western descendants in the residual country-of-origin group are also quite steep with average differences ranging from 3-4 to 12-13 percentage points. The line representing female descendants is slightly steeper and differences are equally high among individuals raised in neighbourhoods with non-Western proportions in the second highest and highest percentage categories.

In sum, the positive association between non-Western proportions in the origin and destination neighbourhoods is much stronger for descendants in most non-Western groups, compared with equivalent majority peers. It seems to be strongest for Pakistani descendants and, with some exceptions, for Turkish descendants. This association, however, is not on average stronger for female Indian and Vietnamese descendants than for their equivalent female majority peers, which means that they tend to settle in neighbourhoods with relatively lower non-Westerners proportions compared with their origin neighbourhoods. Moroccan descendants, on the other hand, tend to settle in neighbourhoods with, on average, higher non-Western proportions regardless of their origin neighbourhoods.

8.2.5 Summary of Interactions

Education

Education is a good indicator of non-Western proportions in destination neighbourhoods among non-Western descendants. The main pattern shows that postsecondary education narrows or fully closes the gap between the non-Western descendants in all groups and majority peers, *ceteris paribus*. There is, however, an exception for male Moroccan descendants, who are predicted to settle in neighbourhoods with higher non-Western

⁹⁶ The differences for male Vietnamese descendants raised in neighbourhoods with 10-19 or 20-29 percent non-Westerners are non-significant ($p > 0.05$).

proportions, regardless of their educational levels. Western descendants, on the other hand, are predicted to settle in neighbourhoods with non-Western proportions that are similar to the non-Western proportions in the neighbourhoods of equivalent majority peers, regardless of education.

Female Indian and Vietnamese descendants with postsecondary education are on average fully closing the gap, while Turkish descendants (both genders) narrow the gap considerably. Female Moroccan and male Vietnamese descendants with postsecondary education are on average predicted to almost closed the gap, in contrast to their group peers with less education, who are predicted to settle in neighbourhoods with substantially higher non-Western proportions. Pakistani descendants with postsecondary education are only closing the gap somewhat as they still settle in neighbourhoods with, on average, substantially higher non-Western proportions.

Hypothesis 4 is considered confirmed: *(H4) The average difference between non-Western proportions in the destination neighbourhoods of non-Western descendants and equivalent majority peers is smaller for descendants with higher education, compared with descendants with lower education.* An expectation applies to male Moroccan descendants. The hypothesis is not entirely correct for female Indian and Vietnamese descendants with postsecondary education either, as they are not predicted to have average differences at all.

Income

When compared with education, income is generally a poor indicator of non-Western proportions in destination neighbourhoods. The only noteworthy negative gradient between income levels and predicted lower proportions concerns Pakistani descendants. However, the neighbourhood attainment gap is reduced considerably only for female Pakistani descendants with the highest income level (\geq NOK 400,000). Only about 6 percent of the female Pakistani descendants have incomes this high.

Nevertheless, female Turkish and male Moroccan descendants with the highest income level are nevertheless predicted to fully close the gap, as opposed to group peers with lower incomes who are predicted to settle in neighbourhoods with considerably higher non-Western proportions.

Female Indian and Vietnamese descendants are predicted to settle in neighbourhoods either with similar or somewhat higher non-Western proportions, compared with equivalent majority peers, regardless of income. Female Moroccan descendants and male Turkish descendants, on the other hand, are predicted to have large differences, regardless of income.

Hypothesis 5 is partially confirmed: *(H5) The average difference between non-Western proportions in the destination neighbourhoods of non-Western descendants and equivalent majority peers is smaller for descendants with higher incomes, compared with descendants with lower incomes.* Exceptions apply to female Moroccan, Indian and Vietnamese descendants and male Turkish descendants.

Hypothesis 6 is refuted: *(H6) The average difference between non-Western proportions in the destination neighbourhoods of non-Western descendants and equivalent majority peers is smaller for Indian and Vietnamese descendants with high incomes, compared with descendants from the other country-of-origin groups that have high incomes.*

Partners status

Non-Western descendants cohabiting with majority partners are predicted to settle in neighbourhoods with, on average, lower non-Western proportions, compared with equivalent *group peers* cohabiting with non-Western partners. Moreover, in some of the groups, the smallest average difference between non-Western descendants and equivalent majority peers concerns individuals cohabiting with majority partners.

Moroccan descendants (both genders) cohabiting with majority partners are, on average, predicted to close the locational attainment gap. The same applies to female Indian and Vietnamese descendants, although this is not unique for those who reside with majority partners.

Hypothesis 7 is partially confirmed: *(H7) The average difference between non-Western proportions in the destination neighbourhoods of non-Western descendants and equivalent majority peers is smaller for descendants cohabiting with majority partners, compared with descendants cohabiting with non-Western partners.* Exceptions apply to Indian and Vietnamese descendants (both genders), female Turkish and male Pakistani descendants. The hypothesis is not entirely correct for male Moroccan descendants cohabiting with majority partners either, as they are not predicted to have average differences at all.

Non-Western proportions in the origin neighbourhoods

Proportion of non-Westerners in origin neighbourhoods is, in most cases, a very good indicator of whether the non-Western descendants settle in neighbourhoods with higher or lower non-Western proportions. The main trend is that the average differences between non-Western proportions in the destination neighbourhoods of non-Western descendants and equivalent majority peers increase as the percentage of non-Westerners in the origin neighbourhoods increase. Hence, the greatest difference among descendants in most non-Western groups concern individuals raised in neighbourhoods with the highest non-Western proportions ($\geq 30\%$). However, this does not apply to Moroccan descendants (both genders) and female Indian and Vietnamese descendants.

Female Indian and Vietnamese descendants are not predicted to have significant differences, regardless of non-Western proportions in their origin neighbourhoods. The opposite applies to Moroccan descendants, as they are predicted to have large differences, regardless of their origin neighbourhoods.

Hypothesis 8 is considered confirmed: *(H8) The average difference between non-Western proportions in the destination neighbourhoods of non-Western descendants and equivalent majority peers is larger for descendants raised in neighbourhoods with higher non-Western proportions, compared with descendants raised in neighbourhoods with lower non-Western proportions.* Exceptions apply to Moroccan descendants (both genders) and female Indian and Vietnamese descendants.

This chapter has analysed neighbourhood attainment among the non-Western descendants and related the results to the eight hypotheses outlined in Chapter 4. The next and final chapter offers a summarising discussion and some overall conclusions.

9 Discussion and Conclusions

The aim of this thesis has been to explore developments in neighbourhood concentrations among the non-Western immigrant population in the Oslo region, with a specific focus on adult descendants of Turkish, Moroccan, Indian, Pakistani and Vietnamese immigrants. The region has seen an extensive increase in the immigrant population during the last five decades and official population projections indicate that about every second resident of Oslo will have an immigrant background by 2040. It is a well-documented fact that the non-Western proportion is far from evenly distributed across the Oslo region. Perceived negative consequences of high ethnic residential concentrations are frequently expressed as a concern, referring to social challenges seen in other European cities. Therefore, it is important to investigate whether non-Western descendants tend to settle in neighbourhoods with lower non-Western proportions than are found in the neighbourhoods they grew up in, or if their choices about where to live serve to maintain or increase ethnic neighbourhood concentrations.

Many non-Western descendants perform well in the educational system and the labour market. However, research on whether they also tend to integrate socially and spatially is still sparse. This thesis has attempted to narrow this knowledge gap by analysing to what extent 30-year-old non-Western descendants settle in neighbourhoods with similar non-Western proportions, compared with majority peers on equality of characteristics.

According to the spatial assimilation model, ethnic minorities will relocate to more prosperous neighbourhoods, usually characterised by lower proportions of ethnic minorities, as they improve their socioeconomic status and adapt to the culture of the 'hosting' society. If so, this should probably be more applicable to immigrant descendants than the immigrants themselves. The place stratification model claims that ethnic minorities groups, some more than others, often are structurally impaired from undergoing the process outlined in the spatial assimilation model, whereas the ethnic enclave model holds that ethnic minorities prefer to settle in neighbourhoods characterised by high minority proportions because they want to live close to co-ethnics.

9.1 Main Findings

Neighbourhood contexts: ethnic segregation in the Oslo region

Chapter 6 explored the neighbourhood contexts in which the individuals studied in this thesis were raised (measured at age 16 in 1990-1996), and where many have subsequently settled as adults (measured at age 30 in 2004-2010). The maps presented in Chapter 6 showed that the non-Western population in Oslo has increased substantially during the time period of 1990-2010. Whereas only one neighbourhood in Oslo had a non-Western proportion exceeding 50 percent in 1990, this applied to thirty-three neighbourhoods in 2010. From being mostly concentrated in a cluster of neighbourhoods in Oslo inner east and a handful of neighbourhoods in the southeast in 1990, non-Westerners had settled in many eastern neighbourhoods by 2010. The main increase of non-Westerners has taken place in northeastern neighbourhoods that were characterised by low non-Western proportions in 1990. Oslo has undoubtedly become an ethnically divided city. The ethnic division largely follows the traditional east/west socio-economic divide.

Despite the fact that non-Westerners in Oslo are quite concentrated, measures of dissimilarity (D-index) show they became only slightly more segregated during the measurement periods (1990-1996 and 2004-2010). Simultaneously, they became slightly less segregated within the larger Oslo region. About 45 percent of all non-Westerners would have had to relocate to another neighbourhood in order to become completely spatially integrated with the majority population in 2010. In comparison, only 20 percent of the Western immigrant population would have had to do the same. Among the Turkish, Moroccan, Indian, Pakistani and Vietnamese groups, segregation levels were found to be higher than segregation levels among the non-Western population at large. However, segregation levels vary by group. Despite the fact that Vietnamese descendants were the most segregated group in 1990, they proved to be second least segregated after the Indian group by 2010, in both Oslo and the larger region. In Oslo, the Pakistani had become the most segregated became most segregated group by 2010, despite that it was the least segregated in 1990. Yet, the Turkish and Moroccan groups were the most segregated in the larger region in 2010. To end segregation in 2010, 64 and 68 percent of their members, respectively, would have had to relocate to another neighbourhood.

Finally, Chapter 6 detected that *ethnic enclave preferences might be prevalent among Turkish and Pakistani descendants*. Turkish and Pakistani descendants who were raised in neighbour-

hoods characterised by higher non-Western proportions ($\geq 30\%$) or who had settled in such neighbourhoods as adults, were on average found to share these neighbourhoods with substantial proportions of co-ethnics.

Aggregated patterns

Chapter 7 outlined differences in the characteristics of the immigrant descendants and their majority peers. The majority individuals were raised in neighbourhoods with, on average, 4 percent non-Westerners and they have subsequently settled in neighbourhoods with, on average, 11-12 percent non-Westerners. The corresponding figures for Western descendants are only slightly higher. In comparison, the average non-Western proportion in the origin neighbourhoods among the non-Western descendants ranged between 13 and 26 percent, whereas the average proportions in their destination neighbourhoods ranged between 20 and 34 percent. The lowest figures apply to Indian and Vietnamese descendants, as well as to descendants in the residual group, while the highest figures apply to Turkish and Pakistani descendants, and female Moroccan descendants. Moreover, the socioeconomic and social background characteristics of non-Western descendants are generally lower among the non-Western descendants, compared with their majority peers and Western descendants. However, Indian and Vietnamese descendants have on average acquired higher levels of education than their majority peers. Additionally, female Indian and Vietnamese descendants have higher average incomes than their female majority peers.

Neighbourhood attainment among non-Western descendants

Chapter 8 presented results from OLS models that predicted average differences in non-Western proportion in the *destination neighbourhoods* between the immigrant descendants and their majority peers, on equality of characteristics. Moreover, it was considered whether group differences vary by country-of-origin, gender, levels of socioeconomic resources and cultural integration, as well as non-Western proportions in the *origin neighbourhoods*. The analyses followed three research questions:

1. *To what extent do adult non-Western descendants settle in neighbourhoods with low non-Western proportions, compared with majority peers on equality of individual, social background and origin neighbourhood characteristics?*
2. *To what extent are socioeconomic resources (measured as education and income) and cultural integration (measured as partners' country-of-origin) associated*

with lower non-Western proportions in the destination neighbourhoods of non-Western descendants associated with different country-of-origin groups?

3. *To what extent do adult non-Western descendants raised in neighbourhoods with dissimilar non-Western proportions settle in neighbourhoods with lower non-Western proportions, compared with majority peers on equality of individual, social background and origin neighbourhood characteristics?*

Moreover, the analyses were aimed at testing eight hypotheses, based on theory and previous research outlined in Chapters 2 and 3. Table 9.1 gives an overview of the hypotheses with results and brief comments.

