

DISCUSSION PAPER SERIES

IZA DP No. 11076

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Neighbourhood: An Enquiry into Ethnic  
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# Income Increase and Moving to a Better Neighbourhood: An Enquiry into Ethnic Differences in Finland

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## ABSTRACT

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# Income Increase and Moving to a Better Neighbourhood: An Enquiry into Ethnic Differences in Finland

Concentration to disadvantaged neighbourhoods may hinder immigrants' opportunities for social integration, so equal chances of translating available economic resources into mobility to less disadvantaged neighbourhoods are important. This paper adds to existing research on exits from poor neighbourhoods by focusing on the effects of *income increase* on residential mobility. We analyse intra-urban residential mobility from low-income neighbourhoods into non-low-income neighbourhoods among immigrants and native-born residents in three urban regions in Finland. We use longitudinal register data for the 2004–2014 period for the full Finnish population, allowing a dynamic analysis of changes in income and neighbourhood of residence. Based on multinomial logit modelling of migration outcomes, we found that an increase in income is associated with moving both to low-income and non-low-income areas even when controlling for initial income level. Upward income mobility was connected to exit from low-income areas in a quite similar way among immigrants and native-born Finns. The findings suggest that policies e.g. improving the labour market opportunities of immigrants are effective in reduction of residential segregation. However, we were not able to completely explain the differences between native-born Finns and immigrants in moving patterns. The differences between the cities were opposite for immigrants and native-born Finns, corresponding to differences in immigration history and levels of ethnic segregation. Therefore, the local context matters for spatial integration outcomes.

**JEL Classification:** O15, O18, P25, R23

**Keywords:** immigration, segregation, housing, residential mobility, income mobility, register data, Finland

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## Introduction

It is often argued that place matters for various socioeconomic outcomes of individuals (e.g. Buck and Gordon, 2004; Steil et al., 2015; Bamba, 2016). Neighbourhood disadvantage or a sizeable share of ethnic minorities may hinder opportunities for upward social mobility and integration (Musterd et al., 2008; Steil et al., 2015). As ethnic minorities are more likely than natives to live in poor neighbourhoods, many poverty concentration areas are also areas with relatively high concentrations of ethnic minorities. Residential mobility is one of the main mechanisms leading to segregation by income and ethnicity (Boschman and van Ham, 2015).

An important question related to our understanding of socioeconomic and ethnic segregation is whether increases in income are translated into moves away from poverty concentration neighbourhoods to higher income neighbourhoods and to neighbourhoods with lower shares of ethnic minorities. This is the principal focus of this article and moves us beyond the usual static approach to a dynamic one. The effects of an increase in income might not be the same for immigrants and natives, and it is likely that natives are more able to translate gains in income into a move to a better neighbourhood. Therefore, the heterogeneity in the association between upward income mobility and upward residential mobility between different ethnic groups will be assessed. Very few studies have considered the impact of income *mobility* on moves to different types of neighbourhoods, apart from Wessel et al. (2017), who did not find a consistent pattern among the Nordic capital regions.

Even when upward socioeconomic mobility leads to moves to neighbourhoods with a higher socioeconomic status, ethnic minorities might still move to neighbourhoods with higher shares of ethnic minorities due to discrimination and/or ethnic preferences (Schelling, 1969; Boschman et al. 2017; Boschman and van Ham, 2015). Therefore, the ethnic dimension of neighbourhoods has to be assessed in addition to the socioeconomic dimension in order to better understand residential outcomes and their consequences for both ethnic and socioeconomic segregation.

Finland provides an interesting context for the analysis as immigration is a rather recent phenomenon, and the country is characterised by an extensive public services sector, a relatively high level of equality and social cohesion, and strong migrant integration policies<sup>1</sup>. As increasing income among immigrants can be taken as a sign of economic integration into society, the results of this study will provide information on the extent to which economic integration affects the spatial integration of immigrants, and to what extent a rise in incomes can be translated into an improvement in neighbourhood quality. We will also analyse the shares of ethnic minorities in destination neighbourhoods.

We use rich longitudinal register data spanning from 2004 to 2014 and comprising the total population living in Finland. We study simultaneously immigrants' income and intra-urban residential mobility in comparison to the native-born Finns. We use a dynamic model in which we use changes rather than states as explanatory factors; this takes us closer to identifying causal mechanisms underlying residential patterns. Panel data allows us to take into account the explanatory factors contemporaneously with the moves as opposed to a cross-sectional design in which the current neighbourhood may reflect individual's past circumstances instead of the effect of the current characteristics such as income (Painter, 2000). The analysis focuses on household heads living initially in low-income areas in three Finnish cities: Helsinki, Turku and Tampere. These three largest urban regions in Finland have different immigration histories, housing policy legacies, housing prices, and segregation levels, which means that both the ethnic characteristics of the

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<sup>1</sup> According to Migrant Integration Policy Index 2015 ([www.mipex.eu](http://www.mipex.eu), accessed on 16 June 2017).

neighbourhoods and the opportunities in the housing market differ. Our results will therefore illustrate the significance of the local context for segregation outcomes (Musterd et al. 2016; South et al. 2011).

## Literature

### *Models of residential mobility and segregation*

Previous research has identified that changes in the global economy, structural changes in the labour market and occupational structure of the city, the type of welfare state and provision of public services, investment in social housing and its spatial distribution, and income inequality are all important factors that affect socioeconomic segregation in cities. However, Tammaru et al. (2016) note that there is no simple correlation between the principal contributing factors and levels of segregation. For example, the relationship between income inequality and socioeconomic segregation is mediated by the institutional set-up, demographic developments and various policies at local and national level, while they also interact with ethnic segregation. In today's European cities, Finland being no exception, immigrants make up an important share of the low-income population. The strong association between poverty and immigration status means that in order to understand socioeconomic segregation, processes contributing to ethnic segregation have to be understood as well, and *vice versa*.

