

KADI MÄGI

Ethnic residential segregation and
integration of the Russian-speaking
population in Estonia



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UNIVERSITY OF TARTU
Press

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Dissertation was accepted for the commencement of the degree of *Doctor philosophiae* in human geography and regional planning at the University of Tartu on August 30, 2018 by the Scientific Council of the Institute of Ecology and Earth Sciences of the University of Tartu.

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Commencement: Senat Hall, 18 Ülikooli, Tartu, on 13 November 2018 at 15.00 a.m.

Publication of this thesis is granted by the Institute of Ecology and Earth Sciences, University of Tartu

ISSN 1406-1295

ISBN 978-9949-77-875-1 (print)

ISBN 978-9949-77-876-8 (pdf)

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University of Tartu Press
www.tyk.ee

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LIST OF PUBLICATIONS

This dissertation is based on four publications, which will be referred to in the dissertation by their respective Roman numbers.

Publications included in the dissertation:

- I Tammaru, T., Kährik, A., **Mägi, K.**, Novák, J. and Leetmaa, K. (2016). The ‘market experiment’: Increasing socio-economic segregation in the inherited bi-ethnic context of Tallinn. In: *Socio-Economic Segregation in European Capital Cities. East meets West*, 333–357. Tammaru, T., Marcińczak, S., van Ham, M. and Musterd, S. (eds.) London and New York: Routledge.
- II **Mägi, K.**, Leetmaa, K., Tammaru, T. and van Ham, M. (2016). Types of spatial mobility and change in people’s ethnic residential contexts. *Demographic Research*, 34(41): 1161–1192.
- III Leetmaa, K., Holvandus, J., **Mägi, K.** and Kährik, A. (2018). Population Shifts and Urban Policies in Housing Estates of Tallinn, Estonia. In: *Housing Estates in Europe: Poverty, Ethnic Segregation, and Policy Challenges*, 389–412. Hess, D.B., Tammaru, T., and van Ham, M. (eds.) Springer.
- IV **Mägi, K.**, van Ham, M., Leetmaa, K. and Tammaru, T. (forthcoming). The neighbourhood context and changes in self-reported ethnic identity. (resubmitted to Journal of Ethnic and Migration Studies)

Author’s contribution

- I The author participated in the data processing, analysis, and writing the manuscript.
- II The author is responsible for formulating the research question and the study design, for the data processing, and analysis; and is primarily responsible for writing the manuscript.
- III The author participated in formulating the study design and was primarily responsible for the quantitative part of the data analysis.
- IV The author is responsible for the idea of the study, formulating research questions, the study design, data processing, analysis, and interpretation; and is primarily responsible for writing the manuscript.

ACKNOWLEDGEMENTS

My PhD journey would not have been possible without all the inspiring people around me. I am very grateful to everyone who has contributed in one way or another to the process of completing this dissertation. I express my deepest gratitude to my supervisor Kadri Leetmaa for her support, trust, encouragement, and academic guidance throughout the years, from writing my bachelor thesis to finishing my PhD thesis. I am thankful for all our discussions, the opportunity to co-author papers, and learn from her. I am also sincerely grateful to Tiit Tammaru – his support, advice, wide knowledge, and goodwill have been of great value to me. I likewise wish to express my gratitude to Maarten van Ham for his valuable guidance and inspiring discussions.

Furthermore, I would like to thank my colleagues and fellow doctoral students at the Department of Geography at University of Tartu. In particular, I owe my gratitude to colleagues in the Centre for Migration and Urban Studies: Anneli, Johanna, Annika, Karin, Ingmar, and many others. I am also very grateful to all the people at the OTB Department (Research Institute for the Built Environment) at Delft University of Technology who made my stay in Delft so nice and memorable. My special thanks go to lovely Ruta.

I would also like to thank Liina-Mai Tooding for her advice on statistical modelling and for our fruitful discussions. My gratitude also goes to Raivo Aunap for his cartographic advice. Moreover, I am very thankful to Statistics Estonia, and especially to the people in Tartu Statistical Office, who have always been very helpful with all the problems related with different databases and data management.

I am thankful for the financial support provided by the grants from the Estonian Research Council: Institutional Research Grant IUT2-17, Grant No. 9247, and RITA-Ränne. Support also came from the European Research Council under the EU FP7 Programme (FP/2007-2013) / ERC Grant Agreement n. 615159 (ERC Consolidator Grant DEPRIVEDHOODS, Socio-spatial inequality, deprived neighbourhoods, and neighbourhood effects) and the Marie Curie programme under the EU FP7 Programme (FP/2007-2013) / Career Integration Grant n. PCIG10-GA-2011-303728 (CIG Grant NBHCHOICE, Neighbourhood choice, neighbourhood sorting, and neighbourhood effects). I would also like to acknowledge the financial support provided by the DoRa and the Kristjan Jaak scholarship programmes, which made it possible to visit Delft University of Technology for 2,5 months and participate in international scientific conferences.

Last but not least, I would like to thank my friends and family. I am very grateful to my parents, sisters, and brother for always supporting and believing in me. Above all, my deepest gratitude goes to my partner Gevin and to my little sons Endrik and Mårten for being always there for me, for their support, their patience, and for their unconditional love that always fills me with energy and motivation.

Thank you all!

1. INTRODUCTION

Growing international migration and cultural diversity have entailed an increase in debates about minority ethnic segregation and integration. When immigrants arrive to a new host society, they tend to settle in larger cities and often in ethnically concentrated neighbourhoods where they can live together with their co-ethnics. Although research into ethnic residential segregation has a long tradition, we are only beginning to understand the exact drivers behind ethnic concentration and the impacts of segregated neighbourhoods on the people involved. However, there are several reasons for being concerned about ethnic residential segregation. People who live in ethnically segregated neighbourhoods are not only geographically separated, but they are also exposed to different, and often worse, life chances (e.g. educational and employment opportunities) that weaken their competitiveness in the broader society. Living in ethnically segregated neighbourhoods may also raise issues with cultural adaption and is often considered as an obstacle to the integration of ethnic minorities into the mainstream society (e.g. Gijsberts and Dagevos 2007). Ethnic segregation can be very persistent and can remain virtually unchanged for decades. As a result, patterns of residential advantage and disadvantage are passed on from one generation to the next and segregation is continually recreated (Krysan and Crowder 2017).

Segregation is primarily considered as a spatial phenomenon that generally shows how different groups occupy distinct places and live separated from each other (Kaplan and Woodhouse 2005). The spatiality of segregation is also the main reason why geographers have for a long time been interested in exploring and measuring segregation. However, segregation studies are also interdisciplinary and there are people across different fields who have contributed to this area of study. Numerous researchers from sociology, psychology, ethnography, and many other disciplines have explored ethnic segregation from different angles. The wide interest in the spatial separation of ethnic groups also reflects the multidimensional nature of segregation; it helps to get a deeper and better understanding of ethnic segregation and its consequences for people.