As expected in Hypothesis 1, the first part of the OLS analysis found that the non-Western descendants in all groups, on average, settle in neighbourhoods with *higher* non-Western proportions compared with majority peers, on equality of individual and social background characteristics and non-Western proportions in the origin neighbourhoods. This included a consideration of socioeconomic resources and cultural integration, measured as education, income and partner's country-or-origin. In comparison, Western descendants were found to settle in neighbourhoods with, on average, similar or just slightly higher non-Western proportions compared with majority peers, on equality of characteristics. In the rest of the OLS analyses, discussed below, Western descendants were overall predicted to settle in neighbourhoods with similar or marginally higher non-Western proportions. They will therefore not be mentioned hereinafter.

The fact that non-Western descendants, or more specifically, Pakistani and Turkish descendants, settle in neighbourhoods with higher non-Western proportions, despite equality of characteristics with majority peers may indicate that they have preferences for settling in neighbourhoods characterised by co-ethnics and other ethnic minorities, which is in line with the *ethnic enclave model*. Alternatively, they may somehow be impaired from gaining access to neighbourhoods characterised by lower non-Western proportions, which is suggested in the *place stratification model*. Although, the former seems more relevant in the Norwegian context, ethnic discrimination in the housing market has been detected. Factual or perceived harassment and social exclusion in neighbourhoods predominated by the majority population may also stop non-Western descendants from relocating to such neighbourhoods. Alternatively, there may be more pragmatic reasons as to why many settle in neighbourhoods with higher non-Western

proportions. The fact that many descendants share neighbourhoods with their parents, may imply that they prefer to settle close to them when they start families and have children.

Pakistani descendants were expected to have the highest average difference in non-Western proportions compared with equivalent majority peers (Hypothesis 2). However, this was only confirmed for female Pakistani descendants. Nevertheless, Pakistani and Turkish descendants of both genders, as well as female Moroccan descendants, were all found to settle in neighbourhoods with considerably higher non-Western proportions compared with equivalent majority peers.

As expected in Hypothesis 3, the *lowest* average differences in non-Western proportions were found in the destination neighbourhoods of Indian and Vietnamese descendants. Female Indian and Vietnamese descendants were not predicted to settle in neighbourhood with significantly higher proportions compared with equivalent female majority peers. In comparison, male Indian and Vietnamese descendants were found to settle in neighbourhoods with, on average, 6 and 8 percentage points higher proportions, respectively, compared with equivalent male majority peers.

So far, the predicted group differences concern the average difference among all members, given equality of characteristics with majority peers. The next step of the OLS analysis set out to explore whether group differences vary by educational levels, income levels, and partners' country-of-origin. According to the weak version of the spatial assimilation model, non-Western descendants with *higher* levels of socioeconomic and cultural integration will tend to settle in neighbourhoods with lower non-Western proportions. A strong version of the spatial assimilation model rests on a principle of 'equality of opportunities', asserting that non-Western descendants and majority peers with *equal* levels of socioeconomic and cultural resources will tend to settle in neighbourhoods with equal non-Western proportions.

Education

When considering educational levels, as expected in Hypothesis 4, the average differences between non-Western proportions in the neighbourhoods of non-Western descendants and equivalent majority peers were found to be smaller among individuals with postsecondary education, and, to some degree, among those with upper secondary education. This points to a mechanism of *weak spatial assimilation* that applies to descendants in all non-Western groups,

TABLE 9.1 Hypotheses and main findings: Expected differences in non-Western proportions in the destination neighbourhoods of non-Western descendants and equivalent majority peers

<i>Hypothesis</i>	<i>Content / expectation</i>	<i>Result</i>	<i>Comments</i>
<i>H1</i>	Non-Western descendants settle in neighbourhoods with, on average, higher non-Western proportions, compared with equivalent majority peers.	Confirmed for all groups	(cf. Tables 8.1 and 8.2)
<i>H2</i>	The average difference between non-Western proportions in the destination neighbourhoods of non-Western descendants and equivalent majority peers is greater for Pakistani descendants, compared with descendants from the other non-Western groups.	Confirmed for female Pakistani descendants	The average difference among male Turkish descendants is predicted to be slightly larger than the average difference among male Pakistani descendants. (cf. Tables 8.1 and 8.2)
<i>H3</i>	The average difference between non-Western proportions in the destination neighbourhoods of non-Western descendants and equivalent majority peers is smaller for Indian and Vietnamese descendants, compared with descendants from the other non-Western groups.	Confirmed	Female Indian and Vietnamese descendants are not predicted to have an average difference. The average difference among male Indian descendants is predicted to be slightly larger than the average difference among male descendants in the non-Western residual group. (cf. Tables 8.1 and 8.2)
<i>H4</i>	The average difference between non-Western proportions in the destination neighbourhoods of non-Western descendants and equivalent majority peers is smaller for descendants with higher education, compared with descendants with lower education.	Confirmed, except for male Moroccan descendants	The average differences among male Moroccan descendants are predicted to be large, regardless of their educational levels. The average differences among Pakistani descendants with postsecondary education is still predicted to be large. (cf. Figures 8.1 - 8.2)
<i>H5</i>	The average difference between non-Western proportions in the destination neighbourhoods of non-Western descendants and equivalent majority peers is smaller for descendants with higher incomes, compared with descendants with lower incomes.	Confirmed, except for female Moroccan, Indian and Vietnamese descendants, and male Turkish descendants	Female Indian and Vietnamese descendants are not predicted to have average differences, regardless of their income levels. Among their male group peers, there is no consistent association between income levels and non-Western proportions. The average differences among male Turkish and female Moroccan descendants are predicted to be large, regardless of their income levels. (cf. Figures 8.3 – 8.4)

Table 9.1 continued

<i>Hypothesis</i>	<i>Content / expectation</i>	<i>Result</i>	<i>Comments</i>
<i>H6</i>	The average difference between non-Western proportions in the destination neighbourhoods of non-Western descendants and equivalent majority peers is smaller for Indian and Vietnamese descendants with high incomes, compared with descendants from the other country-of-origin groups that have high incomes.	Refuted	See comments for Hypothesis 5. (cf. Figures 8.3 - 8.4)
<i>H7</i>	The average difference between non-Western proportions in the destination neighbourhoods of non-Western descendants and equivalent majority peers is smaller for descendants cohabiting with majority partners, compared with descendants cohabiting with non-Western partners.	Confirmed, except for Indian and Vietnamese descendants (both genders), female Turkish and male Pakistani descendants	Female Vietnamese descendants with either majority partners or non-Western partners are not predicted to have average differences. The same applies to female Indian descendants with majority partners or without (cohabiting) partners. The average differences among male Indian and Vietnamese descendants with other partner statuses are predicted to be smaller than the average difference among their male group peers with majority partners. The average differences among female Turkish and male Pakistani descendants are predicted to be larger, regardless of their partner status. Moroccan descendants (both genders) with majority partners are not predicted to have average differences. (cf. Figures 8.5 - 8.6)
<i>H8</i>	The difference between non-Western proportions in the destination neighbourhoods of non-Western descendants and equivalent majority peers is larger for individuals raised in neighbourhoods with higher non-Western proportions, compared with descendants raised in neighbourhoods with lower non-Western proportions.	Confirmed, except for Moroccan descendants, and female Indian and Vietnamese descendants	Female Indian and Vietnamese are not predicted to have average differences, regardless of non-Western proportions in their origin neighbourhoods. Moroccan descendants are overall predicted to have large differences, and the largest differences do not apply to those who were raised in neighbourhoods with the highest non-Western proportions. (cf. Figures 8.7 - 8.8)

with the exception of male Moroccan descendants. However, this mechanism is not equally strong for all groups and both genders.

Female Indian and Vietnamese descendants with postsecondary education were, on average, found to fully close the neighbourhood attainment gap, in terms of settling in neighbourhoods with similar non-Western proportions as equivalent female majority peers. Other non-Western descendants with postsecondary education were also predicted to narrow the gap considerably. Nevertheless, while about half the Indian and Vietnamese descendants have acquired postsecondary education, this applies to smaller proportions in other groups.

Education is regarded as both a socioeconomic and cultural resource. Reasons for why higher education would matter in terms of neighbourhood attainment among non-Western descendants could be that they have acquired mainstream cultural norms and values through socialisation in educational institutions. These mainstream cultural norms may include neighbourhood preferences that are more in line with the preferences of majority peers. Many have probably also developed stronger networks with majority peers.

Although Pakistani descendants with postsecondary education were found to slightly narrow the neighbourhood attainment gap, their average difference is 10 percentage points higher compared with equivalent majority peers. This may express a combination of weak spatial assimilation and ethnic enclave/place stratification mechanisms. Male Moroccan descendants, on the other hand, were found to settle in neighbourhoods with higher non-Western proportions, regardless of their educational level.

Income

Income was overall found to be a poorer predictor of non-Western proportions in the neighbourhoods of non-Western descendants. No clear association between income levels and neighbourhood attainment was found. Nevertheless, in some groups, descendants with the highest incomes (\geq NOK 400000) were found to either fully close or narrow the gap, compared with equivalent majority peers. This points to a second mechanism of weak spatial assimilation and confirmed the expectation raised in Hypothesis 5, although with reservations. High income was found to play an important role for male Moroccan and female Turkish descendants especially, as they on average fully close the gap. They may represent a selected group of well-integrated individuals, as not many of the male Moroccan and female Turkish descendants are cohabiting with majority partners.

A stronger mechanism of spatial assimilation was found among female Indian and Vietnamese descendants. Regardless of income levels, they were predicted to settle in neighbourhoods with similar or just slightly higher non-Western proportions, compared with equivalent female majority peers. On the contrary, male Turkish and female Moroccan descendants were found to settle in to settle in neighbourhoods with, on average, considerably higher non-Western proportions, regardless of their income levels. A similar trend applies to male Pakistani descendants, although the gap is slightly narrower for those with high incomes.

In total, income appears to be less important for locational attainment among non-Western descendants than one might expect and this may imply that preferences and possibly also structural hindrances, such as ethnic housing discrimination, are more relevant, at least among female Moroccan and male Turkish and Pakistani descendants.

Partner status

Non-Western descendants cohabiting with majority partners were overall predicted to settle in neighbourhoods with lower non-Western proportions, compared with equivalent *group peers* with non-Western partners. However, in only some groups did descendants with majority partners exhibit weak spatial assimilation in terms of reducing the average difference relative to equivalent majority peers. Hence, Hypothesis 7 is confirmed only for some groups. Majority partners seem to be especially important for Moroccan descendants, as they were predicted to fully close the locational attainment gap. However, these individuals represent a very small proportion of the Moroccan descendants and they might represent a selected group of particularly culturally integrated non-Western descendants.

Again, a somewhat stronger mechanism of spatial assimilation is suggested for female Indian and Vietnamese descendants. Compared with equivalent female majority peers, female Indian and Vietnamese descendants with majority partners were predicted to settle in neighbourhoods with, on average, similar non-Western proportions. However, this also applies to female Indian descendants without cohabiting partners as well as female Vietnamese descendants with non-Western partners.

In sum, majority partners are ambiguous predictors of lower non-Western proportions in the destination neighbourhoods of non-Western descendants. Although one might expect that non-Western descendants cohabiting with majority partners exhibit stronger signs of cultural integration, some of their majority partners may also represent a selected group of majority

individuals with stronger preferences for ethnic neighbourhoods. The neighbourhood location of a cohabiting couple presumably reflects a combination of both parties' preferences.

Preferences vs. constraints

Finally, the last part of the OLS analysis was aimed at exploring whether ethnic enclave mechanisms or mechanisms of place stratification seem to be the main drivers behind the differences between non-Western proportions in the destination neighbourhoods of non-Western descendants and equivalent majority peers. When comparing differences between individuals raised in neighbourhoods with lower and higher non-Western proportions, respectively, it is assumed that, if the greatest differences in the non-Western proportions in the destination neighbourhoods apply to non-Western descendants raised in neighbourhoods with higher non-Western proportions, ethnic enclave mechanisms, in principle, are delineated from place stratification mechanisms. Preferences for ethnic neighbourhoods are presumably more prevalent among descendants raised in such neighbourhoods. Conversely, structural hindrances, such as ethnic housing discrimination, are assumed to be the main drivers if 'all' descendants affiliated with a non-Western group have the same average difference, regardless of non-Western proportions in their origin neighbourhoods.