Although a holistic explanation of the causes of residential segregation needs to take into account forces operating at several levels beyond individuals and households, including global, national and local processes (e.g. Musterd, 2005), segregation is ultimately shaped by selective residential mobility patterns of households between neighbourhoods (Boschman and van Ham, 2015). Analysing mobility at the micro-level therefore leads to a better understanding of segregation processes and drivers of geographic concentration of immigrants and/or poverty.

There is a large literature on spatial mobility patterns in general, and on mobility as a driver of ethnic segregation. The first is connected to the latter to the extent to which immigrants differ from the main population in some key sociodemographic factors that affect overall residential mobility patterns. A host of factors can be expected to affect both immigrants' and natives' neighbourhood destinations (e.g. Hedman and van Ham, 2012). These include individual and household characteristics such as the preferences and needs related to the current life situation, constraints such as an urgent need to find housing, and the availability of financial resources and information. Additionally, they include contextual factors such as the current housing market situation i.e. where vacant housing is available, characteristics of individual neighbourhoods and the social environment, and the unequal spatial distribution of different types of dwellings. Spatial mobility research has highlighted the role of individual and household characteristics and life course events that affect residential mobility: age, education, marital status, household composition and size (and connected housing-space requirements), home ownership, and neighbourhood characteristics (e.g. Clark and Huang, 2003; Feijten, 2005; Kan, 1999; Rabe and Taylor, 2010).

The second body of literature deals with mobility as a driver of segregation. Although direct immigration from abroad to certain cities and neighbourhoods may have important effects on neighbourhood population change (e.g. Finney and Simpson 2009), selective intra-urban migration of different ethnic groups is the main micro-level mechanism shaping ethnic residential segregation among the already-settled population. Selective migration may indicate preferences for co-ethnic neighbors or constraints on spatial integration, in addition to the effects of general sociodemographic determinants of migration (e.g. Boschman & van Ham 2015).

Three explanatory frameworks of residential segregation and mobility are commonly presented (e.g. Bolt and van Kempen, 2010): 1) the *spatial assimilation* model concentrating on the individual level taking into account preferences, restrictions and resources, 2) the *place stratification* model focusing on the macro level constraints of the housing market, and 3) the *cultural preference* or *ethnic enclave* model on the individual preferences concerning ethnicity of neighbours.

The spatial assimilation model starts from the idea that immigrants are initially segregated but disperse spatially as they become acculturated to the host community and experience socioeconomic mobility. In other words, ethnic segregation would to a large extent reflect socioeconomic integration. Bolt and van Kempen (2010, 335) write: “acculturation provides desire and social mobility the means, for immigrants to achieve spatial assimilation.” This highlights the importance of looking at the two processes at the same time, i.e. examining income and residential patterns together. Based on this model, it can be expected that upward income mobility influences residential mobility of immigrants similarly to the native-born population so that they would move to higher income neighbourhoods when controlling for other factors. It is also possible that income increases have a differentiated impact at different points of the income distribution. The marginal utility of added income can be expected to be bigger at the bottom of the income distribution, while those with initially higher incomes are likely to already have the resources to move to higher income neighbourhoods.

A competing theory, the place stratification model, emphasizes the constraints immigrants may face on the housing market, such as discrimination. It does not predict immigrants to become completely dispersed, or their spatial distribution to directly reflect their socioeconomic resources, unless these constraints disappear. This means that immigrants are unable to match their economic resources to their neighbourhood due to these factors. This has been called the ‘strong’ version of the place stratification model, meaning that discrimination would impede even wealthier minority members’ escape from poverty concentrations (Logan and Alba 1993; South and Crowder 1997; South et al., 2005). An alternative, or ‘weak’, version of the model, however, proposes that individual characteristics have a stronger influence among minority members. In this case, mostly those immigrants with high income are able to leave poverty concentrations, leading to a stronger association of economic resources and mobility patterns among immigrants than natives. This pattern was found among African Americans in the USA by South and Crowder (1997), although not replicated in a later study (South et al., 2005). In the Netherlands, Bolt and van Kempen (2003; 2010) have found similar or stronger income effects among minority ethnic groups as compared to the native Dutch population.

Even if immigrants are socioeconomically mobile and do not suffer from discrimination, the natives’ and immigrants’ preferences regarding the ethnicity of neighbours may lead to ethnic segregation (Schelling, 1969). Bolt et al. (2008) call this the cultural preference approach. In this vein, both self-selection of immigrants into segregated neighbourhoods and the “avoidance” and “flight” behaviour of natives have been offered as explanations for ethnic segregation. Based on this model (as well as the stratification model), it is expected that even when moving to higher-income areas, immigrants move to areas with higher shares of immigrants as compared to the destination neighbourhoods of the native-born movers.

Characteristics of the local context affect the migration outcomes as well. For example, the housing supply in poor and non-poor neighbourhoods may be important (South et al. 2011). If immigrants have restricted access to some types of housing, such as homeownership, for example due to discrimination on the housing market, their neighbourhood options may be restricted to the extent that other types of housing are distributed unevenly across neighbourhoods. Flippen (2010)

has shown that in the USA, there is a negative association between minority homeownership and ethnic segregation. Also strong ethnic segregation in itself may limit the opportunities for ethnic minorities in residential mobility by limiting the number of potential migration destinations, and a larger share of immigrants in the population may decrease differences between ethnic groups in the migration patterns (South et al., 2011). In a comparative Nordic study (Wessel et al. 2017), one suggested reason for increasing ethnic segregation in the Helsinki metropolitan area was indeed the recency of immigration as compared to other Nordic capital regions. On the other hand, the tenure mixing policies practiced in Helsinki, leading to lesser concentration of immigrants in poor neighbourhoods, were seen as a possible reason for weak income effects on upward spatial mobility (see also Skifter Andersen et al., 2016).