In Estonia there is a large Russian-speaking minority population who has lived in the country for decades and whose inherited settlement patterns have not changed much since the end of the Soviet period. For this reason, ethnic divisions in different domains of daily life have received quite a lot of attention, especially in the last decade. Geographers have mostly focused on ethnic differences in residential locations (Tammaru and Kontuly 2011; Tammaru et al 2013; Leetmaa, Tammaru, and Hess 2015), housing (Hess, Tammaru, and Leetmaa 2012), activity spaces (Silm and Ahas 2014; Silm, Ahas, and Mooses 2017), and leisure-time activities (Kamenik, Tammaru, and Toomet 2015; Kukk, van Ham, and Tammaru 2018). Sociologists, for example, have studied ethnic differences in education, (Lindemann and Saar 2012), the labour market (Lindemann and Kogan 2013), media use (Leppik and Vihalemm 2017),

attitudes (Korts 2009), and identity and value patterns (Kalmus and Vihalemm 2017). All these different studies have helped to unravel the nature of ethnic segregation in Estonia, the drivers behind ethnic divisions, and the effects of segregation on people's lives.

However, among these numerous studies on ethnic divisions in different domains of life there is a lack of research on ethnic residential segregation from the perspective of individuals. For example, we do not know much about how the ethnic residential context changes for people who undertake a move or who stay in the same neighbourhood. Additionally, we do not know how living in ethnically concentrated neighbourhoods may affect how individuals position and identify themselves within the broader society. These questions are largely unanswered in the broader literature on segregation too. The present thesis fills this gap and explores ethnic residential segregation from the perspective of individuals. Accordingly, the general aim of this thesis is to investigate how and why the ethnic residential segregation context changes for members of the majority and minority population of Estonia, and how living in different ethnic contexts may affect individual's acculturation processes.

The focus of the thesis is therefore on the residential aspect of segregation. Although people are increasingly mobile and the place of residence is only one of many places in people's lives (there are also schools, workplaces, leisure-time meeting places, and so on), home is still an essential anchor point for our daily activities (Silm and Ahas 2014). The residential neighbourhood thus remains a very important context in the lives of people as it is where a substantial part of their social interactions take place (van der Laan Bouma-Doff 2007). Ethnic residential segregation is often also easily visible in cities as segregated neighbourhoods tend to have their own distinct identity and reputation (van Ham and Tammaru 2016). Additionally, levels of ethnic residential segregation reflect how the acculturation of ethnic minorities has taken place. Therefore, it is understandable why most of the studies on ethnic segregation focus on its residential aspect. It is especially important in societies where ethnic residential segregation is persistent and does not seem to decrease, as it is in Estonia.

For the main analysis, cross-sectional individual-level data from the last three censuses (1989, 2000, 2011) are used. In addition, linked individual-level data from the 2000 and 2011 censuses is used for analyses. This allows the same individuals to be followed over almost 12 years. Estonian censuses contain geo-coded anonymised individual-level data for the whole population. This makes Estonian research data unique, since in most countries individual-level census data is not available or samples are made available for research purposes (for example in the USA and UK). Therefore, census data is one of the most valuable data sources available in Estonia for studying ethnic residential segregation.

The structure of the dissertation is as follows. First, the theoretical background about theories of ethnic residential segregation, its causes, and outcomes are presented. Second, the Estonian context is introduced and the general aim of

the thesis and the main research questions are posed. The next chapter introduces the research data and presents research methods. This is followed by a summary of the main findings of the studies. Finally, the main findings are discussed.

This dissertation is based on two book chapters and two journal articles. Both book chapters are part of international comparative research. Working with these book chapters as a co-author allowed me to participate in the work of a valuable network and enabled me to compare trends in Estonia's capital city with other European cities. So far, there has been very little comparative research on different European cities (especially between Eastern and Western European cities). These two book chapters provide a more general background and context for this thesis. The two journal articles are more specific studies that investigate ethnic residential segregation in Estonia more deeply and from the perspective of the individual.

- The first book chapter (Publication I) examines how levels of ethnic and socio-economic segregation in Tallinn Urban Region have changed between 2000 and 2011. The chapter studies these developments as part of the specific welfare situation in Estonia and the historical development pathways of the city, as well as in conjunction with the wider context of globalization and economic restructuring.
- The second book chapter (Publication III) focuses on the ongoing population shifts and experimental interventions taking place in modernist housing estate neighbourhoods in Tallinn. In particular, the chapter analyses the demographic and socioeconomic trajectories of housing estates in the post-socialist period and gives an overview of how public policies have changed in response to these trends.
- The first journal article (Publication II) explores how the ethnic residential context changes for individuals as a result of different types of moves and immobility for residents of the segregated post-Soviet city of Tallinn. The article investigates the extent to which Estonian- and Russian-speakers integrate in residential terms as a result of different types of mobility within the country.
- The second journal article (Publication IV) investigates the relationship between the ethnic composition of neighbourhoods and changes in the ethnic identity of Russian-speaking minorities living in post-Soviet Estonia. Additionally, Estonians who changed their ethnic identity to Russian were observed.

2. THEORETICAL FRAMEWORK

2.1. Ethnic residential segregation and its causes

Ethnic residential segregation generally refers to the spatial separation of two or more ethnic groups within a specified geographic area. Over the last century, researchers have described, mapped, and explored the degree to which members of different ethnic groups live apart from each other (see e.g. Wirth 1928; Cowgill and Cowgill 1951; Duncan and Duncan 1955). Changes between the levels of segregation are often analysed by comparing patterns at two or more points in time and many researchers have taken the well-known 'index approach' (see e.g. Massey and Denton 1988) as a basis for their empirical, theoretical, or methodological contribution (e.g. Farley and Frey 1994; Bolt, Hooimeijer, and van Kempen 2002; Simpson 2007). Although comparing patterns and levels over time helps us to determine whether segregation has increased or decreased in certain areas and among certain groups, it does not say much about the people involved and processes that bring changes in the patterns of ethnic segregation (Bolt and van Kempen 2010). Over time, however, segregation literature has become more analytical and has also tried to explain why patterns vary and what the main drivers behind segregation are (e.g. Bråmås 2006; Bolt and van Kempen 2010; Manley and van Ham 2011).