As a point of reference, the majority individuals were on average found to have a 'positive' association between non-Western proportions in their origin and destination neighbourhoods. However, those raised in neighbourhoods with the highest proportions (>30 %) were predicted to settle in neighbourhoods with higher non-Western proportions of only 7-8 percentage points higher, than equivalent majority individuals who were raised in neighbourhoods with the lowest proportions (<10 %). Only 1 percent of the majority individuals were actually raised in neighbourhoods with non-Western proportions of 30 percent or higher and overall they settle in neighbourhoods with substantially lower proportions as adults. This may indicate that they wish to escape ethnic neighbourhoods (i.e. a phenomena referred to as 'white flight').

In most non-Western groups, the association between non-Western proportions in the origin and destination neighbourhoods was found to be much stronger. Not only do the non-Western descendants settle in neighbourhoods with, on average, higher non-Western proportions, compared with equivalent majority peers, the largest difference concern those raised in neighbourhoods with the highest proportions. It is therefore plausible that ethnic enclave mechanisms are the main driver behind the locational attainment gap between non-Western

descendants and majority peers, despite equality of characteristics. However, the predicted differences were larger for some groups than others and some groups were predicted to deviate from the main pattern. Hence, Hypothesis 8 was not unanimously confirmed.

The greatest differences (17-22 percentage points) between non-Western descendants and equivalent majority peers raised in neighbourhood with 30 percent or higher non-Western proportions were found among Turkish and Pakistani descendants. However, their group peers who were raised in neighbourhoods with lower proportions were also predicted to settle in neighbourhoods with, on average, substantially higher non-Western proportions, compared with equivalent majority peers raised in similar neighbourhoods. There is, however, an exception for Turkish descendants raised in neighbourhoods with lowest proportions. Again, this may indicate quite strong preferences for ethnic neighbourhoods among Turkish and Pakistani descendants, possibly interspersed with structural hindrances, such as ethnic housing discrimination. This assumption is supported by the fact that Turkish and Pakistani immigrant populations exhibit relatively high levels of segregation in the Oslo region. Additionally, substantial average proportions of co-ethnics were found among the high non-Western proportions in the origin and destination neighbourhoods of Turkish and Pakistani descendants. However, part of the gap, at least for Turkish descendants, may be due to ethnic housing discrimination. More than one-fifth of Turkish descendants claimed they either suspected, or were sure that they had been discriminated against, when interviewed in a survey (Løwe 2008).

Moroccan descendants were on average found to settle in neighbourhoods with relatively higher non-Western proportions, compared with equivalent majority peers despite non-Western proportions their origin neighbourhoods. This may imply that they face barriers that other non-Western descendants do not encounter. However, as many of the Moroccan descendants, especially males, were found to share neighbourhoods with their parents, part of the differences could also stem from preferences for living close to them. Quite a few Moroccan descendants were found to have remained/resettled in their origin neighbourhoods. It is conceivable that these neighbourhoods were, and still are, characterised by low socioeconomic status and thus have become increasingly characterised by higher non-Western proportions.

On the contrary, female Indian and Vietnamese descendants were found to settle in neighbourhoods with, on average, similar or just slightly higher non-Western proportions, compared with equivalent female majority peers raised in similar neighbourhoods. This is yet another sign of strong spatial assimilation among these women. They are thereby part of the

answer as to why the Indian and Vietnamese immigrant populations are the least segregated among all five non-Western country-of-origin groups examined in this study.

9.2 Towards Spatial Assimilation?

The analysis clearly indicates that weak spatial assimilation mechanisms are taking place among non-Western descendants in the Oslo region. Altogether, non-Western descendants with 1) postsecondary education, 2) high incomes and/or 3) majority partners tend to settle in neighbourhoods with lower non-Western proportions and thereby decrease, or even erase, the average gap in non-Western proportions, as compared with equivalent majority peers. Non-Western descendants with fewer socioeconomic and cultural resources have a larger average gap with *their* equivalent majority peers. However, all three mechanisms of weak spatial assimilation do not universally apply to all non-Western descendants affiliated with the same country-of-origin group, or to both genders in a group.

Female Indian and Vietnamese descendants appear to be the most spatially assimilated non-Western descendants examined in this study. When considering both income level and partner status among these women, they generally tend to settle in neighbourhoods with similar or just slightly higher non-Western proportions compared with female majority peers, given equality of characteristics. This is more in line with a strong interpretation of spatial assimilation that entails equality of outcomes on equality of conditions. This is also the general pattern among the Western descendants. However, when considering education, it can be asserted that a weak mechanism of spatial assimilation is applicable in the case of female Indian and Vietnamese descendants. On the contrary, Pakistani descendants seem to be the least spatially assimilated, especially male Pakistani descendants. Although weak spatial assimilation mechanisms were indicated among Pakistani descendants, they were mainly found to only slightly narrow the neighbourhood attainment gap.

Spatial assimilation set aside, the non-Western descendants seem to largely reproduce their parents' neighbourhood patterns, even in cases of equality with majority peers. This pattern is in line with previous research on non-Western descendants in Norway. If their parents settle in neighbourhoods characterised by high non-Western proportions (i.e. origin neighbourhoods), so do the non-Western descendants (i.e. destination neighbourhoods). They thus appear to contribute to the maintenance of ethnic neighbourhood concentration. This applies especially

to Turkish descendants and Pakistani descendants, and it is very plausible that preferences for co-ethnic neighbourhoods contribute to their neighbourhood attainment gap. However, such preferences do not exclude neighbourhood barriers such as housing discrimination and social exclusion. Female Indian and Vietnamese descendants, on the other hand, exhibit high level of spatial integration, regardless of their origin neighbourhoods.

The neighbourhood attainment gap between non-Western descendants and equivalent majority peers is not necessarily a problem if in fact preferences are the main drivers. If non-Western descendants, despite socioeconomic and cultural integration, prefer ethnic neighbourhoods, they might be socially well-integrated in various arenas. However, as discussed, structural hindrances cannot yet be ruled out as an alternative explanation. In a broader societal perspective, the maintenance of spatial inequalities between groups may negatively affect the social cohesion of a society, as it may prevent interaction between individuals across ethnic groups. Prejudice and negative attitudes towards ethnic minorities may be reinforced if a large proportion of the majority population presumably does not coexist and interact with them in their immediate surroundings. In this respect, the neighbourhood preferences of the majority are also highly relevant. On the other hand, spatial assimilation does seem to occur among socioeconomically and, seemingly, socioculturally well-integrated non-Western descendants. However, the danger of comparing 'equals' with 'equals' is that that the proportions of individuals with equal characteristics vary greatly between groups. As the aggregated picture showed, many non-Western descendants differ substantially from majority peers in several respects. Ethnic neighbourhoods are often characterised by lower socioeconomic status and the fact that non-Western descendants with low socioeconomic status themselves are less likely to relocate may reinforce not only the ethnic divide in Oslo, but also the socioeconomic divide.

9.3 Suggestions for Further Research

The findings in this study have provided some important insights to mechanisms concerning the neighbourhood attainment among non-Western descendants. Although the socioeconomic and cultural resources of non-Western descendants do seem to matter when it comes to settling in neighbourhoods with non-Western proportions dissimilar to those found in the neighbourhoods in which they were raised, the analyses clearly indicate that other mechanisms are at work. Preferences for ethnic neighbourhoods and structural hindrances, such as ethnic housing discrimination and social exclusion, have been suggested as explanations.

Future research on non-Western descendants should address the neighbourhood preferences of non-Western descendants through qualitative interviews. These interviews could question non-Western descendants about preferences for ethnic and co-ethnic neighbourhoods, as well preferences for living close to family and relatives. The latter preferences could be especially prevalent among non-Western descendants with children. Moreover, the importance of networks of friendships anchored in the majority population for neighbourhood choices among non-Western descendants should also be explored. The neighbourhood preferences among their majority peers should also be explored further.

Research should also explore further whether structural hindrances impair non-Western descendants from relocating to the neighbourhoods they desire to settle in. For example, such research could examine whether ethnic housing discrimination and social exclusion of ethnic minorities is more prevalent in neighbourhoods in the western parts of the Oslo region.

Last, but not least, future research should also replicate and supplement this study by employing more recent data. Newer data will capture larger number of descendants in the specific non-Western country-of-origin groups examined in this study. Moreover, at age 30, the descendants are still young and quite few may experience housing carriers in their thirties, in terms of settling in neighbourhoods with higher socioeconomic status, possibly also characterised by lower non-Western proportion. A similar study of neighbourhood attainment among non-Western descendants should also explore whether individuals with higher socioeconomic and cultural resource raised in neighbourhoods with higher non-Western proportions are more likely to relocate to neighbourhood with lower proportions, compared with group peers with less resources. This also requires more recent data with larger numbers of individuals in the various groups.

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Word count: 39,566 (including footnotes and references in text)

Appendices

APPENDIX 1 Non-Western proportions in the origin neighbourhoods among men (N=28,386): Distribution according to country-of-origin group affiliation (absolute numbers and percentages) and non-Western proportions in percentage categories of tenths.

Non-Western shares in basic spatial units at age 16 (10 categories)	Majority + 7 decendant groups								Total
	Majority	Western	Non-Weste	Turkish	Moroccan	Indian	Pakistani	Vietnames	
Less than 10 percent	22,927 86.49	201 77.91	100 39.22	35 20.83	34 25.00	50 47.62	199 23.89	47 38.21	23,593 83.11
10 percent to 19 perc	2,568 9.69	37 14.34	90 35.29	48 28.57	48 35.29	36 34.29	290 34.81	30 24.39	3,147 11.09
20 percent to 29 perc	715 2.70	8 3.10	41 16.08	24 14.29	25 18.38	7 6.67	149 17.89	30 24.39	999 3.52
30 percent to 39 perc	228 0.86	11 4.26	18 7.06	20 11.90	18 13.24	7 6.67	93 11.16	10 8.13	405 1.43
40 percent to 49 perc	43 0.16	1 0.39	5 1.96	20 11.90	9 6.62	5 4.76	50 6.00	3 2.44	136 0.48
50 percent to 59 perc	21 0.08	0 0.00	1 0.39	15 8.93	2 1.47	0 0.00	38 4.56	3 2.44	80 0.28
60 percent to 69 perc	6 0.02	0 0.00	0 0.00	6 3.57	0 0.00	0 0.00	14 1.68	0 0.00	26 0.09
Total	26,508 100.00	258 100.00	255 100.00	168 100.00	136 100.00	105 100.00	833 100.00	123 100.00	28,386 100.00

APPENDIX 2 Non-Western proportions in the origin neighbourhoods among women (N=27,361): Distribution according to country-of-origin group affiliation (absolute numbers and percentages) and non-Western proportions in percentage categories of tenths.

Non-Western shares in basic spatial units at age 16 (10 categories)	Majority + 7 decendant groups								Total
	Majority	Western	Non-Weste	Turkish	Moroccan	Indian	Pakistani	Vietnames	
Less than 10 percent	22,161 86.36	171 69.80	100 46.08	50 28.90	26 24.07	57 51.82	181 25.14	38 29.69	22,784 83.27
10 percent to 19 perc	2,537 9.89	49 20.00	63 29.03	38 21.97	42 38.89	41 37.27	263 36.53	38 29.69	3,071 11.22
20 percent to 29 perc	655 2.55	16 6.53	32 14.75	28 16.18	19 17.59	5 4.55	129 17.92	31 24.22	915 3.34
30 percent to 39 perc	243 0.95	5 2.04	14 6.45	19 10.98	9 8.33	2 1.82	64 8.89	9 7.03	365 1.33
40 percent to 49 perc	36 0.14	3 1.22	5 2.30	22 12.72	7 6.48	1 0.91	47 6.53	7 5.47	128 0.47
50 percent to 59 perc	26 0.10	1 0.41	3 1.38	13 7.51	5 4.63	3 2.73	27 3.75	4 3.13	82 0.30
60 percent to 69 perc	2 0.01	0 0.00	0 0.00	3 1.73	0 0.00	1 0.91	9 1.25	1 0.78	16 0.06
Total	25,660 100.00	245 100.00	217 100.00	173 100.00	108 100.00	110 100.00	720 100.00	128 100.00	27,361 100.00

APPENDIX 3 Full OLS models for men (N=28,386): Estimated non-Western proportions in destination neighbourhoods among majority individuals and immigrant descendants