### *Finnish Context*

Finland became a net immigration country only in the 1980s and the number of immigrants in Finland is still fairly low compared to, for example, other Nordic countries, but recent decades have seen a steady increase in their number. Based on the register data used in this article, the share of individuals with a foreign background almost doubled between 2004 and 2014 in Finland, from 4.6 % in 2004 to 8.5 % in 2014. There is a strong concentration of people with a foreign background in the Helsinki region and, in particular in the city of Helsinki. In 2014, 47 per cent of all immigrants in Finland lived in the Helsinki region (compared to 25 per cent of the native-born population), of these more than half lived in the city of Helsinki. The share of immigrants in the cities of Tampere and Turku is considerably lower than in Helsinki (respectively 9.3 %, 12.8 % and 17.3 % in 2014). The rise in the number of immigrants in these cities is also much more recent compared to Helsinki, which makes it interesting to compare these three cities.

Among the three study regions, ethnic residential segregation has been found to be the highest in the Turku region, while being at a similar lower level in the Helsinki and Tampere regions (Kauppinen and Vaalavuo, 2017). At the zipcode level used in this study, in 2014, the index of dissimilarity<sup>2</sup> between the Finnish-born and the non-Western immigrant groups aged 20-64 was 33 in the Helsinki region, 36 in the Tampere region, and 42 in the Turku region (29, 28 and 37 for the Eastern Europeans). Also income segregation, between the lowest and the highest local income quintiles, was the highest in the Turku region in 2014 (index of dissimilarity = 36), followed by the Helsinki (32) and Tampere (28) regions.

The differences in ethnic segregation do not reflect the differences in immigrants' homeownership levels (cf. Flippen 2010), as homeownership is the least common in the Helsinki region (61% in the native-born 20-64-year-old population in the Helsinki region in 2014, 65% in the other regions, correspondingly 29% vs. 35% among the immigrants). Particularly the differences between the Helsinki and Turku regions correspond to differences in the anti-segregation policies between their central cities (Rasinkangas, forthcoming). Helsinki has had a much stronger emphasis on avoiding segregation than Turku, while Tampere is situated in between. An important manifestation of this has been the extensive application of tenure mixing in new housing projects since the 1970s in Helsinki. However, its effects on tenure distributions are visible mainly at more detailed spatial levels than at the zipcode level used in this study.

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<sup>2</sup> Index of dissimilarity measures the residential separation between two groups at the zip code level. Its values can be interpreted as showing what percentage of persons either group should change their zipcode area in order to have the same spatial distribution as the other group.

From an international perspective, the levels of segregation in the Finnish cities remain relatively low and the Finnish welfare model has traditionally contributed to a more equal distribution of income than in many other countries. Thus, the context of the study is considerably different from American and even many European studies. Wessel et al. (2017) argue that the social and spatial equality in this kind of a (Nordic) context may limit the need for ‘upward’ spatial mobility.

### *Hypotheses*

In this study we test several hypotheses on the relationship between upward income mobility and spatial mobility, and we compare the outcomes for native Finns with immigrants. Based on spatial assimilation theory, we first test the hypothesis that upward income mobility has a similar impact on the likelihood to move from a low-income to a non-low-income neighbourhood among immigrants and the native-born population when initial income level and other factors are controlled for (*H1*). A competing hypothesis, based on the ‘strong version’ of the place stratification model, is that higher income is not translated into moving to a “better” neighbourhood to the same extent among immigrants as among the native-born Finns (*H2*). A third hypothesis, based on the ‘weak version’ of the place stratification model suggests that the effect of an income increase is actually stronger among immigrants as for them moving to a more affluent neighbourhood may be more dependent on having a favourable economic situation than for the native-born Finns (*H3*).

We also expect place stratification based on ethnicity to play a stronger role in Turku and Tampere: in these cities, the growth of the immigrant population has happened more recently and the share of immigrants is relatively low, which may affect the openness of housing markets. Therefore, we expect immigrants to have lower rates of migration to non-low-income areas in Turku and Tampere than in Helsinki (*H4*). Similar results can be expected by the lower level of ethnic segregation in Helsinki, although in that case the migration patterns themselves affect the segregation levels, so the distinction between the cause and the effect is less clear.

## **Data and methods**

### *Data*

The analyses are based on a unique register-based dataset constructed in Statistics Finland (contract TK-53-356-16). It covers the full population of the Helsinki, Turku and Tampere ‘sub-regions’ (the Local Administrative Unit 1 level in the Classification of Territorial Units for Statistics in the European Union) spanning from 2004 to 2014. The study population is limited to household heads aged 20-49 years old (excluding students) with at least three consecutive years of data and who lived in a low-income neighbourhood in two consecutive years (i.e. in years  $t-2$  and in  $t-1$ ) in the city of Helsinki, Turku or Tampere, and did not move away from the city and the surrounding region under study in the year  $t-0$ .<sup>3</sup> Household head is defined as the person with the highest personal income in the household. This restriction ensures that we do not count moves made by members of the same household multiple times. 320,911 observations meet the criteria for selection. All the years are pooled together in the analyses, while we control for the year in the regression models.