Ethnic segregation arises from a complex interplay of different social and economic processes (Massey and Denton 1988, 309). Individual choice, discrimination, and disadvantage are considered to be the most important drivers of ethnic segregation (Johnston et al. 2007). Additionally, social ties and networks are emphasised as important factors that may shape and reshape ethnic concentration in neighbourhoods (White et al. 1993). Thus, both choices (voluntary) and constraints (involuntary) may determine where different ethnic groups settle. Although it might seem that there is a clear line between voluntary and involuntary segregation, the distinction between these two are often blurred (Kaplan and Douzet 2011). The classical theory of spatial assimilation, for example, regards the residential moves of minority group members as an outcome of their preferences, as well as of their resources and restrictions (Bolt and Kempen 2010, 335). The model assumes that residential mobility away from concentration areas into predominantly majority neighbourhoods (residential integration) begins once the members of the minority population start to move up the socio-economic ladder (Massey and Denton 1985; Freeman 2000). Although this phenomenon is very common, higher socio-economic status does not always lead to spatial integration (Quillian 2003). Instead, minorities can end up in so-called ethnic neighbourhoods (Clark 1992; van Ham and Feijten 2008). This might result from the fact that they may have no alternative, for example because of restrictions related to direct or indirect discrimination (e.g. when owners agree not to sell or rent property to members of particular ethnic groups), or minority group members might prefer to live together with their co-ethnics in order to preserve their culture and social

networks. Ethnic minorities may also choose not to move out from the concentration neighbourhoods as they want to maximize their savings and remittances that they want to send to their origin countries (Peach 1996, 392).

The latter shows that ethnic minorities often choose to stay in the concentration area even if they could afford to leave. Schelling (1971) has shown in his theoretical models that even small differences in preferences between ethnic groups can lead to high levels of segregation. Hence, the phenomenon of staying (immobility) also has an important role in understanding residential segregation and integration (cf. Cooke 2011; Coulter and van Ham 2013). In addition to support and the sense of belonging that minority group members can find from ethnic minority neighbourhoods, there may be additional economic benefits to residing in these areas, including access to ethnic labour markets and entry into occupational niches (Farrell 2016, 58). Members of the minority population may also wish to stay in concentration areas because of community-focused facilities, such as churches, schools, clubs, and shops (Johnston, Forrest and Poulsen 2002, 211). Furthermore, fear of hostility in neighbourhoods that are unfamiliar can be one motivator for why ethnic minorities prefer to live together with their co-ethnics (Kaplan and Woodhouse 2004).

However, staying is not a choice for everyone. Mobility is an act of those who are able and willing to pursue change, such as when individuals are not satisfied with their current neighbourhood or their dwelling no longer meets their needs. However, there are a number of people, often called ‘unsatisfied trapped’ residents (see e.g. Musterd and van Kempen 2007), who are not able to move according to their preferences (e.g. van Ham and Clark 2009). Very often poverty leaves these people no other option than to stay. It is quite common that ethnic segregation is linked to socio-economic segregation and minority populated neighbourhoods are deprived (Massey and Fischer 2000; Krysan and Crowder 2017). Resources are the tools for households to overcome housing market constraints and socio-economic status therefore determines who can access more desirable neighbourhoods and who stays behind (Bolt and van Kempen 2003, 211). Thus, segregation often reflects individual’s limited choices in the urban housing market.

The role of the majority population in the production and reproduction of minority concentration areas cannot be underestimated; their residential choices matter as well. There are indications that if the percentage of ethnic minorities rises above a certain threshold (generally labelled as the ‘tipping-point’ (e.g., Goering 1978)), the native population no longer feels comfortable in a neighbourhood and may start to leave and self-segregate themselves by looking for non-minority neighbourhoods elsewhere in the urban region (cf. van Ham and Clark 2009). This well-known concept is called “white flight” and it originates from American research on residential segregation, especially from studies on relations between the White majority and the Black minority (Crowder 2000). The “avoidance type” of migration behaviour can also be found in the choice of new neighbourhood (Brâmă 2006), e.g. when moving anyway due to the changes in one’s life-course, the members of the majority population tend to

move to districts with a low proportion of minorities. In this way, the preferences of one ethnic group may operate as another group's constraint and even when the minority population prefers greater levels of residential integration, the preference of the majority population constrains their aspirations to live in more integrated neighbourhoods (Kaplan and Woodhouse 2004; Leetmaa, Tammaru and Hess 2015). Therefore, when explaining segregation processes, the role of the majority population should always be taken into account.

In addition to residential moves and immobility, natural population change is another process that influences segregation patterns. Different studies have shown that the change in ethnic composition often appears to be related to a change in the demographic composition of the neighbourhood (Bråmås 2006, Simpson 2004). According to the work of Simpson (2004) on Bradford, significant changes in the composition of the South Asian population was caused by natural population growth, not by self-segregation. South Asians were actually spreading out from traditional concentration areas as young families were formed. Therefore, when the ethnic minority group has a relatively young age structure and higher fertility rates, the share of minorities can increase irrespective of mobility patterns. Accordingly, differences in age composition and in death- and birth-rates may have important effects on the population composition of neighbourhoods.

The above-mentioned processes that cause and shape residential segregation may work somewhat differently depending on the context. Individuals operate within the societal, economic, and political contexts of their countries, regions, and cities; their choices and opportunities, including residential behaviour, are influenced by developments on a macro-spatial level (Musterd and van Kempen 2009). Thus, it is important not to neglect the macro-level structural and contextual factors that affect residential segregation (e.g. welfare regime, housing systems, economic and political changes, and the historical pathways of cities) (van Kempen and Murie 2009; Tammaru et al. 2016). In the following sections I will give an overview of the context in which the analysis of this thesis is built up. However, before turning to examine these contextual factors, I will now explain the main outcomes and consequences of ethnic residential segregation for the people involved.

2.2. Outcomes of ethnic residential segregation

There are both similarities and fundamental differences between ethnically segregated cities in different parts of the world. To some extent the outcomes of ethnic segregation can also depend on the levels of segregation and whether the segregation is a product of choices or constraints. Nevertheless, the overall mechanisms of ethnic residential segregation in different places are often similar. Research has emphasized that segregation has huge impacts on the ethnic groups involved, altering their daily life and future prospects (Kaplan and

Douzet 2011). Segregation literature very often explicitly or implicitly refers to ethnic segregation as something that affects individuals in a negative way. However, the influence does not always need to be wholly bad for the ethnic groups involved (Peach 1996). Living in minority concentration neighbourhoods makes it easier for ethnic groups to preserve the culture of the country of origin and maintain ethnic networks. Through these networks, people are able to support each other, find a job, or a place of residence (van Kempen and Özüekren 1998, 1635). Social networks and connections to ethnic enterprises can be especially useful when there are few opportunities in the formal labour market; this may also offer ethnic minority members a way to move up the socioeconomic ladder (Portes and Zhou 1996).