Note: Models 1d, 2, 3 and 4c are presented in Table 8.1

	Model 1a base	Model 1b + cohort	Model 1c + soc.bkgrd parents' edu.	Model 1d + soc.bkgrd parents' inc.	Model 2 + group	Model 3 + sub-region	Model 4a + education	Model 4b + income	Model 4c + partner	Model 5 + education	Model 6 + income	Model 7 + partner	Model 8 + non-western origin n/hood
Non-Western population share in the origin neighbourhood (ref. = Less than 10 percent)													
10 - 19 percent	0.084*** (0.003)	0.084*** (0.003)	0.082*** (0.003)	0.080*** (0.003)	0.065*** (0.003)	0.052*** (0.003)	0.051*** (0.003)	0.051*** (0.003)	0.051*** (0.003)	0.052*** (0.003)	0.052*** (0.003)	0.051*** (0.003)	0.052*** (0.003)
20 - 29 percent	0.113*** (0.006)	0.110*** (0.006)	0.107*** (0.006)	0.105*** (0.006)	0.080*** (0.005)	0.066*** (0.005)	0.065*** (0.005)	0.065*** (0.005)	0.064*** (0.005)	0.064*** (0.005)	0.064*** (0.005)	0.064*** (0.005)	0.062*** (0.006)
30 percent or higher	0.192*** (0.009)	0.189*** (0.009)	0.185*** (0.009)	0.181*** (0.009)	0.125*** (0.008)	0.111*** (0.008)	0.110*** (0.008)	0.110*** (0.008)	0.109*** (0.008)	0.108*** (0.008)	0.108*** (0.008)	0.110*** (0.008)	0.072*** (0.011)
Birth cohort (ref. = 1977)													
1974		-0.010*** (0.003)	-0.010*** (0.003)	-0.011*** (0.003)	-0.008** (0.003)	-0.008** (0.003)	-0.008** (0.003)	-0.009*** (0.003)	-0.008*** (0.003)	-0.008*** (0.003)	-0.008** (0.003)	-0.008*** (0.003)	-0.009*** (0.003)
1975		-0.007** (0.003)	-0.007** (0.003)	-0.008** (0.003)	-0.006* (0.003)	-0.005 (0.003)	-0.005 (0.003)	-0.006* (0.003)	-0.006* (0.003)	-0.006* (0.003)	-0.005* (0.003)	-0.006* (0.003)	-0.006* (0.003)
1976		-0.004 (0.003)	-0.004 (0.003)	-0.004 (0.003)	-0.003 (0.003)	-0.003 (0.003)	-0.003 (0.003)	-0.004 (0.003)	-0.003 (0.003)	-0.003 (0.003)	-0.003 (0.003)	-0.003 (0.003)	-0.003 (0.003)
1978		0.006* (0.003)	0.006* (0.003)	0.006* (0.003)	0.005 (0.003)	0.005 (0.003)	0.005 (0.003)	0.005* (0.003)	0.005* (0.003)	0.005* (0.003)	0.006* (0.003)	0.005* (0.003)	0.005* (0.003)
1979		0.010*** (0.003)	0.010*** (0.003)	0.010*** (0.003)	0.010*** (0.003)	0.010*** (0.003)	0.010*** (0.003)	0.010*** (0.003)	0.010*** (0.003)	0.010*** (0.003)	0.010*** (0.003)	0.010*** (0.003)	0.010*** (0.003)
1980		0.012*** (0.003)	0.012*** (0.003)	0.012*** (0.003)	0.012*** (0.003)	0.013*** (0.003)	0.013*** (0.003)	0.013*** (0.003)	0.013*** (0.003)	0.013*** (0.003)	0.013*** (0.003)	0.013*** (0.003)	0.013*** (0.003)
Parents' education (ref. = Upper secondary)													
Basic compulsory or less		0.009*** (0.002)	0.009*** (0.002)	0.007*** (0.002)	0.004* (0.002)	0.005* (0.002)	0.004 (0.002)	0.004 (0.002)	0.004* (0.002)	0.004* (0.002)	0.004* (0.002)	0.004* (0.002)	0.004* (0.002)
Postsecondary		-0.002 (0.002)	-0.002 (0.002)	0.001 (0.002)	-0.001 (0.002)	-0.003 (0.002)	-0.002 (0.002)	-0.002 (0.002)	-0.003 (0.002)	-0.003 (0.002)	-0.003 (0.002)	-0.003 (0.002)	-0.003 (0.002)
Parents' income (ref. = NOK 400,000 - 499,999)													
Less than NOK 300,000		0.016*** (0.003)	0.016*** (0.003)	0.016*** (0.003)	-0.004 (0.003)	-0.005 (0.003)	-0.006* (0.003)	-0.006* (0.003)	-0.006* (0.003)	-0.006* (0.003)	-0.006* (0.003)	-0.006* (0.003)	-0.006* (0.003)
NOK 300,000 - 399,999		-0.000 (0.002)	-0.000 (0.002)	-0.000 (0.002)	-0.006** (0.002)	-0.006** (0.002)	-0.006** (0.002)	-0.006** (0.002)	-0.007** (0.002)	-0.006** (0.002)	-0.006** (0.002)	-0.006** (0.002)	-0.006** (0.002)
NOK 500,000 - 599,999		0.003 (0.002)	0.003 (0.002)	0.003 (0.002)	0.004* (0.002)	0.004 (0.002)	0.004 (0.002)	0.004 (0.002)	0.004 (0.002)	0.004 (0.002)	0.004 (0.002)	0.004 (0.002)	0.004 (0.002)
NOK 600,000 or higher		-0.008*** (0.002)	-0.008*** (0.002)	-0.008*** (0.002)	-0.008*** (0.002)	-0.010*** (0.002)	-0.010*** (0.002)	-0.009*** (0.002)	-0.009*** (0.002)	-0.009*** (0.002)	-0.009*** (0.002)	-0.009*** (0.002)	-0.009*** (0.002)
Missing information		0.007 (0.004)	0.007 (0.004)	0.007 (0.004)	0.002 (0.004)	0.000 (0.004)	-0.000 (0.004)	-0.000 (0.004)	-0.000 (0.004)	-0.001 (0.004)	-0.001 (0.004)	-0.000 (0.004)	0.000 (0.004)

Appendix 3 continued

Country-of-origin (ref. = Majority)										
Western descendants	0.016 (0.008)	0.014 (0.008)	0.014 (0.008)	0.014 (0.008)	0.014 (0.008)	0.016 (0.019)	0.018 (0.018)	-0.000 (0.009)	0.017 (0.009)	
Turkish descendants	0.143*** (0.016)	0.144*** (0.016)	0.144*** (0.016)	0.127*** (0.021)	0.135*** (0.021)	0.086** (0.032)	0.086** (0.032)	0.114*** (0.028)	0.036 (0.021)	
Moroccan descendants	0.094*** (0.015)	0.083*** (0.015)	0.083*** (0.015)	0.075*** (0.020)	0.079*** (0.020)	0.068** (0.025)	0.068** (0.025)	0.072*** (0.016)	0.089** (0.031)	
Indian descendants	0.080** (0.015)	0.076*** (0.015)	0.078*** (0.015)	0.066*** (0.030)	0.092** (0.030)	0.080** (0.029)	0.080** (0.029)	0.068** (0.021)	0.043* (0.018)	
Pakistani descendants	0.138*** (0.007)	0.133*** (0.007)	0.132*** (0.007)	0.117*** (0.008)	0.136*** (0.012)	0.137*** (0.014)	0.137*** (0.014)	0.136*** (0.012)	0.103*** (0.014)	
Vietnamese descendants	0.058*** (0.013)	0.065*** (0.013)	0.066*** (0.013)	0.057*** (0.013)	0.103** (0.034)	0.077*** (0.023)	0.077*** (0.023)	0.068*** (0.015)	0.050** (0.019)	
Non-Western descendants (residual)	0.073*** (0.010)	0.070*** (0.010)	0.070*** (0.010)	0.063*** (0.010)	0.078*** (0.017)	0.060*** (0.017)	0.060*** (0.017)	0.055*** (0.012)	0.030* (0.014)	
Sub-region (ref. = Oslo)										
Drammen	-0.018*** (0.003)	-0.018*** (0.003)	-0.018*** (0.003)	-0.017*** (0.003)	-0.017*** (0.003)	-0.017*** (0.003)	-0.017*** (0.003)	-0.018*** (0.003)	-0.019*** (0.003)	
Suburbia	-0.030*** (0.002)	-0.030*** (0.002)	-0.030*** (0.002)	-0.029*** (0.002)	-0.029*** (0.002)	-0.029*** (0.002)	-0.029*** (0.002)	-0.029*** (0.002)	-0.030*** (0.002)	
Education (ref. = Basic compulsory)										
Upper secondary	-0.005** (0.002)	-0.005** (0.002)	-0.005** (0.002)	-0.004 (0.002)	-0.002 (0.002)	-0.002 (0.002)	-0.004 (0.002)	-0.004 (0.002)	-0.004 (0.002)	
Postsecondary	-0.006** (0.002)	-0.006** (0.002)	-0.004 (0.002)	-0.003 (0.002)	-0.001 (0.002)	-0.003 (0.002)	-0.003 (0.002)	-0.004 (0.002)	-0.004 (0.002)	
Income (ref. = Less than NOK 200,000)										
NOK 200,000 - 299,999	0.004* (0.002)	0.004* (0.002)	0.004* (0.002)	0.007*** (0.002)	0.007*** (0.002)	0.007*** (0.002)	0.007*** (0.002)	0.007*** (0.002)	0.007*** (0.002)	
NOK 300,000 - 399,999	0.002 (0.002)	0.002 (0.002)	0.002 (0.002)	0.006** (0.002)	0.006** (0.002)	0.007*** (0.002)	0.007*** (0.002)	0.006** (0.002)	0.006** (0.002)	
NOK 400,000 or higher	-0.009*** (0.002)	-0.009*** (0.002)	-0.004 (0.002)	-0.004 (0.002)	-0.004 (0.002)	-0.003 (0.002)	-0.003 (0.002)	-0.004 (0.002)	-0.004 (0.002)	
Partner status (ref. = No partner)										
Non-Western partner	0.018** (0.006)	0.018** (0.006)	0.018** (0.006)	0.016** (0.006)	0.016** (0.006)	0.019*** (0.006)	0.019*** (0.006)	0.023*** (0.007)	0.016** (0.006)	
Majority partner	-0.017*** (0.001)	-0.017*** (0.001)	-0.017*** (0.001)	-0.017*** (0.001)	-0.017*** (0.001)	-0.017*** (0.001)	-0.017*** (0.001)	-0.017*** (0.001)	-0.017*** (0.001)	
Interactions: Education * Country-of-origin (ref. = Basic compulsory / Majority)										
Upper secondary										
Western descendants				0.004 (0.024)						

Appendix 3 continued

Turkish descendants	0.008	0.006
	(0.036)	(0.022)
Moroccan descendants	-0.010	0.080
	(0.031)	(0.041)
Indian descendants	-0.037	0.021
	(0.044)	(0.035)
Pakistani descendants	-0.029	0.047
	(0.015)	(0.052)
Vietnamese descendants	-0.050	-0.011
	(0.040)	(0.019)
Non-Western descendants (residual)	-0.021	-0.037
	(0.023)	(0.033)
Postsecondary		
Western descendants	-0.010	
	(0.023)	
Turkish descendants	-0.098***	
	(0.026)	
Moroccan descendants	0.006	
	(0.049)	
Indian descendants	-0.034	
	(0.036)	
Pakistani descendants	-0.037*	
	(0.017)	
Vietnamese descendants	-0.062	
	(0.039)	
Non-Western descendants (residual)	-0.025	
	(0.024)	
Interactions: Income * Country-of-origin (ref. = Less than NOK 200,000 / Majority)		
NOK 200,000 - 299,999		
Western descendants		0.006
		(0.022)
Turkish descendants		0.080
		(0.041)
Moroccan descendants		0.021
		(0.035)
Indian descendants		0.047
		(0.052)
Pakistani descendants		-0.011
		(0.019)
Vietnamese descendants		-0.037
		(0.033)

Appendix 3 continued

Non-Western descendants (residual)	0.006 (0.027)
NOK 300,000 - 399,999	
Western descendants	-0.022 (0.024)
Turkish descendants	0.010 (0.041)
Moroccan descendants	0.026 (0.040)
Indian descendants	-0.061 (0.040)
Pakistani descendants	-0.042* (0.017)
Vietnamese descendants	-0.001 (0.037)
Non-Western descendants (residual)	0.018 (0.025)
NOK 400,000 or higher	
Western descendants	-0.002 (0.026)
Turkish descendants	0.046 (0.060)
Moroccan descendants	-0.061 (0.044)
Indian descendants	-0.031 (0.038)
Pakistani descendants	-0.032 (0.020)
Vietnamese descendants	-0.060 (0.036)
Non-Western descendants (residual)	-0.030 (0.027)
Interactions: Partner status * Country-of-origin (ref. = No partner / Majority)	
Non-Western partner	
Western descendants	0.012 (0.058)
Turkish descendants	0.017 (0.035)
Moroccan descendants	0.042 (0.038)