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<sup>3</sup> Between 11.2% (non-Westerns in Turku) and 23.2% (East Europeans in Helsinki) of the movers in the study population moved away from the city to other parts of the surrounding region. They are included in the analysis. Those who moved to other parts of Finland are excluded from the study population.



Individuals are grouped into four categories: 1) native-born Finns, 2) East European immigrants, 3) other non-Western immigrants (excluding individuals of Japanese and South Korean origin)<sup>4</sup>, 4) second generation immigrants (including immigrants who have arrived to Finland before the age of 12, and excluding children with parents of Western, Japanese or South Korean origin).<sup>5</sup> Anyone with at least one non-Finnish (East European or non-Western) parent is categorised as a second generation immigrant. Western immigrants and their children are not included in the study because of the relatively small number of observations especially in Turku and Tampere and high rate of marriages with native-born Finns.

Neighbourhoods are defined by zip codes, which had on average 6000-7000 residents in the central cities in 2014 (areas with less than 250 inhabitants are excluded from the analysis). We also conducted robustness analysis with smaller area units. Income is defined as the equivalised disposable household income (income after social transfers and taxes). The modified OECD equivalence scale is used to take into account the size and composition of the household. Individuals are divided into income quintiles and deciles based on the working age (20-64 years old) population in the region for each year separately. Low-income individuals are defined as those who belong to the poorest 20 per cent of the region. A low-income neighbourhood is defined as an area with more than 25 per cent of inhabitants aged between 20 and 64 in the bottom income quintile, when students are not included in the low-income population.

### *Analytical strategy and methods*

Because of the longitudinal nature of the data, we are able to consider the timing of different events, such as changes in incomes, household composition, and labour market status, in relation to residential mobility. This reduces the possibility of the alternative causal pathway in which spatial integration impacts on employment opportunities and income. We analyse mobility always from one year to the next, predicting it by changes that happened before the move. Hence, changes in income decile, labour market status or household are counted when they happen between  $t-2$  and  $t-1$ , while residential mobility occurs between  $t-1$  and  $t-0$ . Those who move between  $t-2$  and  $t-1$  are excluded from the analysis, and as a result, the individuals we follow in our analysis lived in a low-income area during at least two years before moving (in years  $t-2$  and  $t-1$ ). Three consecutive years of data is needed for such analysis.

One individual can contribute multiple times to the analysis: the event of moving from a low-income area can occur several times, as we take into account any pair of two consecutive years in a period of ten years (pooled data with years 2004-2014). For example, people with 4 years of data are counted twice in the analysis, people with 5 years of data are counted three times, and so forth. Hence, the usual assumption of stochastic independence of error terms is violated. This non-independence within clusters (i.e. individuals) is corrected with the Stata (version 14) option 'cluster' that adjusts the standard errors.

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<sup>4</sup> The biggest group in the second category is people born in Russia or ex-USSR (almost half of the entire group), in Estonia (31%) and in ex-Yugoslavia (11%). Among non-Western immigrants, the biggest group is people born in Somalia (15%), Iraq (11%), Turkey (8%), Vietnam (7%) and Iran and China (both around 6%).

<sup>5</sup> Among the second generation immigrants, the majority were born abroad but arrived to Finland before the age of 12 (57% of the group) and 40% have mixed parents (i.e. one parent being a Finn). This means that only a minority (3.6% in our study sample) are "real" second generation immigrants, i.e. born in Finland to foreign parents.

We use multinomial logistic regression analysis (Stata 14 command ‘mlogit’) to study whether immigrants and native-born Finns have different likelihoods of moving to another low-income neighbourhood (or within such neighbourhood), or moving to a non-low-income neighbourhood after experiencing an increase in income, as compared to not moving at all. The multinomial specification allows us to avoid the sample selection issue arising if only movers were analysed, and it also allows us to compare the determinants of moving to non-low-income neighbourhoods to the determinants of other moves, enabling us to differentiate between general factors associated with residential mobility and those specific to moves to non-low-income neighbourhoods.

It is also worth noting that the effect of some individual or household characteristics are not necessarily the same for all migrant groups (Bolt and van Kempen 2010). For this reason separate models for each immigrant group complement the overall analysis of residential mobility. Finally, the shares of immigrants in the origin and destination neighbourhoods are described at the end of the empirical analyses to see, whether upward moves in socioeconomic terms have different ethnic characteristics among immigrants and the native-born movers.

### *Variables*

The dependent variable in the regression analysis is “moving category” that can take three values: 1) did not move between  $t-1$  and  $t-0$  (base category), 2) moved within or to another low-income area between  $t-1$  and  $t-0$ , and 3) moved from a low-income area to a non-low-income area between  $t-1$  and  $t-0$ .

Control variables in all models include age category, gender, year dummy and region (Helsinki, Turku and Tampere). Unfortunately, there is no reliable measure of education for immigrants in our data. Our main interest is income increase that is defined as any upward mobility from one income decile to a next in the year before the move, i.e. income increase between  $t-2$  and  $t-1$ . As the impact of income increase might differ in different places of income distribution (we expect it to have a bigger impact at the bottom of the income distribution), we also use an interaction between income increase and income level in  $t-2$ .

Some changes in household composition and labour market status might affect incomes and residential mobility at the same time as illustrated above in the discussion on theory of migration. Therefore, we also control for civil status and changes in civil status (staying single in both years, being married both years, getting married, getting divorced, and becoming a widow), these are also measured before the move, i.e. between  $t-2$  and  $t-1$ . We also control for increase in the number of children below the age of 18 as this is likely to impact on the changing housing needs of families.