Nevertheless, research into residential segregation tends to place greater emphasis on the negative effects (Kaplan and Douzet 2011; Krysan and Crowder 2017). Segregation very often entails material consequences. Although the persistence of inequality between ethnic groups reflects a combination of political, economic, and social forces, there is little doubt that residential segregation is a central driver of the disadvantage felt by different ethnic groups (Krysan and Crowder 2017, 27). Massey and Fischer (2000) also showed that concentrated poverty follows from an important interaction between ethnic segregation and changes in the socio-economic structure of American society. The direct influence of segregation on these problems is often not very apparent; segregation's impact is sometimes more distal and insidious, playing out indirectly by shaping big disparities in the material conditions of ethnic neighbourhoods (Krysan and Crowder, 27). There is often a lack of public and private goods in these areas with worse housing, limited retail choice, fewer job opportunities, and a lack of positive role models. The combination of these factors can generate a cycle of poverty that then feeds upon itself (Kaplan and Douzet 2011, 590). Furthermore, segregation in the school system is mentioned in the literature as a disadvantage of ethnic segregation and it has been shown that children with an ethnic minority background are less likely to receive a good education if they live in a concentration area (van Kempen and Özüekren 1998, 1633). Segregation has also been associated with outbursts of violence and crime (Kaplan and Douzet 2011). In addition, the residents living in segregated neighbourhoods may be viewed negatively by the rest of urban population and consequently these areas can turn into breeding grounds for misery because they are perceived as such (Kempen and Özüekren 1998, 1634).

In addition to the abovementioned factors, ethnic residential segregation has often been regarded as posing a challenge for the acculturation processes. According to Berry (1997; 2006), acculturation is a process of cultural and psychological change that results from the continuing contact between cultural groups and their individual members. In general, people usually associate acculturation with immigrants and the process by which these immigrants are faced with the need to learn the language, develop an understanding of new customs, values, and beliefs, and interact with people from other cultural groups. However, the process of acculturation is not that simple. The way in

which the processes of change unfold depend a lot on one's culture of origin and current cultural context, as well as on personal characteristics (e.g. age, education) and the characteristics of one's group (e.g. size, status, values and beliefs) (Phinney 2006).

Berry (1997) has proposed a conceptual framework that posits four acculturation strategies: assimilation, separation, integration, and marginalization. When individuals do not wish to maintain their cultural identity and seek contact with members of the host society, then this is categorised as assimilation. Individuals aim at separation if they want to maintain their original identity and at the same time wish to avoid interaction with others. If individuals wish to maintain their original cultural identity and are interested in interacting with host society members at the same time, they are said to be moving towards integration. Finally, marginalisation occurs when individuals reject their original culture and show little interest in having relations with others (Berry 1997). Several studies on acculturation strategies have shown that integration is usually the most successful and is also the option most preferred by immigrants and host countries (Berry 1997; Jasinskaja-Lahti et al 2003). For integration to occur, however, mutual accommodation is required and involves the acceptance by both majority and minority groups of the right of all groups to live as culturally different people within the same society. Integration strategy requires that minority groups adopt the basic values of the larger society, while at the same time the majority group must be prepared to adopt national institutions (e.g. education, health) to better meet the needs of all different ethnic groups (Berry 2006). Host countries, however, sometimes also prefer the assimilation strategy (Jasinskaja-Lahti et al 2003).

Although several authors have raised doubts about the precise link between residential segregation and the acculturation processes (Bolt, Özüekren, and Phillips 2010; Drever 2004; Musterd 2003), there is still a growing consensus about the negative effect of segregation on integration and assimilation (Gijsberts and Dagevos 2007; Martinovic, van Tubergen, and Maas 2009; van der Laan Bouma-Doff 2007). Scholars have emphasised that a spatially segregated society is a divided society where minorities who live together with their co-ethnics in minority concentration areas have limited contact with the majority population. A segregated society provides very few opportunities to explore differences, build mutual respect, and in general hinders successful integration of minorities into their host society (e.g. Johnston, Poulsen, and Forrest 2006). Lack of contact with the majority population is emphasized as one of the most important causes of the negative effects of living in minority neighbourhoods (Bolt, Burgers, and van Kempen 1998). Contact between ethnic groups can help minorities to learn the language of the host country (Chiswick and Miller 2001), accept the customs and values of the mainstream society (Heckmann 2005), reduce ethnic prejudice and improve intergroup attitudes (Wagner et al. 2003), and also influence the way people feel about their identity (Danzer and Yaman 2013). Thus, when minorities live in segregated neighbour-

hoods, they have less contact with the members of the majority population and therefore it is more difficult for them to become a part of mainstream society.

2.3. Ethnic residential context and ethnic identity formation

The consequences of segregation are manifold. Psychologically, residential segregation clearly affects how members of an ethnic group position themselves within the broader society. It may influence ethnic identity formation – people may start to rethink their identity in a situation where they are residentially isolated from others (Kaplan ja Douzet 2011). Ethnic identity is an important part of a wider social identity (Tajfel 1982; Verkuyten 2005). According to Tajfel (1982), social identity is understood as the part of the people's self-concept which derives from their knowledge of their belonging to a social group (or groups), together with the value and emotional importance attached to this belonging. More broadly, social identity shows the relationship between the individual and the environment; it emphasises the similarities to some and differences from others (Verkuyten 2005).

The social world is divided in many different ways; people are classified in terms of sex, age, ethnicity, race, culture, religion, and so on. It is these categories to which individuals are socially recognized as belonging and which are used for self-identification (Verkuyten 2005). Categorizing people happens everywhere in society; it is not only a normal part of everyday life, but it is also necessary for the functioning of society (Cloke and Johnston 2005). The processes of social identity are highly context-dependent; in some contexts, a specific social identity becomes relevant and others fall into the background. Ethnic identity, for example, is not continuously and overwhelmingly present (Verkuyten 2005, 53). However, ethnic identity becomes especially meaningful when immigrants arrive in a new society where they come into contact with other cultural groups (Phinney et al. 2001). Prior to migration, people may not have a very clear sense of their own ethnic identity as this is taken for granted. After arriving into a new cultural environment and getting exposed to other ethnic groups, different levels of self-identification and feelings of belonging develop (Constant, Gataullina, and Zimmermann 2009). Therefore, ethnic identity may also be thought of as an aspect of acculturation (Sam 2006).

Ethnic identity is a multifaceted concept that may change over time and evolve in response to a variety of social domains (e.g. neighbourhood, family, school) (Liebkind 2006; Phinney 1990). Ethnic categories can be questioned and behavioural expectations can be challenged. Change and renewal are inherent to the social world. Categorizations that are self-evident and natural can become the subject of discord and lead to new distinctions (Verkuyten 2005, 55). Therefore, the formation of ethnic identity depends on a process of exploration that includes pre-existing ethnic attitudes and searching into the past and present experiences of one's group and its relation with other groups

(Phinney 1996). In addition, clearly distinguishable behaviours can be the starting point for identity formation. Individuals can do certain things together and have reciprocal expectations. Shared activities, such as speaking a language, are very important for the development of identity (Verkuyten 2005). Speaking the same language easily distinguishes certain groups, creates internal feelings of belonging, and has a strong impact on the formation of a collective identity (see e.g. Vihalemm 1999). There is also a general consensus among researchers that the context that frames people's lives has a huge impact on the formation of ethnic identity (Kinket and Verkuyten 1997; Phinney 1990; Verkuyten 2000). The ethnic composition of the residential neighbourhood, and its related ethnically-based infrastructure, signs, and symbols (churches, shops etc.) create a collective milieu that influences the social interactions of the individuals living there (Bauder 2002; Bolt and van Kempen, 2010). The residential context can either lead to the strengthening of ones' ethnic identity or identity change, for example in the form of assimilation. Thus, living in ethnically segregated or less segregated environments has a major influence on people's lives and may impact on an individual's future in one way or another.