Appendix 3 continued

Indian descendants	-0.021 (0.030)	
Pakistani descendants	-0.032* (0.016)	
Vietnamese descendants	-0.047 (0.032)	
Non-Western descendants (residual)	0.030 (0.026)	
Majority partner		
Western descendants	0.037* (0.018)	
Turkish descendants	-0.016 (0.053)	
Moroccan descendants	-0.108** (0.042)	
Indian descendants	0.050 (0.074)	
Pakistani descendants	-0.030 (0.032)	
Vietnamese descendants	0.004 (0.048)	
Non-Western descendants (residual)	-0.005 (0.025)	
Interactions: Non-Western population share in the origin neighbourhood * Country-of-origin (ref. = Less than 10 percent / Majority)		
10 - 19 percent		
Western descendants	-0.041 (0.022)	
Turkish descendants	0.105** (0.035)	
Moroccan descendants	-0.027 (0.039)	
Indian descendants	0.033 (0.034)	
Pakistani descendants	0.003 (0.018)	
Vietnamese descendants	0.001 (0.033)	
Non-Western descendants (residual)	0.052* (0.022)	

APPENDIX 4 Full OLS models for women (N=27,361): Estimated non-Western proportions in destination neighbourhoods among majority individuals and immigrant descendants

Note: Models 1d, 2, 3 and 4c are presented in Table 8.2

	Model 1a base	Model 1b + cohort	Model 1c + soc.bkgrd parents' edu.	Model 1d + soc.bkgrd parents' inc.	Model 2 + group	Model 3 + sub-region	Model 4a + education	Model 4b + income	Model 4c + partner	Model 5 *education	Model 6 *income	Model 7 *partner	Model 8 *non-western origin n/hood
Non-Western population share in the origin neighbourhood (ref. = Less than 10 percent)													
10 - 19 percent	0.075*** (0.003)	0.075*** (0.003)	0.073*** (0.003)	0.070*** (0.003)	0.053*** (0.003)	0.041*** (0.003)	0.040*** (0.003)	0.040*** (0.003)	0.040*** (0.003)	0.040*** (0.003)	0.040*** (0.003)	0.040*** (0.003)	0.038*** (0.003)
20 - 29 percent	0.126*** (0.006)	0.123*** (0.006)	0.120*** (0.006)	0.116*** (0.006)	0.085*** (0.006)	0.072*** (0.006)	0.071*** (0.006)	0.071*** (0.006)	0.070*** (0.006)	0.070*** (0.006)	0.070*** (0.006)	0.070*** (0.006)	0.063*** (0.006)
30 percent or higher	0.184*** (0.009)	0.181*** (0.009)	0.177*** (0.009)	0.170*** (0.009)	0.110*** (0.008)	0.096*** (0.008)	0.096*** (0.008)	0.095*** (0.008)	0.093*** (0.008)	0.092*** (0.008)	0.093*** (0.008)	0.092*** (0.008)	0.064*** (0.010)
Birth cohort (ref. = 1977)													
1974		-0.005 (0.003)	-0.005* (0.003)	-0.007** (0.003)	-0.004 (0.002)	-0.005 (0.002)	-0.005* (0.002)	-0.005 (0.002)	-0.004 (0.002)	-0.004 (0.002)	-0.005 (0.002)	-0.004 (0.002)	-0.005 (0.002)
1975		-0.005* (0.003)	-0.006* (0.003)	-0.007** (0.003)	-0.004 (0.003)	-0.004 (0.003)	-0.004 (0.003)	-0.004 (0.003)	-0.005 (0.003)	-0.005 (0.003)	-0.005 (0.003)	-0.005 (0.003)	-0.005 (0.003)
1976		0.004 (0.003)	0.004 (0.003)	0.003 (0.003)	0.004 (0.003)	0.003 (0.003)	0.003 (0.003)	0.003 (0.003)	0.003 (0.003)	0.003 (0.003)	0.003 (0.003)	0.003 (0.003)	0.003 (0.003)
1978		0.007** (0.003)	0.007** (0.003)	0.007* (0.003)	0.007* (0.003)	0.007* (0.003)	0.007* (0.003)	0.007* (0.003)	0.006* (0.003)	0.006* (0.003)	0.006* (0.003)	0.006* (0.003)	0.006* (0.003)
1979		0.011*** (0.003)	0.011*** (0.003)	0.011*** (0.003)	0.010*** (0.003)	0.010*** (0.003)	0.010*** (0.003)	0.010*** (0.003)	0.009*** (0.003)	0.009*** (0.003)	0.009*** (0.003)	0.009*** (0.003)	0.009*** (0.003)
1980		0.016*** (0.003)	0.017*** (0.003)	0.017*** (0.003)	0.015*** (0.003)	0.016*** (0.003)	0.016*** (0.003)	0.016*** (0.003)	0.015*** (0.003)	0.016*** (0.003)	0.015*** (0.003)	0.015*** (0.003)	0.015*** (0.003)
Parents' education (ref. = Upper secondary)													
Basic compulsory or less		0.010*** (0.002)	0.010*** (0.002)	0.006** (0.002)	0.002 (0.002)	0.003 (0.002)	0.002 (0.002)	0.002 (0.002)	0.003 (0.002)	0.003 (0.002)	0.003 (0.002)	0.003 (0.002)	0.003 (0.002)
Postsecondary		-0.000 (0.002)	-0.000 (0.002)	0.003 (0.002)	0.001 (0.002)	-0.001 (0.002)	-0.000 (0.002)	0.000 (0.002)	-0.001 (0.002)	-0.001 (0.002)	-0.001 (0.002)	-0.001 (0.002)	-0.001 (0.002)
Parents' income (ref. = NOK 400,000 - 499,999)													
Less than NOK 300,000		0.031*** (0.003)	0.031*** (0.003)	0.006** (0.003)	0.006 (0.003)	0.004 (0.003)	0.004 (0.003)	0.005 (0.003)	0.004 (0.003)	0.004 (0.003)	0.003 (0.003)	0.003 (0.003)	0.003 (0.003)
NOK 300,000 - 399,999		0.009*** (0.002)	0.009*** (0.002)	0.001 (0.002)	0.001 (0.002)	0.001 (0.002)	0.001 (0.002)	0.001 (0.002)	0.001 (0.002)	0.001 (0.002)	0.002 (0.002)	0.001 (0.002)	0.002 (0.002)
NOK 500,000 - 599,999		-0.000 (0.002)	-0.000 (0.002)	-0.000 (0.002)	0.001 (0.002)	0.001 (0.002)	0.001 (0.002)	0.001 (0.002)	0.001 (0.002)	0.001 (0.002)	0.001 (0.002)	0.001 (0.002)	0.001 (0.002)
NOK 600,000 or higher		-0.006** (0.002)	-0.006** (0.002)	-0.005** (0.002)	-0.005** (0.002)	-0.008*** (0.002)	-0.007*** (0.002)	-0.006*** (0.002)	-0.006** (0.002)	-0.007*** (0.002)	-0.007*** (0.002)	-0.006** (0.002)	-0.007*** (0.002)
Missing information		0.010** (0.004)	0.010** (0.004)	0.006 (0.004)	0.006 (0.004)	0.004 (0.004)	0.003 (0.004)	0.004 (0.004)	0.002 (0.004)	0.002 (0.004)	0.003 (0.004)	0.002 (0.004)	0.003 (0.004)

Appendix 4 continued

Turkish descendants	-0.034 (0.037)	
Moroccan descendants	-0.004 (0.038)	
Indian descendants	0.009 (0.048)	
Pakistani descendants	-0.024 (0.018)	
Vietnamese descendants	-0.056 (0.045)	
Non-Western descendants (residual)	0.005 (0.031)	
Postsecondary		
Western descendants	0.009 (0.026)	
Turkish descendants	-0.096** (0.035)	
Moroccan descendants	-0.106* (0.044)	
Indian descendants	-0.046 (0.047)	
Pakistani descendants	-0.050** (0.019)	
Vietnamese descendants	-0.119** (0.043)	
Non-Western descendants (residual)	-0.031 (0.028)	
Interactions: Income * Country-of-origin (ref. = Less than NOK 200,000 / Majority)		
NOK 200,000 - 299,999		
Western descendants	0.059** (0.020)	
Turkish descendants	0.001 (0.037)	
Moroccan descendants	-0.056 (0.048)	
Indian descendants	0.003 (0.036)	
Pakistani descendants	-0.031 (0.017)	
Vietnamese descendants	-0.038 (0.038)	

Appendix 4 continued

Non-Western descendants (residual)	0.018 (0.028)	
NOK 300,000 - 399,999		
Western descendants	0.055* (0.024)	
Turkish descendants	0.017 (0.045)	
Moroccan descendants	-0.034 (0.053)	
Indian descendants	0.014 (0.034)	
Pakistani descendants	-0.067**	
Vietnamese descendants	(0.021)	
	-0.060 (0.037)	
Non-Western descendants (residual)	-0.022 (0.027)	
NOK 400,000 or higher		
Western descendants	0.058 (0.030)	
Turkish descendants	-0.127**	
Moroccan descendants	(0.043)	
Indian descendants	-0.010 (0.143)	
Pakistani descendants	0.049 (0.056)	
Vietnamese descendants	-0.105***	
	(0.030)	
Non-Western descendants (residual)	-0.070 (0.043)	
	-0.016 (0.035)	
Interactions: Partner status * Country-of-origin (ref. = No partner / Majority)		
Non-Western partner		
Western descendants		0.088 (0.081)
Turkish descendants		0.062* (0.031)
Moroccan descendants		0.003 (0.041)

Appendix 4 continued

Indian descendants	0.059 (0.030)	
Pakistani descendants	0.003 (0.019)	
Vietnamese descendants	-0.065* (0.029)	
Non-Western descendants (residual)	0.034 (0.029)	
Majority partner		
Western descendants	0.001 (0.017)	
Turkish descendants	0.059 (0.079)	
Moroccan descendants	-0.162*** (0.036)	
Indian descendants	0.024 (0.034)	
Pakistani descendants	-0.064 (0.052)	
Vietnamese descendants	-0.085** (0.028)	
Non-Western descendants (residual)	-0.005 (0.023)	
Interactions: Non-Western population share in the origin neighbourhood * Country-of-origin (ref. = Less than 10 percent / Majority)		
10 - 19 percent		
Western descendants	0.049 (0.026)	
Turkish descendants	0.116** (0.041)	
Moroccan descendants	0.089* (0.044)	
Indian descendants	0.009 (0.032)	
Pakistani descendants	0.017 (0.019)	
Vietnamese descendants	0.020 (0.023)	
Non-Western descendants (residual)	0.022 (0.025)	

APPENDIX 5 Predicted group differences in non-Western proportions in destination neighbourhoods among men (N=28,386), according to interactions between country-of-origin groups and levels of education.