Labour market changes impact incomes directly, while they can also have an independent effect on residential mobility as they reflect the longer term income security of the person and potentially the need to move closer to work. We use a categorical variable with the following values: getting employed, getting unemployed, both years employed, and both years unemployed. Here, inactivity is analysed together with unemployment as preliminary analyses showed no difference between these two categories.

Tenure type in  $t-1$  is added in the model as it is closely related to residential mobility. In addition, we use a measure of over-crowdedness in  $t-1$  to reflect on the need to move to a more spacious dwelling. The exact share of low-income residents in the neighbourhood of origin is also added to the analysis.

Table 1 presents some key characteristics of the study population studied separately for each city. First of all, we see that the number of 2<sup>nd</sup> generation immigrants is quite small in Turku and Tampere. This group also differs from the rest of the study population by their younger age, which is associated with a higher prevalence of moving. They are also more likely to experience an income increase, while the share is much lower among non-Western immigrants. Non-Western immigrants have, on average, more children than the other groups and, together with East Europeans, they are significantly less likely to live alone, especially in Turku and Tampere. There are fewer women than men in the sample, as we have restricted the analysis to household heads (person with the highest personal income in the household).

\*\*\*\*Table 1 around here \*\*\*\*

Quite unsurprisingly, immigrants are more likely to live in low-income areas in all the three cities studied (Table 2). The result is associated with the pattern of income levels in these groups: a very high share of immigrants belongs to the bottom income quintile (around 40 percent among East Europeans and 60 percent among non-Western immigrants). In Turku and Tampere, the difference between immigrants and native-born Finns is considerably bigger than in Helsinki.

\*\*\*\*Table 2 around here \*\*\*\*

## Results

Table 3 shows the share of individuals moving from a low-income area to a non-low-income area by the occurrence of income increase and by city. First, increases in household disposable income are clearly associated with a higher chance of moving to a higher-income neighbourhood in all groups and cities. Second, East Europeans and non-Western immigrants have a lower likelihood of moving to a non-low-income area, in particular in Turku and Tampere. Finally, the difference between the Finnish-born population and immigrants is still visible when looking only at those having experienced an income increase, especially in Turku and Tampere.

\*\*\*\*Table 3 around here \*\*\*\*

It is also important to note that increases in income are less frequent among immigrants. For example, immigrants are less likely to move up from the bottom income decile when we observe incomes in a 2-year period. More than 70 percent of East Europeans and non-Western immigrants who are in the bottom decile stay there, while the share is ten percentage points lower among native-born Finns and second generation immigrants. Altogether, the majority of those moving up the income ladder from the bottom decile only move to the second income decile. A logistic regression analysis in which we control for age, gender, and changes in civil and labour market status also show that immigrants are less likely to experience an income increase compared to native-born Finns (results available upon request).

In Table 4 we present the results of a multinomial logistic regression analysis, where the reference category is “not moving”, and the two other categories are “moving to a non-low-income area” and “moving within low-income areas”.

Without any control variables in the model (not shown in Table 4), the difference between immigrants and native-born Finns in the propensity to move is considerable: immigrants' rate of exiting low-income areas is lower, while their rate of moving within low-income areas is higher. Adding the initial income level and a dummy indicating income increase to the model reduces this difference in the first case but not in the second.

Our main independent variable, income increase, is systematically positively associated with both moving to a higher-income neighbourhood and moving within low-income areas (Table 4). The impact remains even after controlling for various other factors related to residential mobility, such as changes in the household composition or marital status, initial income level, changes in labour market status, tenure type, and over-crowdedness.

In model 1 (Table 4), we add an interaction between initial income level and income increase and see that impact of income increase is bigger at the bottom (quintile 1) of the income distribution as envisaged earlier. To reduce the complexity of the following models, this interaction is not included in them, but a significant share of our study population belongs to the bottom income quintile initially. In the second model, we look at the interaction between immigrant group and income increase to test hypotheses *H1-H3*. With the exception of 2<sup>nd</sup> generation immigrants, the interaction terms are positive among East European and non-Western immigrants, indicating a stronger effect of income increase among them than among the native-born Finns, as the weak version of place stratification model (*H3*) would predict. These results hold for both exiting low-income areas and moving within them, suggesting that immigrants' moves are more responsive to income increase generally, not only in exiting low-income areas.<sup>6</sup> Adding various socio-demographic and neighbourhood-related control variables in model 3, including changes in the labour market status, does not qualitatively change these results.

\*\*\*\*Table 4 around here \*\*\*\*

Table 5 presents selected results from the full model run separately for each immigrant group to see whether there are differences between groups in the role of variables explaining residential mobility. We mainly focused on the effects of housing tenure and city of residence. As shown in Table 4, the association between an income increase and an exit from low-income areas is slightly stronger for immigrants, except for the 2<sup>nd</sup> generation immigrants.

Living in publicly subsidized rental housing has a stronger negative association with exiting low-income areas among immigrants, especially non-Western and second generation immigrants, suggesting stronger reliance on this housing tenure. As for the local context, we see that in Turku and Tampere, immigrants have lower chances of moving to a non-low-income neighbourhood than in Helsinki, while for the native-born Finns the difference is the opposite, conforming to hypothesis *H4*. This does not seem to be easily explainable by the differences between the cities in tenure mixing policies, as the share of subsidized rental dwellings of the housing stock of the non-low-income zipcode areas of the central cities has been quite similar: in 2009, the share was within 15-17% in the three cities.