2.4. Dual ethnic context of Estonia

The formation of the minority population in the former socialist countries of Central and Eastern Europe developed differently than in Western countries. Strong central planning, collective ownership of land and infrastructure, and comprehensive strategies for the development of the settlement patterns shaped urban processes (e.g. urbanization, segregation) in socialist countries somewhat differently compared to capitalist societies, where market competition and private property had a huge role in directing different processes. Immigration in former Soviet republics was, for example, an important part of a political and ideological agenda to disperse Russians to member states of the Soviet Union. Since the political and social changes in the early 1990s, the situation of former Soviet Union countries has changed as they were confronted with rapid transformations. In this section, I will give a more specific overview of the context of Estonia, a country that was part of the Soviet Union from 1940-1991. I will explain how the Russian-speaking minority population was formed in Estonia and how its situation has changed since the political and social changes of the 1990s.

The minority population of Estonia was mainly formed during the Soviet era, when large-scale immigration to Estonia from other Soviet republics persisted throughout the entire postwar period; the share of ethnic minorities in Estonia increased from 3% in 1945 to 39% in 1989 (Tammaru and Kulu 2003). Immigration was mainly stimulated by political and ideological motives, and it brought to a wave of politically loyal employees, Soviet military personnel, and a large industrial workforce to Soviet-occupied Estonia (Katus and Sakkeus 1993). The immigrant population consisted mainly of Russians, but also ethnic

groups originating from other Soviet republics (Ukrainians, Belarusians, etc.). As Russian was the official language for interethnic communication in the Soviet Union, it became the dominant language of many different ethnic groups who settled in Estonia during the Soviet period (Tammaru and Kulu 2003; Zabrodskaia 2015). Due to this Soviet legacy, most of the Ukrainians, Belarusians, and also some other smaller ethnic groups (e.g. Tatars) consider Russian to be their mother tongue or speak it fluently. Thus, together with Russians they are often labelled as a Russian-speaking minority population (Vihalemm 1999). After Estonia regained its independence in 1991, the proportion of Russian-speakers decreased as a result of partial return migration. Nevertheless, the majority of the Russian-speaking population remained in Estonia and today they make up almost one third of the 1.3 million people living in Estonia.

The location of new immigrants within the country remained highly concentrated throughout the Soviet period (Tammaru and Kulu 2003). The Russian-speaking minority population settled mainly in larger cities and industrial areas where they were accommodated in new, standardized, high-rise housing estates. As elsewhere in Europe, mass housing construction in Estonia was a response to rapid industrial and population growth in Soviet cities and a severe post-WWII housing shortage. The new housing was fully equipped with modern facilities, unlike the pre-war houses, and rents were highly subsidized, which made them an attractive housing segment across Eastern Europe and the former Soviet Union (Bater 1980; Harris 1970). As newly arrived workers needed housing immediately after arrival and since they mostly worked in the priority sectors (socialist enterprises had a huge role in housing allocation process), they were also the priority group when it came to the distribution of new apartments (Kulu 2003). Thus, the Russian-speaking minority population became over-represented in newly built housing estates, whereas Estonians remained over-represented in the decaying inner-city housing stock and in the low-density outer city (Ruoppila and Kährik 2003; Tammaru et al 2013).

The situation of the immigrant population in former Soviet republics at that time was different compared to immigrants in Western and Northern European cities; immigrants in Soviet cities did not live in the most disadvantaged neighbourhoods and, on the contrary, had even better access to the highly valued housing segment (Hess, Tammaru and Leetmaa 2012). In addition, new immigrants were provided with an ethnic infrastructure (such as Russian-language schools, child-care, and leisure facilities) in housing estate neighbourhoods. Ethnic residential segregation consequently became more and more noticeable in the urban environment. Spatial separation between ethnic groups was also the reason why inter-ethnic contacts remained modest and Estonian language proficiency remained poor (Vihalemm 1999). By the end of the Soviet period a remarkable degree of ethnic segregation had developed in cities, which were, at the same time, socioeconomically rather undifferentiated (Gentile and Tammaru 2006). In a Soviet society, no salient upper-or lower-

class emerged and levels of socio-economic segregation therefore remained modest.

In the 1990s, important changes occurred in the economic structure and social stratification of the country. Estonia was transformed from a highly state-controlled system to one of the most liberal market-oriented systems in Europe. These important changes were not translated into urban space immediately, but instead started to gradually change spatial structures (Sýkora and Bouzarovski 2012). In the 1990s there was a rapid rise in socio-economic inequalities, which resulted in low levels of socio-economic segregation as high-status groups started to move into areas previously over-represented by low-status groups (this has been termed a 'paradox of post-socialist segregation') (Sýkora 2009). However, the status of ethnic groups changed dramatically after the dissolution of the Soviet Union: from being the most privileged ethnic group in the former Soviet Union, Russian-speakers suddenly became a minority group in an independent country of Estonia (Laitin 1998). The transformation period was more difficult for Russian-speakers and, compared to Estonians, they suffered more from the shift from a Soviet-period industry-based economy (Russian-speakers more often worked in this sector) to a service-based economy (Toomet 2011). In addition, Estonian replaced Russian as the official language of the country and proficiency in Estonian was an important precondition for getting Estonian citizenship (Lindemann 2009). Housing was mainly privatized to the sitting tenants and to a lesser extent to the pre-war owners during the transition period (Ruoppila and Kährik 2003). Thus, Russian-speakers largely stayed in the housing estate neighbourhoods and this created a basis for persistent ethnic segregation in the urban space.

To some extent the location patterns of Estonian and Russian-speakers have started to change since 1991. For example, the share of Russian-speakers has grown in locations where they were previously almost not present at all (many formerly native Estonian rural areas) (Tammaru, Kulu, and Kask 2004). However, the number of Russian-speakers who moved to these locations is very small. In general, however, Russian-speakers have been much less mobile than the Estonian population (Tammaru and Kontuly 2011; Tammur 2009); their moves have been towards major urban regions and between places where there are Russian concentration neighbourhoods (Leetmaa and Väiko 2015). Although there are important differences in moving behaviour between Estonians and Russian-speakers, these differences are not due to compositional differences. In Estonia, the Russian-speakers form a well-established minority group with a very similar demographic composition to Estonians.