Note: Group differences and F-tests refer to differences between point estimates of majority individuals and immigrant descendants affiliated, respectively, with each country-of-origin group in Figure 8.1.

```

Contrasts of predictive margins
Model VCE      : Robust

Expression     : Linear prediction, predict()

1._at         : education_30yrs =          1
2._at         : education_30yrs =          2
3._at         : education_30yrs =          3

```

	df	F	P>F
group@_at			
(Western descendants vs Majority) 1	1	0.69	0.4050
(Western descendants vs Majority) 2	1	2.36	0.1243
(Western descendants vs Majority) 3	1	0.31	0.5806
(Non-Western 'residual' vs Majority) 1	1	20.97	0.0000
(Non-Western 'residual' vs Majority) 2	1	12.12	0.0005
(Non-Western 'residual' vs Majority) 3	1	9.40	0.0022
(Turkish descendants vs Majority) 1	1	41.09	0.0000
(Turkish descendants vs Majority) 2	1	22.52	0.0000
(Turkish descendants vs Majority) 3	1	4.63	0.0315
(Moroccan descendants vs Majority) 1	1	15.81	0.0001
(Moroccan descendants vs Majority) 2	1	7.92	0.0049
(Moroccan descendants vs Majority) 3	1	3.58	0.0585
(Indian descendants vs Majority) 1	1	9.73	0.0018
(Indian descendants vs Majority) 2	1	2.77	0.0960
(Indian descendants vs Majority) 3	1	8.05	0.0046
(Pakistani descendants vs Majority) 1	1	139.51	0.0000
(Pakistani descendants vs Majority) 2	1	81.01	0.0000
(Pakistani descendants vs Majority) 3	1	51.20	0.0000
(Vietnamese descendants vs Majority) 1	1	9.11	0.0025
(Vietnamese descendants vs Majority) 2	1	6.59	0.0103
(Vietnamese descendants vs Majority) 3	1	5.05	0.0247
Joint	21	14.94	0.0000
Denominator	28339		

Appendix 5 continued

Levels of education (education_30yrs) refer to:

1 = Basic compulsory

2 = Upper secondary

3 = Postsecondary

group@_at	Delta-method			
	Contrast	Std. Err.	[95% Conf. Interval]	
(Western descendants vs Majority) 1	.0161716	.0194205	-.0218935	.0542366
(Western descendants vs Majority) 2	.0205456	.0133683	-.0056569	.0467482
(Western descendants vs Majority) 3	.0064602	.011692	-.0164567	.0293771
(Non-Western 'residual' vs Majority) 1	.0779048	.0170117	.0445611	.1112485
(Non-Western 'residual' vs Majority) 2	.0570597	.0163896	.0249352	.0891842
(Non-Western 'residual' vs Majority) 3	.0528233	.01723	.0190516	.086595
(Turkish descendants vs Majority) 1	.1346589	.021008	.0934821	.1758356
(Turkish descendants vs Majority) 2	.1424374	.0300121	.0836122	.2012626
(Turkish descendants vs Majority) 3	.0364464	.0169417	.0032398	.069653
(Moroccan descendants vs Majority) 1	.0785736	.0197595	.0398441	.1173031
(Moroccan descendants vs Majority) 2	.0684963	.024338	.0207927	.1161999
(Moroccan descendants vs Majority) 3	.0844293	.044628	-.0030437	.1719024
(Indian descendants vs Majority) 1	.0923099	.0295975	.0342975	.1503224
(Indian descendants vs Majority) 2	.0557333	.0334857	-.0099002	.1213668
(Indian descendants vs Majority) 3	.0586414	.0206731	.0181211	.0991617
(Pakistani descendants vs Majority) 1	.1360464	.0115181	.1134703	.1586224
(Pakistani descendants vs Majority) 2	.1068224	.0118682	.0835602	.1300846
(Pakistani descendants vs Majority) 3	.0989288	.0138258	.0718296	.126028
(Vietnamese descendants vs Majority) 1	.1029506	.0341085	.0360963	.169805
(Vietnamese descendants vs Majority) 2	.0527355	.0205428	.0124707	.0930003
(Vietnamese descendants vs Majority) 3	.0407616	.0181433	.0052	.0763233

APPENDIX 6 Predicted group differences in non-Western proportions in destination neighbourhoods among women (N=27,361), according to interactions country-of-origin groups and levels of education.

Note: Group differences and F-tests refer to differences between point estimates of majority individuals and immigrant descendants affiliated, respectively, with each country-of-origin group in Figure 8.2.

```

Contrasts of predictive margins
Model VCE      : Robust

Expression     : Linear prediction, predict()

1._at         : education_30yrs =          1
2._at         : education_30yrs =          2
3._at         : education_30yrs =          3

```

	df	F	P>F
group@_at			
(Western descendants vs Majority) 1	1	0.15	0.6980
(Western descendants vs Majority) 2	1	1.33	0.2491
(Western descendants vs Majority) 3	1	3.25	0.0712
(Non-Western 'residual' vs Majority) 1	1	10.28	0.0013
(Non-Western 'residual' vs Majority) 2	1	19.43	0.0000
(Non-Western 'residual' vs Majority) 3	1	10.72	0.0011
(Turkish descendants vs Majority) 1	1	29.43	0.0000
(Turkish descendants vs Majority) 2	1	10.56	0.0012
(Turkish descendants vs Majority) 3	1	1.70	0.1928
(Moroccan descendants vs Majority) 1	1	30.18	0.0000
(Moroccan descendants vs Majority) 2	1	25.15	0.0000
(Moroccan descendants vs Majority) 3	1	1.08	0.2983
(Indian descendants vs Majority) 1	1	1.46	0.2266
(Indian descendants vs Majority) 2	1	6.78	0.0092
(Indian descendants vs Majority) 3	1	0.07	0.7876
(Pakistani descendants vs Majority) 1	1	130.35	0.0000
(Pakistani descendants vs Majority) 2	1	96.01	0.0000
(Pakistani descendants vs Majority) 3	1	54.78	0.0000
(Vietnamese descendants vs Majority) 1	1	5.90	0.0151
(Vietnamese descendants vs Majority) 2	1	4.60	0.0319
(Vietnamese descendants vs Majority) 3	1	1.93	0.1644
Joint	21	14.88	0.0000
Denominator	27314		

Appendix 6 continued

Levels of education (education_30yrs) refer to:

1 = Basic compulsory

2 = Upper secondary

3 = Postsecondary

	Delta-method			
	Contrast	Std. Err.	[95% Conf. Interval]	
group@_at				
(Western descendants vs Majority) 1	.0094497	.0243542	-.0382858	.0571851
(Western descendants vs Majority) 2	.0215297	.0186809	-.0150858	.0581452
(Western descendants vs Majority) 3	.018534	.0102739	-.0016034	.0386714
(Non-Western 'residual' vs Majority) 1	.0775241	.0241796	.0301309	.1249174
(Non-Western 'residual' vs Majority) 2	.082935	.0188152	.0460563	.1198138
(Non-Western 'residual' vs Majority) 3	.0465796	.0142233	.0187012	.0744581
(Turkish descendants vs Majority) 1	.1303717	.0240308	.08327	.1774734
(Turkish descendants vs Majority) 2	.0959933	.0295426	.0380883	.1538983
(Turkish descendants vs Majority) 3	.0346212	.0265806	-.0174782	.0867206
(Moroccan descendants vs Majority) 1	.144003	.0262117	.0926268	.1953792
(Moroccan descendants vs Majority) 2	.1401607	.027948	.0853813	.1949402
(Moroccan descendants vs Majority) 3	.0377615	.0363043	-.0333968	.1089198
(Indian descendants vs Majority) 1	.0513079	.0424359	-.0318687	.1344845
(Indian descendants vs Majority) 2	.0599358	.023018	.0148193	.1050522
(Indian descendants vs Majority) 3	.0052883	.0196229	-.0331735	.0437501
(Pakistani descendants vs Majority) 1	.1551819	.0135921	.1285408	.1818231
(Pakistani descendants vs Majority) 2	.130961	.0133654	.1047642	.1571579
(Pakistani descendants vs Majority) 3	.1049932	.0141861	.0771877	.1327987
(Vietnamese descendants vs Majority) 1	.0984881	.0405428	.019022	.1779541
(Vietnamese descendants vs Majority) 2	.0424507	.0197853	.0036705	.0812309
(Vietnamese descendants vs Majority) 3	-.0201811	.0145152	-.0486316	.0082694

APPENDIX 7 Predicted group differences in non-Western proportions in destination neighbourhoods among men (N=28,386), according to interactions between country-of-origin groups and levels of income.

Note: Group differences and F-tests refer to differences between point estimates of majority individuals and immigrant descendants affiliated, respectively, with each country-of-origin group in Figure 8.3.

```
. margins r.group, at(income_30yrs=(1/4))
```

```
Contrasts of predictive margins
Model VCE      : Robust
```

```
Expression    : Linear prediction, predict()
```

```
1._at        : income_30yrs    =          1
2._at        : income_30yrs    =          2
3._at        : income_30yrs    =          3
4._at        : income_30yrs    =          4
```

	df	F	P>F
group@_at			
(Western descendants vs Majority) 1	1	1.02	0.3123
(Western descendants vs Majority) 2	1	3.65	0.0561
(Western descendants vs Majority) 3	1	0.06	0.8068
(Western descendants vs Majority) 4	1	0.71	0.4005
(Non-Western 'residual' vs Majority) 1	1	11.59	0.0007
(Non-Western 'residual' vs Majority) 2	1	10.68	0.0011
(Non-Western 'residual' vs Majority) 3	1	17.32	0.0000
(Non-Western 'residual' vs Majority) 4	1	1.94	0.1632
(Turkish descendants vs Majority) 1	1	7.09	0.0077
(Turkish descendants vs Majority) 2	1	39.54	0.0000
(Turkish descendants vs Majority) 3	1	13.39	0.0003
(Turkish descendants vs Majority) 4	1	6.86	0.0088
(Moroccan descendants vs Majority) 1	1	7.53	0.0061
(Moroccan descendants vs Majority) 2	1	12.98	0.0003
(Moroccan descendants vs Majority) 3	1	8.53	0.0035
(Moroccan descendants vs Majority) 4	1	0.03	0.8636
(Indian descendants vs Majority) 1	1	7.53	0.0061
(Indian descendants vs Majority) 2	1	8.94	0.0028
(Indian descendants vs Majority) 3	1	0.50	0.4814
(Indian descendants vs Majority) 4	1	4.40	0.0360
(Pakistani descendants vs Majority) 1	1	95.63	0.0000
(Pakistani descendants vs Majority) 2	1	74.26	0.0000
(Pakistani descendants vs Majority) 3	1	64.05	0.0000
(Pakistani descendants vs Majority) 4	1	44.90	0.0000
(Vietnamese descendants vs Majority) 1	1	10.83	0.0010
(Vietnamese descendants vs Majority) 2	1	2.85	0.0915
(Vietnamese descendants vs Majority) 3	1	6.98	0.0082
(Vietnamese descendants vs Majority) 4	1	0.35	0.5543
Joint	28	11.63	0.0000
Denominator	28332		

Appendix 7 continued

Levels of income (income_30yrs) refer to:

- 1 = Less than NOK 200,000
- 2 = NOK 200,000 - 299,999
- 3 = NOK 300,000 - 399,999
- 4 = NOK 400,000 or higher

	Delta-method			
	Contrast	Std. Err.	[95% Conf. Interval]	
group@_at				
(Western descendants vs Majority) 1	.018406	.0182143	-.0172949	.0541068
(Western descendants vs Majority) 2	.0245656	.0128614	-.0006434	.0497745
(Western descendants vs Majority) 3	-.0039947	.0163315	-.0360053	.0280159
(Western descendants vs Majority) 4	.0160371	.0190761	-.021353	.0534272
(Non-Western 'residual' vs Majority) 1	.0595009	.0174792	.0252408	.0937609
(Non-Western 'residual' vs Majority) 2	.0657519	.0201209	.0263139	.1051899
(Non-Western 'residual' vs Majority) 3	.0772425	.0185624	.0408592	.1136257
(Non-Western 'residual' vs Majority) 4	.0291778	.0209221	-.0118306	.0701861
(Turkish descendants vs Majority) 1	.0859158	.032263	.0226788	.1491528
(Turkish descendants vs Majority) 2	.1658704	.0263784	.1141674	.2175733
(Turkish descendants vs Majority) 3	.0960454	.0262434	.0446072	.1474837
(Turkish descendants vs Majority) 4	.1320893	.0504141	.0332753	.2309033
(Moroccan descendants vs Majority) 1	.0675621	.0246137	.0193181	.1158062
(Moroccan descendants vs Majority) 2	.0887663	.0246354	.0404797	.1370529
(Moroccan descendants vs Majority) 3	.093704	.032078	.0308295	.1565785
(Moroccan descendants vs Majority) 4	.0063202	.0367978	-.0658052	.0784456
(Indian descendants vs Majority) 1	.0804101	.0292957	.0229891	.137831
(Indian descendants vs Majority) 2	.1276629	.0427059	.0439573	.2113686
(Indian descendants vs Majority) 3	.0195317	.0277416	-.0348432	.0739066
(Indian descendants vs Majority) 4	.0497067	.023701	.0032515	.0961619
(Pakistani descendants vs Majority) 1	.1373555	.014046	.1098248	.1648863
(Pakistani descendants vs Majority) 2	.1267795	.014712	.0979433	.1556158
(Pakistani descendants vs Majority) 3	.0950228	.0118729	.0717513	.1182943
(Pakistani descendants vs Majority) 4	.1049919	.0156687	.0742805	.1357033
(Vietnamese descendants vs Majority) 1	.0766727	.0232955	.0310123	.122333
(Vietnamese descendants vs Majority) 2	.0397657	.0235626	-.006418	.0859495
(Vietnamese descendants vs Majority) 3	.0759744	.0287474	.0196282	.1323206
(Vietnamese descendants vs Majority) 4	.0166792	.0282065	-.0386069	.0719653

APPENDIX 8 Predicted group differences in non-Western proportions in destination neighbourhoods among women (N=27,361), according to interactions between country-of-origin groups and levels of income.