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<sup>6</sup> Another analysis relying on smaller area units was conducted for robustness check (results available upon request). The results were very similar to the ones based on zip code areas used in the main analyses. The difference between immigrants and native-born Finns becomes smaller when looking at moving within low-income areas, while the difference becomes bigger in moving to non-low-income areas. The difference between second generation immigrants and native-born Finns, however, becomes minor.

\*\*\*\*Table 5 around here \*\*\*\*

Table 6 illustrates the share of immigrants in the origin and destination neighbourhoods of those who stayed in the area, moved within low-income areas or moved to a non-low-income area. First, we see that those who move to non-low-income areas move from areas that had less immigrants to begin with, meaning that there is some spatial selection on who exits low-income areas. Second, the share of immigrants is significantly lower in the destination areas of the individuals moving to non-low-income areas. East Europeans and non-Western immigrants move to non-low-income areas with slightly larger shares of immigrants than in the destination areas of the native-born Finns and second generation immigrants, but the share of immigrants drops clearly in all groups' moves to non-low-income areas. As there are few non-low-income areas in our study cities with high proportions of immigrants, those immigrants who leave low-income areas are also very likely to leave areas with ethnic minority concentrations. Therefore, immigrants exiting low-income neighbourhoods contribute to more equal ethnic distribution in cities.

\*\*\*\*Table 6 around here \*\*\*\*

## Discussion

This article examined the impact of upward income mobility on residential moving patterns away from low-income neighbourhoods among native-born Finns and people with immigrant background in three Finnish cities. The study aimed at bringing new evidence on the drivers behind ethnic and income segregation and how intra-urban migration contributes to segregation patterns. The principal aim was to analyse whether individuals are able to translate income gains into better neighbourhood quality regardless of their ethnic background or other circumstances. This is important for understanding to what extent labour market integration and reduction of poverty among immigrants can also help in spatial integration of immigrants in cities. We used rich register data of the total Finnish population spanning from 2004 to 2014. This allowed a robust analysis even when investigating specific population groups. The panel design of the data allowed us to take into account various changes in individual circumstances taking us closer to a causal explanation as well as a comparison of local contexts.

In general, immigrants have lower chances of moving to higher-income neighbourhoods, and this is to a large degree explained by socio-demographic and economic factors such as lack of financial means. Our main finding, however, is that the association between residential mobility and income increase appears to be slightly stronger among East Europeans and non-Western immigrants than among the native-born population. Earlier Bolt and van Kempen (2003) have found tentative evidence for a similar finding in the Netherlands, using a static income variable, and in a later study (Bolt and van Kempen 2010) they found roughly similar income effects among the native Dutch population and ethnic minorities. Wessel et al. (2017) did not find income change effects in the Helsinki metropolitan area, but that may be because that study did not focus on residents of low-income areas. We found that income increase predicts especially moves to non-low-income areas, but also moves within low-income areas.

The moves to higher-income areas are most likely driven by a desire to improve neighbourhood quality, whereas the moves within low-income areas are more likely about improving the quality of the dwelling. Immigrants live more commonly in overcrowded and poorer-quality housing, so there

may be more need for using income increases for improving the quality of housing within low-income areas instead of improving the quality of the neighbourhood. As immigrants still seem to be able to translate their income gain to moves to higher-income areas at least to the same extent as the native-born residents, the stronger income effects among immigrants in moves within low-income areas do not seem to indicate constraints against immigrants (who experience income increase) in the housing market. There may be variation in this respect between more detailed immigrant groups, which may be one reason for heterogeneity in spatial integration outcomes (e.g. Magnusson Turner and Wessel 2013). However, our results indicate that such potential constraints do not affect the outcomes among the broad ethnic groupings in our study visibly.

Altogether, our evidence shows that economic integration is an important determinant of spatial integration. As Andersson (2013) concluded in the case of ethnic segregation in Stockholm, Sweden, the issue of leaving low-income neighbourhoods is not primarily an ethnic issue, but those who experience upward income mobility are, irrespective of their ethnic origin, more prone to leave. The results give some support for the weak stratification model, which predicts socioeconomic characteristics to determine residential outcomes more strongly among ethnic minorities (South et al., 2005). Therefore, the potential to equalize opportunities for residential mobility exists particularly among low-income immigrants. As moving away from low-income areas in the Finnish context also means exiting ethnic minority concentration areas, income increases among immigrants can contribute to decreasing ethnic segregation in cities. This means that in addition to providing public or other affordable housing in non-low-income areas, improving the labour market opportunities and income development among low-income immigrants can be an effective way to fight segregation.

Our findings also illustrate that immigrants' residential mobility patterns can differ between cities within the same national context. We could not confirm the reasons for this, although our hypothesis for finding less residential mobility out from low-income areas among immigrants in Turku and Tampere than in Helsinki was mainly based on the more recent growth of immigrant populations in these two cities. But the message from the present study is that local context matters. Regarding the national context, our findings suggest that even if *general* effects of income increase on upward spatial mobility may be weak or non-existent in Nordic cities (Wessel et al. 2017), such effects can still be found among the residents of the lowest-income neighbourhoods.