In addition to high residential segregation, which seems to be quite persistent, the majority and minority populations continue to go to different schools (Lindemann and Saar 2012) and there is evidence of persisting ethnic divisions in the labour market (Lindemann and Kogan 2013). Furthermore, recent studies show that the difference between Estonians and Russian-speakers in the labour market has become bigger: the employment rate of Estonians is considerably higher than Russian-speakers (Estonians 70%, Russian-speakers

63%) and the gap in employment rate between ethnic groups has increased within the last decade. Additionally, the unemployment rate of Russian-speakers continues to be much higher compared to Estonians (8,8% and 4,4% in 2017, respectively) (Piirits et al. 2018). There are also ethnic differences in activity spaces in general (Silm and Ahas 2014), including leisure activities (Kamenik, Tammaru, and Toomet 2015; Kukk, van Ham, and Tammaru 2018). Although there are some signs of improvement in the integration of the minority population (e.g. Estonian proficiency) (IMES 2017), interaction between Estonians and the Russian-speaking minority population tends to be confined to the public sphere (Korts 2009) and the social networks of ethnic groups remain separated. For example, 25% of Russian-speakers who live in Ida-Viru county (see Figure 1) do not have any kind of contact and communication with Estonians (IMES 2017). There is also continuing ethnic polarization in identity and value patterns: ethnic identity has become more important for the minority population and plays a key role in individuals' self-determination (Kalmus and Vihalemm 2017; Erdurcan 2018). Thus, the wider context in which an individual's lives, values, and identities are shaped is ethnically divided.

3. THE AIM AND RESEARCH QUESTIONS

Due to its historical context, Estonia is a very interesting place to study changes in ethnic residential segregation and integration. There is a large, quite stable (since 1990s there has been very little immigration), and relatively homogeneous (mainly Russian-speaking) minority population in Estonia who has lived in the country for many decades. This also makes Estonia quite unique as a case study, since research into ethnic segregation and integration has usually been done in societies where the immigrant population is heterogeneous (consists of many culturally different ethnic groups, e.g. Sweden, The Netherlands, USA, UK) and changing (continuous new immigration that changes the composition of the immigrant population). Nevertheless, the Estonian example is valuable as it represents a kind of laboratory where it is possible to observe changes in the residential segregation and integration of a relatively well-developed minority population. Therefore, the general research questions of this thesis are:

- **how and why does the ethnic residential segregation context change for members of the majority and minority population of Estonia?**
- **how does living in different ethnic contexts affect individual's acculturation processes?**

To refine these general research questions of the thesis, the following more specific research questions are posed:

1. How has the post-socialist transformation process changed the inherited combination of high-level ethnic segregation and low-level socio-economic segregation?

This research question will be addressed in Publication I and III. Systemic changes and economic restructuring that started in 1990s were followed by clear spatial consequences and started to influence the patterns of ethnic and socio-economic segregation (Sýkora and Bouzarovski 2012). Growing inequalities and disparities between ethnic groups are a major challenge for urban communities. Therefore, it is important to investigate how these major changes reached into urban spaces and reshaped segregation patterns. In addition, it is important to explore trajectories of different urban environments. Housing estate neighbourhoods have been the main centre of ethnic segregation and it is therefore interesting to explore how these areas have coped with major transformations since the 1990s.

2. How does the ethnic residential context change for individuals as a result of different types of mobility?

This research question will be addressed in Publication II. Former studies on ethnic differences in Estonia have shown that high ethnic segregation tends to

be quite persistent. Thus, it is important to get more insight into how the ethnic residential segregation context changes for people who move and for those who stay in the same neighbourhood. This in turn also reshapes ethnic segregation and may contribute to residential integration. In this thesis, it is assumed that changes in the ethnic residential context mirror the overall ethnic integration processes (integration as an acculturation strategy). The main focus is on four types of mobility: immobility, intra-urban mobility, suburbanisation (rural and urban destinations), and long-distance migration (rural and urban destinations).

3. How does living in ethnically different contexts affect how individuals identify themselves within the broader society?

This research question will be addressed in Publication IV. The residential context of neighbourhood (e.g. ethnic composition, ethnic infrastructure) can either lead to the strengthening of ones' ethnic identity or identity change. Change in an individual's ethnic identity can be considered as an indicator of integration and assimilation. In an ethnically divided society, it is especially important to draw attention to the acculturation processes of ethnic groups and explore the factors that could promote successful integration into the mainstream society.

4. METHODOLOGICAL FRAMEWORK

4.1. Data

The studies comprising this thesis are all based on Estonian census data from 1989, 2000, and 2011. Additionally, it was possible to link the 2000 and 2011 censuses, which gives the dataset a longitudinal dimension and enables the same individuals to be followed over a period of 12 years. The Estonian census databases contain socioeconomic and demographic data for the whole population, as well as information about the housing stock – tenure, type of housing, etc. In addition, this data has ethnic-related information (ethnicity, mother tongue, citizenship, country of birth etc.). With regard to ethnicity and mother tongue, it should be mentioned that it is of great value to researchers that these variables are self-reported by individuals themselves (except for children under 15, whose parents answer for them). This method of self-reporting allows researchers to track and analyse changes in ethnic identity of different groups. Thus, the Estonian censuses are a powerful research data set, which enable us to take an in-depth look at the social, demographic, and cultural changes of individuals and places.

The main study period of this thesis is 2000–2011. Data from the 1989 census is also used in Publication III, however, the main focus in all the studies is on the 2000s. This is an interesting study period as the social and urban transformations that began in East European cities in the 1990s started to change spatial structures with a delay and reached into urban space in the 2000s (Sýkora and Bouzarovski 2012). In addition, there are much better opportunities to analyse changes between 2000 and 2011 as it was possible to link two census databases (2000 and 2011) together. Currently, there is also ongoing work to link the final Soviet-era census (1989) to other census databases.

Census data, however, also has some shortcomings. With regard to migration processes, a census does not register all the moves people have made; it records the current place of residence and the previous place of residence if the person has moved. Therefore, there is no information about multiple residential changes between census years and the exact timing of the moves cannot be observed. Additionally, information about individual characteristics that change over time (e.g. occupation, education, household status) is only available for the census date.

In addition to census data, qualitative data from interviews is used in Publication III to analyse how public policies have changed in response to socio-economic and demographic trends in housing estate neighbourhoods.

4.2. Study area

The main study area of this thesis is Tallinn and Tallinn Urban Region¹ (TUR). In Publication II, neighbourhoods outside TUR (the rest of Estonia) are used for analysis too. Publication IV, which investigates changes in ethnic identity, focused on the whole Estonia. The spatial units used for the analysis are the urban (in major cities) and rural neighbourhoods defined by municipalities and county governments in their planning activities. These neighbourhoods usually have a unique local identity and are locally perceived as natural localities.