Note: Group differences and F-tests refer to differences between point estimates of majority individuals and immigrant descendants affiliated, respectively, with each country-of-origin group in Figure 8.4.

```

Contrasts of predictive margins
Model VCE      : Robust

Expression     : Linear prediction, predict()

1._at         : income_30yrs      =          1
2._at         : income_30yrs      =          2
3._at         : income_30yrs      =          3
4._at         : income_30yrs      =          4
  
```

	df	F	P>F
group@_at			
(Western descendants vs Majority) 1	1	3.36	0.0668
(Western descendants vs Majority) 2	1	5.99	0.0144
(Western descendants vs Majority) 3	1	2.33	0.1267
(Western descendants vs Majority) 4	1	1.52	0.2182
(Non-Western 'residual' vs Majority) 1	1	10.12	0.0015
(Non-Western 'residual' vs Majority) 2	1	20.13	0.0000
(Non-Western 'residual' vs Majority) 3	1	6.36	0.0117
(Non-Western 'residual' vs Majority) 4	1	3.19	0.0742
(Turkish descendants vs Majority) 1	1	18.19	0.0000
(Turkish descendants vs Majority) 2	1	13.04	0.0003
(Turkish descendants vs Majority) 3	1	9.62	0.0019
(Turkish descendants vs Majority) 4	1	0.42	0.5154
(Moroccan descendants vs Majority) 1	1	13.55	0.0002
(Moroccan descendants vs Majority) 2	1	18.80	0.0000
(Moroccan descendants vs Majority) 3	1	15.07	0.0001
(Moroccan descendants vs Majority) 4	1	1.15	0.2841
(Indian descendants vs Majority) 1	1	0.28	0.5963
(Indian descendants vs Majority) 2	1	0.38	0.5385
(Indian descendants vs Majority) 3	1	1.63	0.2015
(Indian descendants vs Majority) 4	1	1.60	0.2064
(Pakistani descendants vs Majority) 1	1	150.42	0.0000
(Pakistani descendants vs Majority) 2	1	96.80	0.0000
(Pakistani descendants vs Majority) 3	1	24.85	0.0000
(Pakistani descendants vs Majority) 4	1	3.69	0.0547
(Vietnamese descendants vs Majority) 1	1	3.33	0.0682
(Vietnamese descendants vs Majority) 2	1	0.96	0.3265
(Vietnamese descendants vs Majority) 3	1	0.00	0.9593
(Vietnamese descendants vs Majority) 4	1	0.15	0.6959
Joint	28	11.38	0.0000
Denominator	27307		

Appendix 8 continued

Levels of income (income_30yrs) refer to:

1 = Less than NOK 200,000

2 = NOK 200,000 - 299,999

3 = NOK 300,000 - 399,999

4 = NOK 400,000 or higher

	Delta-method			
	Contrast	Std. Err.	[95% Conf. Interval]	
group@_at				
(Western descendants vs Majority) 1	-.0257815	.0140642	-.0533482	.0017851
(Western descendants vs Majority) 2	.0333651	.0136352	.0066394	.0600908
(Western descendants vs Majority) 3	.029416	.0192621	-.0083387	.0671707
(Western descendants vs Majority) 4	.0325056	.0264006	-.0192409	.0842521
(Non-Western 'residual' vs Majority) 1	.066396	.0208749	.0254801	.1073118
(Non-Western 'residual' vs Majority) 2	.0848722	.0189179	.0477921	.1219522
(Non-Western 'residual' vs Majority) 3	.0447148	.0177265	.00997	.0794595
(Non-Western 'residual' vs Majority) 4	.0499	.0279506	-.0048846	.1046845
(Turkish descendants vs Majority) 1	.1029747	.0241466	.0556462	.1503032
(Turkish descendants vs Majority) 2	.1044303	.0289243	.0477373	.1611234
(Turkish descendants vs Majority) 3	.1199331	.0386662	.0441454	.1957208
(Turkish descendants vs Majority) 4	-.023774	.0365503	-.0954144	.0478665
(Moroccan descendants vs Majority) 1	.1569882	.0426528	.0733865	.2405899
(Moroccan descendants vs Majority) 2	.1010287	.0233033	.0553531	.1467044
(Moroccan descendants vs Majority) 3	.1226756	.0316018	.0607344	.1846167
(Moroccan descendants vs Majority) 4	.1467894	.1370332	-.1218026	.4153814
(Indian descendants vs Majority) 1	.0135361	.025554	-.0365509	.0636232
(Indian descendants vs Majority) 2	.0160594	.0261109	-.0351193	.0672381
(Indian descendants vs Majority) 3	.028019	.0219365	-.0149777	.0710157
(Indian descendants vs Majority) 4	.0624214	.0493966	-.0343985	.1592413
(Pakistani descendants vs Majority) 1	.1577236	.0128603	.1325168	.1829304
(Pakistani descendants vs Majority) 2	.1265831	.0128658	.1013654	.1518008
(Pakistani descendants vs Majority) 3	.0907128	.0181983	.0550432	.1263824
(Pakistani descendants vs Majority) 4	.0529937	.0275818	-.0010681	.1070554
(Vietnamese descendants vs Majority) 1	.0585355	.032095	-.0043723	.1214434
(Vietnamese descendants vs Majority) 2	.0209647	.021368	-.0209176	.0628471
(Vietnamese descendants vs Majority) 3	-.0009798	.0192134	-.038639	.0366794
(Vietnamese descendants vs Majority) 4	-.0112082	.0286743	-.0674113	.0449949

APPENDIX 9 Predicted group differences in non-Western proportions in destination neighbourhoods among men (N=28,386), according to interactions between country-of-origin groups and partner status.

Note: Group differences and F-tests refer to differences between point estimates of majority individuals and immigrant descendants affiliated, respectively, with each country-of-origin group in Figure 8.5.

```

Contrasts of predictive margins
Model VCE      : Robust

Expression     : Linear prediction, predict()

1._at         : partner_30yrs =          1
2._at         : partner_30yrs =          2
3._at         : partner_30yrs =          3

```

	df	F	P>F
group@_at			
(Western descendants vs Majority) 1	1	0.00	0.9916
(Western descendants vs Majority) 2	1	0.04	0.8334
(Western descendants vs Majority) 3	1	5.53	0.0187
(Non-Western 'residual' vs Majority) 1	1	20.25	0.0000
(Non-Western 'residual' vs Majority) 2	1	13.82	0.0002
(Non-Western 'residual' vs Majority) 3	1	5.23	0.0222
(Turkish descendants vs Majority) 1	1	16.69	0.0000
(Turkish descendants vs Majority) 2	1	36.98	0.0000
(Turkish descendants vs Majority) 3	1	4.58	0.0324
(Moroccan descendants vs Majority) 1	1	19.32	0.0000
(Moroccan descendants vs Majority) 2	1	10.95	0.0009
(Moroccan descendants vs Majority) 3	1	0.87	0.3515
(Indian descendants vs Majority) 1	1	10.82	0.0010
(Indian descendants vs Majority) 2	1	4.41	0.0358
(Indian descendants vs Majority) 3	1	2.80	0.0941
(Pakistani descendants vs Majority) 1	1	123.36	0.0000
(Pakistani descendants vs Majority) 2	1	93.81	0.0000
(Pakistani descendants vs Majority) 3	1	12.48	0.0004
(Vietnamese descendants vs Majority) 1	1	19.97	0.0000
(Vietnamese descendants vs Majority) 2	1	0.53	0.4677
(Vietnamese descendants vs Majority) 3	1	2.56	0.1096
Joint	21	15.62	0.0000
Denominator	28339		

Appendix 9 continued

Partner status (partner_30yrs) refer to:

1 = No partner

2 = Non-Western partner

3 = Majority partner

	Delta-method			
	Contrast	Std. Err.	[95% Conf. Interval]	
group@_at				
(Western descendants vs Majority) 1	-.0000964	.0092001	-.0181291	.0179363
(Western descendants vs Majority) 2	.0119608	.0568798	-.0995262	.1234479
(Western descendants vs Majority) 3	.0366667	.0155872	.006115	.0672185
(Non-Western 'residual' vs Majority) 1	.0551616	.0122585	.0311343	.0791888
(Non-Western 'residual' vs Majority) 2	.0846959	.0227793	.0400473	.1293445
(Non-Western 'residual' vs Majority) 3	.0499659	.0218547	.0071296	.0928023
(Turkish descendants vs Majority) 1	.1137735	.0278459	.0591943	.1683527
(Turkish descendants vs Majority) 2	.1305869	.021474	.0884968	.172677
(Turkish descendants vs Majority) 3	.0974894	.0455596	.0081903	.1867884
(Moroccan descendants vs Majority) 1	.0721649	.0164201	.0399806	.1043491
(Moroccan descendants vs Majority) 2	.1138641	.0344044	.0464299	.1812983
(Moroccan descendants vs Majority) 3	-.036034	.0386733	-.1118356	.0397676
(Indian descendants vs Majority) 1	.0681069	.0207083	.0275176	.1086962
(Indian descendants vs Majority) 2	.0470499	.0224093	.0031266	.0909732
(Indian descendants vs Majority) 3	.1182618	.0706333	-.0201829	.2567064
(Pakistani descendants vs Majority) 1	.1356083	.0122096	.1116769	.1595398
(Pakistani descendants vs Majority) 2	.1040359	.0107414	.0829823	.1250896
(Pakistani descendants vs Majority) 3	.1059202	.0299873	.0471436	.1646968
(Vietnamese descendants vs Majority) 1	.0683095	.0152842	.0383518	.0982672
(Vietnamese descendants vs Majority) 2	.0208669	.0287308	-.0354469	.0771808
(Vietnamese descendants vs Majority) 3	.0724004	.0452531	-.0162979	.1610986

APPENDIX 10 Predicted group differences in non-Western proportions in destination neighbourhoods among women (N=27,361), according to interactions between country-of-origin groups and partner status.

Note: Group differences and F-tests refer to differences between point estimates of majority individuals and immigrant descendants affiliated, respectively, with each country-of-origin group in Figure 8.6.

```

Contrasts of predictive margins
Model VCE      : Robust

Expression     : Linear prediction, predict()

1._at         : partner_30yrs =          1
2._at         : partner_30yrs =          2
3._at         : partner_30yrs =          3

```

	df	F	P>F
group@_at			
(Western descendants vs Majority) 1	1	1.17	0.2797
(Western descendants vs Majority) 2	1	1.65	0.1988
(Western descendants vs Majority) 3	1	2.19	0.1386
(Non-Western 'residual' vs Majority) 1	1	17.52	0.0000
(Non-Western 'residual' vs Majority) 2	1	14.03	0.0002
(Non-Western 'residual' vs Majority) 3	1	8.69	0.0032
(Turkish descendants vs Majority) 1	1	4.75	0.0294
(Turkish descendants vs Majority) 2	1	32.70	0.0000
(Turkish descendants vs Majority) 3	1	2.14	0.1437
(Moroccan descendants vs Majority) 1	1	11.83	0.0006
(Moroccan descendants vs Majority) 2	1	36.68	0.0000
(Moroccan descendants vs Majority) 3	1	64.12	0.0000
(Indian descendants vs Majority) 1	1	0.12	0.7266
(Indian descendants vs Majority) 2	1	5.00	0.0254
(Indian descendants vs Majority) 3	1	0.38	0.5399
(Pakistani descendants vs Majority) 1	1	72.20	0.0000
(Pakistani descendants vs Majority) 2	1	155.83	0.0000
(Pakistani descendants vs Majority) 3	1	1.96	0.1614
(Vietnamese descendants vs Majority) 1	1	8.41	0.0037
(Vietnamese descendants vs Majority) 2	1	0.02	0.9017
(Vietnamese descendants vs Majority) 3	1	1.62	0.2033
Joint	21	21.40	0.0000
Denominator	27314		

Appendix 10 continued

Partner status (partner_30yrs) refer to:

1 = No partner

2 = Non-Western partner

3 = Majority partner

	Delta-method			
	Contrast	Std. Err.	[95% Conf. Interval]	
group@_at				
(Western descendants vs Majority) 1	.0145765	.0134851	-.0118549	.041008
(Western descendants vs Majority) 2	.1028076	.080007	-.0540101	.2596253
(Western descendants vs Majority) 3	.0160687	.01085	-.0051978	.0373352
(Non-Western 'residual' vs Majority) 1	.059989	.0143326	.0318965	.0880816
(Non-Western 'residual' vs Majority) 2	.0940454	.0251102	.0448281	.1432626
(Non-Western 'residual' vs Majority) 3	.0549649	.018648	.0184138	.091516
(Turkish descendants vs Majority) 1	.0509643	.0233926	.0051135	.096815
(Turkish descendants vs Majority) 2	.1132286	.0198008	.074418	.1520392
(Turkish descendants vs Majority) 3	.1097391	.0750484	-.0373595	.2568378
(Moroccan descendants vs Majority) 1	.1235442	.0359154	.0531482	.1939402
(Moroccan descendants vs Majority) 2	.1265376	.0208932	.085586	.1674893
(Moroccan descendants vs Majority) 3	-.0381256	.0047613	-.0474579	-.0287933
(Indian descendants vs Majority) 1	-.0069699	.0199364	-.0460463	.0321065
(Indian descendants vs Majority) 2	.0516449	.0231052	.0063575	.0969323
(Indian descendants vs Majority) 3	.016907	.0275833	-.0371577	.0709718
(Pakistani descendants vs Majority) 1	.1337418	.0157399	.1028908	.1645928
(Pakistani descendants vs Majority) 2	.1362515	.0109148	.1148579	.1576451
(Pakistani descendants vs Majority) 3	.070156	.0500961	-.0280348	.1683469
(Vietnamese descendants vs Majority) 1	.0622184	.0214489	.0201774	.1042595
(Vietnamese descendants vs Majority) 2	-.0024477	.0198228	-.0413014	.0364061
(Vietnamese descendants vs Majority) 3	-.0223937	.0176034	-.0568973	.01211

APPENDIX 11 Predicted group differences in non-Western proportions in destination neighbourhoods among men (N=28,386), according to interactions between country-of-origin groups and non-Western proportions in origin neighbourhoods.