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**Table 1. Key characteristics in the study population, by immigration background and city.**

	Helsinki	Turku	Tampere		Helsinki	Turku	Tampere
<b>Observations in the study population</b>				<b>Share of movers (moving between t-1 and t-0)</b>			
Native-Finns	209,867	27,151	29,580	Native-Finns	13.4 %	14.1 %	15.7 %
East European	15,386	3,142	1,815	East European	12.5 %	13.3 %	13.8 %
Non-Western	14,715	2,936	2,198	Non-Western	14.2 %	16.8 %	18.6 %
2nd generation	4,296	693	287	2nd generation	19.3 %	23.1 %	22.6 %
				<b>Share of individuals with income increase (between t-2 and t-1)</b>			
<b>Average age</b>				Native-Finns	29.4 %	29.3 %	31.1 %
Native-Finns	37.3	37.3	35.8	East European	29.9 %	28.7 %	27.3 %
East European	38.1	38.0	37.5	Non-Western	23.9 %	23.2 %	25.4 %
Non-Western	37.9	36.8	35.7	2nd generation	33.5 %	32.9 %	35.8 %
2nd generation	29.5	28.4	30.1				
<b>Average number of children below 18</b>				<b>Average income quintile in t-2</b>			
Native-Finns	0.49	0.66	0.55	Native-Finns	2.54	2.49	2.58
East European	0.85	1.11	1.01	East European	1.85	1.83	2.09
Non-Western	1.49	1.56	1.05	Non-Western	1.52	1.40	1.75
2nd generation	0.42	0.71	0.48	2nd generation	2.01	2.04	2.15
				<b>Average share of immigrants in the area where lives in t-1</b>			
<b>Share living alone</b>				Native-Finns	14.1 %	18.1 %	11.7 %
Native-Finns	77.4 %	70.4 %	73.2 %	East European	18.7 %	23.0 %	13.9 %
East European	56.5 %	40.4 %	41.9 %	Non-Western	18.2 %	23.1 %	14.5 %
Non-Western	39.5 %	37.9 %	39.9 %	2nd generation	16.6 %	24.1 %	13.2 %
2nd generation	81.3 %	58.7 %	73.2 %				
				<b>Average share of low-income individuals in the area where lives in t-1</b>			
<b>Share of women</b>				Native-Finns	27.6 %	28.1 %	26.9 %
Native-Finns	44.8 %	41.0 %	34.3 %	East European	28.4 %	29.0 %	27.0 %
East European	52.3 %	43.6 %	40.4 %	Non-Western	28.0 %	28.8 %	27.1 %
Non-Western	35.5 %	41.2 %	32.1 %	2nd generation	27.8 %	29.2 %	27.1 %
2nd generation	43.5 %	40.5 %	34.8 %				

**Table 2. Share of individuals living in low-income areas (all working age individuals), in 2010.**

	Helsinki	Turku	Tampere
Native-Finns	21.4 %	15.9 %	17.3 %
East European	37.8 %	45.6 %	44.9 %
Non-Western	35.9 %	42.6 %	42.3 %
2nd generation	28.1 %	29.9 %	24.1 %

Note: Table includes all working age (20-64) individuals living in Helsinki, Turku or Tampere, not restricted to the sample analysed elsewhere in the article.

**Table 3. Share of individuals moving from a low-income to a non-low-income area in a 2-year period, separately for those with and without an income increase.**

	Helsinki		Turku		Tampere	
	Income increase	No income increase	Income increase	No income increase	Income increase	No income increase
<b>Native-Finns</b>	16.8 %	14.0 %	15.4 %	10.9 %	19.7 %	17.9 %
<b>East European</b>	12.4 %	10.5 %	4.9 %	3.2 %	8.1 %	8.4 %
<b>Non-Western</b>	15.2 %	12.0 %	8.0 %	5.3 %	10.6 %	8.4 %
<b>2nd generation</b>	19.2 %	17.9 %	8.8 %	8.8 %	17.6 %	17.5 %

Note: Income increase between t-2 and t-1, while moving happens between t-1 and t-0. Pooled years.

**Table 4. Multinomial logistic regression.**

	Move to a non-low-income area			Move within low-income areas		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
<b>Immigrant status (ref. Native-born Finns)</b>						
East European	-0.0660*	-0.112**	-0.145***	0.345***	0.297***	0.112**
	-2.26	-3.05	-3.89	12.22	8.58	3.16
Non-Western	0.0564	0.0194	-0.0579	0.517***	0.486***	0.188***
	1.9	0.54	-1.56	18.53	15.1	5.39
2nd generation	-0.226***	-0.175**	-0.146**	0.138**	0.157**	0.0791
	-5.02	-3.11	-2.59	2.92	2.66	1.32
<b>Income increase</b>	0.515***	0.371***	0.378***	0.274***	0.148***	0.196***
	21.49	26.95	26.63	10.63	8.48	11.03
<b>Quintile 2 &amp; income increase</b>	-0.130***			-0.122**		
	-3.79			-3.17		
<b>Quintile 3 &amp; income increase</b>	-0.183***			-0.224***		
	-5.01			-5.15		
<b>Quintile 4 &amp; income increase</b>	-0.262***			-0.201***		
	-6.51			-3.79		
<b>East European &amp; income increase</b>		0.120*	0.0981		0.140*	0.130*
		2.08	1.71		2.43	2.26
<b>Non-Western &amp; income increase</b>		0.0836	0.0791		0.0796	0.133*
		1.4	1.31		1.38	2.27
<b>2nd generation &amp; income increase</b>		-0.138	-0.153		-0.059	-0.0588
		-1.58	-1.73		-0.61	-0.6
<b>Labour market status t-2 and t-1 (ref. Both years unemployed/inactive)</b>						
Got job			0.477***			0.293***
			12.5			7.42
Lost job			0.305***			0.173***
			6.77			3.76
Both years employed			0.368***			0.102***
			13.6			3.76
Constant	-1.451***	-1.382***	-0.887***	-1.812***	-1.760***	-2.412***
	-45.41	-45.7	-8.25	-48.81	-48.81	-20.06
<i>Number of observations</i>	320728	320728	320727	320728	320728	320727

Note: In all models, year, city, gender, age group, and income quintile in t-2 are controlled for. In model 3, also the number of children and increase in the number of children (dummy), change in civil status, tenure type in t-1, living in a crowded dwelling, and the share of low-income individuals in the area in t-1 are controlled for.