With regard to the ethnic composition of places, the Estonian settlement system allows us to map an extensive continuum of different residential neighbourhoods (Figure 1).

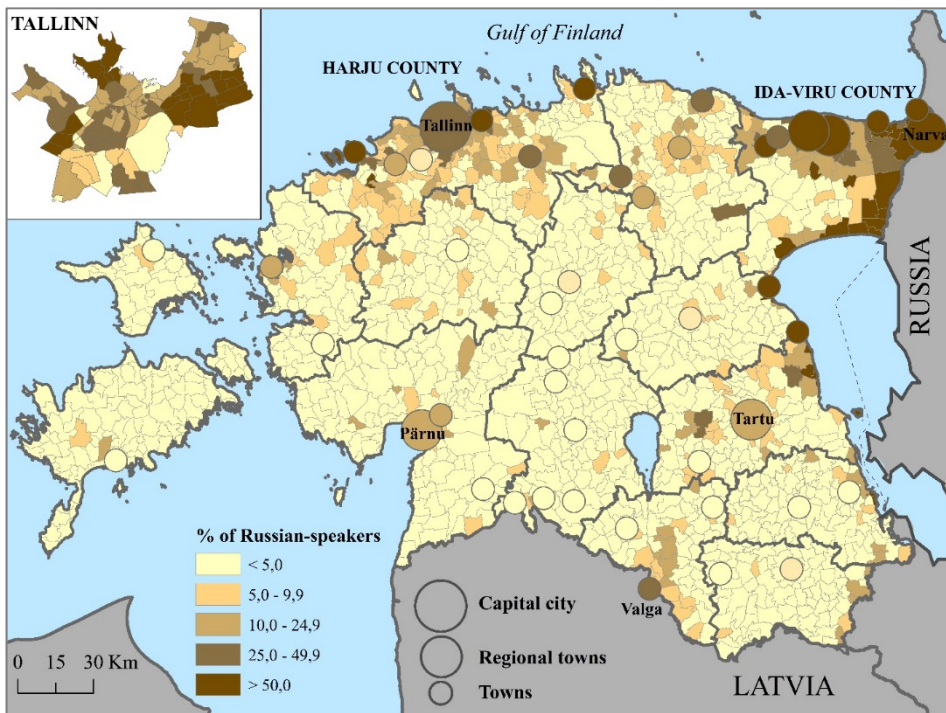


Figure 1. Percentage of Russian-speakers in Estonian rural and urban neighbourhoods
Source: Paper 2, Figure 1

¹ In Publication I and III, Tallinn Urban region includes surrounding municipalities of Tallinn. In Publication II, Tallinn Urban region is defined as the area around Tallinn from where at least 30% of the working population commuted daily to Tallinn in 2011. In Publication IV, Harju county is included in the analysis as one of the region categories. All these areas are largely overlapping.

Almost 86% of all ethnic minorities, mainly Russian-speakers, reside in only two counties – 54% in Harju county (which largely overlaps with the Tallinn Urban Region) and 32% Ida-Viru county (industrial North-Eastern Estonia). Ida-Viru is also the only county in which Russian-speakers are numerically dominant. However, more than half of all ethnic minorities are still concentrated in Tallinn Urban region and Russian-speakers make up 42% of Tallinn's population. Within the borders of the city, neighbourhoods are also very diverse in terms of their ethnic composition. The proportion of Russian-speakers is also high in some smaller settlements in TUR (satellite towns of Tallinn, for example industrial Maardu). In regional cities (Tartu and Pärnu) and in smaller county seats, the proportion of the minority population remains lower and rural areas are mainly Estonian-dominated.

4.3. Data analysis

Ethnic differences in migration, segregation, and the process of identity change are measured by comparing Estonians (Estonian first language) with the Russian-speaking minority population (Russian first language). In order to provide a general overview of these differences, descriptive measures are used.

Global indices of segregation are used to measure the residential separation of population subgroups from each other (Publication I). Segregation index (*IS*) and index of dissimilarity (*D*) are calculated to measure the evenness dimension of segregation (distribution across the neighbourhoods). Modified isolation index (*MII*) is calculated to capture the exposure dimension of segregation (the potential to meet one other within each neighbourhood). ISCO-88 (International Standard Classification of Occupations) occupational categories are used to measure socio-economic segregation. Two small occupational groups, agricultural workers and armed forces, were excluded from the ten major categories in the ISCO classification used in the analysis. However, unemployed persons were included.

Local patterns of segregation are analysed by presenting location quotient maps (*LQ*) (Publication I). *LQ* maps help to visualise the relative spatial concentration or dispersion of occupational groups in the neighbourhoods of the city. If the ratio is more than 1, a certain group is overrepresented in the given neighbourhood; if the ratio is less than 1, a certain group is underrepresented in the given neighbourhood. To analyse the demographic and socio-economic trajectories of housing estate neighbourhoods, changes in mean age, proportion of low-social status inhabitants, and Russian-speakers (1989-2011) are shown on the maps in Publication IV.

In addition, three different modelling approaches are used. Binary regression modelling is used in Publication II to investigate the differences in the probabilities that population subgroups stay or move. Linear regression modelling is used in Publication II to model changes in personal ethnic residential contexts as a result of moves (the absolute percentage change –

decreasing or increasing – is used as the continuous dependent variable). Only movers were included in these models and separate models were run for Estonian- and Russian-speakers. As the primary interest here is to see how moves to different destinations change the ethnic residential context of individuals, the main explanatory variables are the types of moves: intra-urban moves, moves to urban and rural settlements in the suburbs, and long-distance moves either to other cities or to rural districts. Multi-level modelling is used in Publication IV to examine the relationship between self-reported ethnic identity and the residential context. Models are built separately for Estonians and Russians, and for Estonian-speakers and Russian-speakers. A multi-level modelling approach was chosen to address the fact that the data is multi-level (residents are nested within specific neighbourhoods). Here, the main interest is on the effect of the residential context on ethnic identity. Thus, the change in neighbourhood type (majority, mixed, and minority neighbourhoods) between 2000 and 2011 is included in the models as the main explanatory variable (categorical variable). As a robustness check, models are run with continuous variable (change in the neighbourhood ethnic context between 2000 and 2011).