Note: Group differences and F-tests refer to differences between point estimates of majority individuals and immigrant descendants affiliated, respectively, with each country-of-origin group in Figure 8.7.

```

Contrasts of predictive margins
Model VCE      : Robust

Expression     : Linear prediction, predict()

1._at         : nonwest_neighb_16yrs=          1
2._at         : nonwest_neighb_16yrs=          2
3._at         : nonwest_neighb_16yrs=          3
4._at         : nonwest_neighb_16yrs=          4

```

	df	F	P>F
group@_at			
(Western descendants vs Majority) 1	1	3.66	0.0559
(Western descendants vs Majority) 2	1	1.43	0.2325
(Western descendants vs Majority) 3	1	2.33	0.1272
(Western descendants vs Majority) 4	1	1.03	0.3099
(Non-Western 'residual' vs Majority) 1	1	5.02	0.0250
(Non-Western 'residual' vs Majority) 2	1	22.39	0.0000
(Non-Western 'residual' vs Majority) 3	1	10.12	0.0015
(Non-Western 'residual' vs Majority) 4	1	12.41	0.0004
(Turkish descendants vs Majority) 1	1	2.95	0.0859
(Turkish descendants vs Majority) 2	1	23.94	0.0000
(Turkish descendants vs Majority) 3	1	6.47	0.0109
(Turkish descendants vs Majority) 4	1	47.64	0.0000
(Moroccan descendants vs Majority) 1	1	8.11	0.0044
(Moroccan descendants vs Majority) 2	1	7.42	0.0065
(Moroccan descendants vs Majority) 3	1	15.59	0.0001
(Moroccan descendants vs Majority) 4	1	5.15	0.0233
(Indian descendants vs Majority) 1	1	5.93	0.0149
(Indian descendants vs Majority) 2	1	6.51	0.0107
(Indian descendants vs Majority) 3	1	6.12	0.0134
(Indian descendants vs Majority) 4	1	5.62	0.0178
(Pakistani descendants vs Majority) 1	1	53.44	0.0000
(Pakistani descendants vs Majority) 2	1	81.80	0.0000
(Pakistani descendants vs Majority) 3	1	47.21	0.0000
(Pakistani descendants vs Majority) 4	1	106.26	0.0000
(Vietnamese descendants vs Majority) 1	1	7.16	0.0074
(Vietnamese descendants vs Majority) 2	1	3.61	0.0573
(Vietnamese descendants vs Majority) 3	1	2.76	0.0964
(Vietnamese descendants vs Majority) 4	1	11.46	0.0007
Joint	28	12.44	0.0000
Denominator	28332		

Appendix 11 continued

Non-Western proportions (nonwest_neighb_16yrs) refer to:

- 1 = Less than 10 percent
- 2 = 10 - 19 percent
- 3 = 20 - 29 percent
- 4 = 30 percent or higher

group@_at	Delta-method			
	Contrast	Std. Err.	[95% Conf. Interval]	
(Western descendants vs Majority) 1	.0174797	.0091421	-.0004391	.0353986
(Western descendants vs Majority) 2	-.0236329	.0197939	-.0624299	.0151641
(Western descendants vs Majority) 3	.0747386	.0490063	-.021316	.1707932
(Western descendants vs Majority) 4	.0484218	.0476821	-.0450374	.141881
(Non-Western 'residual' vs Majority) 1	.0304541	.0135869	.0038232	.057085
(Non-Western 'residual' vs Majority) 2	.0826732	.01747	.0484313	.1169152
(Non-Western 'residual' vs Majority) 3	.0810877	.0254906	.0311249	.1310506
(Non-Western 'residual' vs Majority) 4	.1263665	.0358681	.0560633	.1966696
(Turkish descendants vs Majority) 1	.0358393	.0208651	-.0050573	.0767358
(Turkish descendants vs Majority) 2	.1403481	.0286839	.0841263	.1965699
(Turkish descendants vs Majority) 3	.0893211	.0351041	.0205154	.1581268
(Turkish descendants vs Majority) 4	.2233134	.032353	.1599	.2867269
(Moroccan descendants vs Majority) 1	.0894775	.0314134	.0279056	.1510493
(Moroccan descendants vs Majority) 2	.0620978	.0227954	.0174177	.1067779
(Moroccan descendants vs Majority) 3	.1139452	.0288595	.0573793	.1705111
(Moroccan descendants vs Majority) 4	.0802842	.0353832	.0109314	.1496371
(Indian descendants vs Majority) 1	.0429476	.01764	.0083724	.0775228
(Indian descendants vs Majority) 2	.075862	.0297393	.0175715	.1341525
(Indian descendants vs Majority) 3	.1436948	.0580739	.0298671	.2575224
(Indian descendants vs Majority) 4	.1282225	.0541107	.0221629	.2342822
(Pakistani descendants vs Majority) 1	.1026236	.014038	.0751084	.1301387
(Pakistani descendants vs Majority) 2	.1059126	.0117102	.08296	.1288652
(Pakistani descendants vs Majority) 3	.1158422	.0168598	.0827963	.1488881
(Pakistani descendants vs Majority) 4	.1883635	.0182731	.1525473	.2241796
(Vietnamese descendants vs Majority) 1	.0499523	.0186639	.0133702	.0865343
(Vietnamese descendants vs Majority) 2	.0512886	.026976	-.0015856	.1041627
(Vietnamese descendants vs Majority) 3	.046016	.0276762	-.0082307	.1002626
(Vietnamese descendants vs Majority) 4	.1477384	.0436461	.0621901	.2332867

APPENDIX 12 Predicted group differences in non-Western proportions in destination neighbourhoods among women (N=27,361), according to interactions between country-of-origin groups and non-Western proportions in origin neighbourhoods.

Note: Group differences and F-tests refer to differences between point estimates of majority individuals and immigrant descendants affiliated, respectively, with each country-of-origin group in Figure 8.8.

```

Contrasts of predictive margins
Model VCE      : Robust

Expression     : Linear prediction, predict()

1._at         : nonwest_neighb_16yrs=          1
2._at         : nonwest_neighb_16yrs=          2
3._at         : nonwest_neighb_16yrs=          3
4._at         : nonwest_neighb_16yrs=          4

```

	df	F	P>F
group@_at			
(Western descendants vs Majority) 1	1	1.40	0.2361
(Western descendants vs Majority) 2	1	6.00	0.0143
(Western descendants vs Majority) 3	1	0.03	0.8599
(Western descendants vs Majority) 4	1	0.05	0.8147
(Non-Western 'residual' vs Majority) 1	1	10.94	0.0009
(Non-Western 'residual' vs Majority) 2	1	10.29	0.0013
(Non-Western 'residual' vs Majority) 3	1	16.00	0.0001
(Non-Western 'residual' vs Majority) 4	1	8.12	0.0044
(Turkish descendants vs Majority) 1	1	2.61	0.1059
(Turkish descendants vs Majority) 2	1	23.18	0.0000
(Turkish descendants vs Majority) 3	1	1.09	0.2971
(Turkish descendants vs Majority) 4	1	28.31	0.0000
(Moroccan descendants vs Majority) 1	1	2.58	0.1079
(Moroccan descendants vs Majority) 2	1	25.68	0.0000
(Moroccan descendants vs Majority) 3	1	24.26	0.0000
(Moroccan descendants vs Majority) 4	1	10.31	0.0013
(Indian descendants vs Majority) 1	1	0.98	0.3230
(Indian descendants vs Majority) 2	1	1.28	0.2578
(Indian descendants vs Majority) 3	1	1.00	0.3164
(Indian descendants vs Majority) 4	1	1.64	0.2000
(Pakistani descendants vs Majority) 1	1	47.93	0.0000
(Pakistani descendants vs Majority) 2	1	81.12	0.0000
(Pakistani descendants vs Majority) 3	1	71.29	0.0000
(Pakistani descendants vs Majority) 4	1	89.57	0.0000
(Vietnamese descendants vs Majority) 1	1	0.06	0.8113
(Vietnamese descendants vs Majority) 2	1	0.73	0.3922
(Vietnamese descendants vs Majority) 3	1	2.05	0.1524
(Vietnamese descendants vs Majority) 4	1	1.52	0.2175
Joint	28	11.84	0.0000
Denominator	27307		

Appendix 12 continued

Non-Western proportions (nonwest_neighb_16yrs) refer to:

- 1 = Less than 10 percent
- 2 = 10 - 19 percent
- 3 = 20 - 29 percent
- 4 = 30 percent or higher

	Delta-method			
	Contrast	Std. Err.	[95% Conf. Interval]	
group@_at				
(Western descendants vs Majority) 1	.0104788	.0088436	-.0068551	.0278128
(Western descendants vs Majority) 2	.0595382	.0243078	.0118937	.1071827
(Western descendants vs Majority) 3	.0069858	.0395777	-.0705886	.0845601
(Western descendants vs Majority) 4	-.0156439	.0667507	-.1464786	.1151909
(Non-Western 'residual' vs Majority) 1	.0438372	.0132506	.0178654	.069809
(Non-Western 'residual' vs Majority) 2	.0663321	.0206758	.0258064	.1068578
(Non-Western 'residual' vs Majority) 3	.1224702	.0306173	.0624587	.1824817
(Non-Western 'residual' vs Majority) 4	.1151493	.0404174	.035929	.1943695
(Turkish descendants vs Majority) 1	.0409118	.0253023	-.0086821	.0905056
(Turkish descendants vs Majority) 2	.1567902	.0325648	.0929615	.2206189
(Turkish descendants vs Majority) 3	.0365703	.0350757	-.0321798	.1053204
(Turkish descendants vs Majority) 4	.1739006	.0326832	.1098399	.2379613
(Moroccan descendants vs Majority) 1	.0554345	.0344817	-.0121514	.1230204
(Moroccan descendants vs Majority) 2	.1441741	.0284499	.0884108	.1999374
(Moroccan descendants vs Majority) 3	.1678664	.0340841	.1010598	.234673
(Moroccan descendants vs Majority) 4	.1291189	.0402212	.0502833	.2079545
(Indian descendants vs Majority) 1	.019011	.0192343	-.0186892	.0567113
(Indian descendants vs Majority) 2	.0284665	.0251541	-.0208368	.0777698
(Indian descendants vs Majority) 3	.0426238	.0425457	-.0407679	.1260155
(Indian descendants vs Majority) 4	.0917343	.0715837	-.0485733	.2320419
(Pakistani descendants vs Majority) 1	.1006333	.014535	.0721439	.1291227
(Pakistani descendants vs Majority) 2	.1180608	.0131085	.0923674	.1437542
(Pakistani descendants vs Majority) 3	.1529985	.0181209	.1174805	.1885165
(Pakistani descendants vs Majority) 4	.1972609	.0208429	.1564077	.2381141
(Vietnamese descendants vs Majority) 1	-.0026583	.0111364	-.0244862	.0191696
(Vietnamese descendants vs Majority) 2	.0173927	.0203288	-.0224529	.0572382
(Vietnamese descendants vs Majority) 3	.046104	.0322174	-.0170438	.1092517
(Vietnamese descendants vs Majority) 4	.0541728	.0439234	-.0319193	.1402649