**Table 5. Separate models for each immigrant group.**

	Move to a non-low-income area				Move within low-income area			
	Finnish	East European	Non-Western	2nd generation	Finnish	East European	Non-Western	2nd generation
<b>Income increase</b>	0.386*** 26.82	0.411*** 6.97	0.387*** 6.35	0.187* 2.01	0.213*** 11.77	0.311*** 5.42	0.241*** 4.18	0.098 0.97
<b>City (ref. Helsinki)</b>								
Turku	0.214*** 9.38	-0.462*** -4.75	-0.187* -2.01	-0.0372 -0.24	-0.100*** -3.33	0.323*** 4.39	0.354*** 5.02	0.385** 2.77
Tampere	0.0880*** 4.14	-0.613*** -5.01	-0.385*** -3.82	0.204 1.02	-0.00958 -0.35	0.404*** 4.06	0.487*** 5.78	0.313 1.55
Quintile 2	0.243*** 11.55	0.241** 3.16	0.271*** 3.50	0.132 1.12	0.180*** 7.29	0.12 1.69	0.136 1.89	0.251 1.94
Quintile 3	0.461*** 19.96	0.329*** 3.55	0.450*** 4.41	0.338* 2.39	0.309*** 11.00	0.249** 2.74	0.324** 3.25	0.479** 3.15
Quintile 4	0.775*** 30.42	0.645*** 5.75	0.639*** 5.03	0.824*** 4.91	0.387*** 11.93	0.213 1.75	0.352* 2.55	0.454* 2.18
Quintile 5	1.038*** 33.93	0.855*** 5.86	0.762*** 4.42	0.881*** 3.64	0.328*** 7.65	0.125 0.69	0.446* 2.40	0.319 0.93
<b>Labour market status t-2 and t-1 (ref. Both years unemployed/inactive)</b>								
Got job	0.396*** 9.00	0.706*** 5.39	0.483*** 4.51	0.732** 3.27	0.245*** 5.10	0.166 1.46	0.405*** 4.30	0.216 0.95
Lost job	0.250*** 4.84	0.626*** 4.18	0.107 0.79	0.395 1.57	0.161** 2.9	-0.117 -0.8	0.247* 2.21	0.121 0.51
Both years employed	0.274*** 8.90	0.649*** 6.38	0.305*** 3.78	0.589*** 3.47	0.0119 0.37	0.195* 2.42	0.218** 3.17	0.167 1.06
<b>Housing tenure (ref. Private rental)</b>								
Home-owner	-0.569*** -31.99	-0.558*** -6.33	-0.455*** -4.84	-0.381** -2.87	-0.711*** -30.57	-0.930*** -9.81	-0.665*** -6.72	-0.612*** -3.94
Public rental	-0.153*** -8.48	-0.280*** -4.12	-0.427*** -6.38	-0.429*** -3.86	0.039 1.88	-0.312*** -4.81	-0.112 -1.82	-0.274* -2.38
Constant	-1.772*** -13.00	-2.052*** -4.19	-2.888*** -5.59	-1.680* -2.04	-2.091*** -13.26	-1.229** -2.63	-2.730*** -5.73	-2.243** -2.73
<i>Number of observations</i>	<i>274056</i>	<i>20979</i>	<i>20261</i>	<i>5431</i>	<i>274056</i>	<i>20979</i>	<i>20261</i>	<i>5431</i>

Note: In all models, year, gender, age group, number of children and increase in the number of children (dummy), change in civil status, living in a crowded dwelling, and the share of low-income individuals and immigrants in the area in t-1 are controlled for.

**Table 6. Share of immigrants in origin and destination neighbourhoods, by city.**

	Helsinki, origin area			Helsinki, destination area		
	No move	Move within low-income areas	Move to a non-low-income area	No move	Move within low-income areas	Move to a non-low-income area
Native-Finns	14.3 %	14.1 %	12.5 %	15.2 %	15.2 %	8.9 %
East European	18.8 %	18.4 %	17.3 %	20.0 %	20.1 %	11.1 %
Non-Western	18.3 %	18.1 %	17.5 %	19.5 %	19.3 %	11.3 %
2nd generation	16.7 %	16.8 %	15.9 %	17.7 %	18.0 %	10.2 %
	Turku, origin area			Turku, destination area		
	No move	Move within low-income areas	Move to a non-low-income area	No move	Move within low-income areas	Move to a non-low-income area
Native-Finns	18.4 %	18.0 %	15.3 %	19.9 %	19.7 %	5.8 %
East European	23.2 %	22.5 %	20.7 %	24.9 %	23.9 %	7.4 %
Non-Western	23.2 %	23.8 %	21.1 %	24.8 %	25.4 %	8.0 %
2nd generation	24.1 %	25.1 %	21.6 %	25.8 %	26.2 %	7.1 %
	Tampere, origin area			Tampere, destination area		
	No move	Move within low-income areas	Move to a non-low-income area	No move	Move within low-income areas	Move to a non-low-income area
Native-Finns	11.6 %	13.2 %	11.4 %	12.5 %	14.1 %	4.4 %
East European	14.0 %	14.4 %	12.3 %	15.0 %	15.4 %	4.9 %
Non-Western	14.4 %	15.1 %	13.3 %	15.4 %	16.2 %	5.1 %
2nd generation	12.9 %	14.5 %	14.2 %	13.8 %	14.9 %	5.1 %