5. MAIN RESULTS

5.1. Changing patterns of segregation in Tallinn urban region and trajectories of socialist housing estates

There were high levels of ethnic segregation in Tallinn in the end of the Soviet period, however the city was modestly segregated by socioeconomic status. Two decades since the major systemic transformations were begun in 1991, the inherited ethnic segregation has not changed much, though Tallinn has become socio-economically one of the most segregated cities in Europe (Publication I; Tammaru et al. 2016). The results reveal that high socio-economic segregation in Tallinn has a very clear ethnic dimension, as Estonian ‘managers’ and Russians employed in the ‘elementary occupations’ are the most segregated groups in the city. In addition, the spatial distance between Estonian ‘managers’ and ‘elementary occupations’ is less than it is between Estonian ‘managers’ and minority ‘managers’. A comparison with other European capitals demonstrates that the division between higher-class natives and lower-class minority groups in Tallinn is higher than in any other European city (Marcinčzak et al. 2015). In addition, the clear-cut occupational divisions between Estonians and Russian-speakers are increasingly projected spatially and ethnic segregation overlaps more and more with socio-economic segregation (Publication I and III). Unlike during the Soviet period, Russian-speakers no longer live in the most valued housing segment as the housing estate neighbourhoods are largely losing their attractiveness.

The analysis of the changing geography of socio-economic segregation indicates that spatial patterns of high-status groups have not changed dramatically between 2000 and 2011, but that the concentration areas that already existed in 2000 have become spatially extended. High-status groups are expanding their presence in historical high-status low-density districts, in many inner-city neighbourhoods, and in some neighbourhoods adjacent to the city centre that were left to deteriorate during the Soviet period (Figure 14.6a in Publication I). The share of high-status groups has decreased in all large housing estate areas, especially in Lasnamäe (the district where the share of Russian-speakers is also higher than in other housing estates). This result is surprising in the light of the overall professionalization process that has taken place in the Tallinn urban region between 2000 and 2011. In contrast, the low-status groups are increasingly pushed out from the most attractive parts of the inner city, either to housing estates or to the less attractive and peripheral parts of the inner city (Figure 14.6b in Publication I). Thus, there are very clear high-status and low-status areas forming in urban space. Moreover, as previously mentioned, the formation of low-status areas occurs mainly in the same areas where the high share of minorities live, namely in housing estate neighbourhoods.

When focusing more specifically on the Soviet-era housing estates, the results reveal that these are the places which are facing gradual ageing and social degradation (Publication III). People with low socio-economic status are increasingly over-represented in some housing estate neighbourhoods (Publication I), whereas others have remained relatively stable in this respect (e.g. Mustamäe (Figure 4 in Publication III). At the same time, more than 75% of the whole Russian-speaking minority population in Tallinn live in housing estate neighbourhoods (Table 2 in Publication III). Although the average proportion of Russian-speakers living in the Tallinn urban region has decreased since the early 1990s (due to return migration), the housing estates of Tallinn have become even more Russian over the last two decades. The share of Russian-speakers in urban housing estates was on average 56% in 1989, whereas by 2011 the share reached 59% on average (Table 2 in Publication III). Therefore, some housing estate neighbourhoods are especially threatened by an increasing overlap of ethnic and socio-economic segregation (e.g. Lasnamäe).

Like in many other post-socialist cities, the housing estates of Tallinn form a remarkable segment of almost fully privatized housing stock (see Table 1 in Publication III). However, despite the importance of the housing estates in the urban housing market, the silent social decline that these areas are experiencing is not acknowledged by contemporary urban actors (Publication III). Although there have been more targeted interventions (e.g. social housing projects, densification of housing estates by private developers, support for the renovation of panel buildings, and rising community activism), these policies remain rather chaotic. There is no clear vision of how to stabilize housing estates in the longer run. It seems that regardless of the investments and efforts of different actors and sectoral policies, this is not sufficient to counterbalance the ongoing stigmatization and population changes in housing estates. More ambitious and better integrated policies are needed to cope with the challenges related to housing estates today.

5.2. Changes in individual's ethnic residential contexts through spatial mobility and immobility

As emphasised in the theory section, it is very important to understand the processes and factors that shape segregation and contribute to residential integration. Residential mobility is considered one of the key processes that shape residential patterns of individuals and channel them into ethnically different environments. In this section, I will give a more detailed picture of how the ethnic residential context changes for individuals as a result of different types of mobility, how these different mobility types shape residential segregation in Estonia, and how mobility contributes to the residential integration of Russian-speaking minority population.

With regard to the overall moving intensity of ethnic groups, Estonians who lived in Tallinn in 2000 were more likely to change their place of residence between 2000 and 2011 than Russian-speakers who lived in Tallinn in 2000: 50% of Estonians and 34% of the minority population undertook a move during the study period (Table 1 in Publication II). When focusing on different types of moves, the results showed that Russian-speakers were also less likely to move to the suburban area of Tallinn and relocate over longer distances. Surprisingly, almost equal numbers of each ethnolinguistic group undertook an intra-urban move between 2000 and 2011. This is a new insight that runs counter to the previous understanding that the Russian-speaking population is less mobile compared to Estonians (see for example Tammaru and Kontuly 2011).

There are also important differences between Estonian- and Russian-speakers with regard to their moving destinations within Tallinn, in the suburban districts around Tallinn, and outside the Tallinn urban region (Figure 2, 3, and 4 in Publication II). Russian-speakers who changed their place of residence within the city moved to become more concentrated in a small number of neighbourhoods with a high percentage of other Russian-speakers (mainly the large housing estates). By contrast, Estonian intra-urban movers settled more evenly across the city. Although there are some destinations that are similar to both ethnolinguistic groups, Estonians only rarely choose neighbourhoods with a high share of minorities (this corresponds to the ‘avoidance’ type of migration behaviour). Within the suburban area around Tallinn, Russian-speakers only moved to a limited number of destinations, most often to Maardu (the industrial satellite town where the share of Russian-speakers is more than 70%) or to those rural settlements where summer homes were built during the Soviet years (see e.g. Leetmaa et al. 2012) (Figure 3b in Publication II). However, more than 70% of the Russian-speaking population who moved to the suburbs moved to rural neighbourhoods, which are mainly Estonian-dominated. The suburban destinations of Estonians are more diverse compared to the Russian-speakers, but most stay close to the city. With regard to the long-distance migration, Russian-speakers usually move to the industrial northeast of Estonia, to other major Estonian cities, or to a few cities close to the Tallinn metropolitan area (Figure 4b in Publication II). In all these destinations, an ethnic educational infrastructure exists for Russian-speakers. The destinations of Estonians were again much more diverse compared to the minority population; a great number of Estonian long-distance movers relocated to regional centres and other county seats, as well as to rural peripheral destinations. However, they only rarely moved to the north-eastern part of Estonia (Figure 4a in Publication II).

When focusing on the individual ethnic residential context before and after the move, the results show that for the minority population, the percentage of other Russian-speakers in their residential surroundings decreases only among those who move to the rural suburbs or move over longer distances to rural neighbourhoods (Table 2 in Publication 2). However, such moves to rural areas characterize only a small proportion of all the moves made by Russian-speakers living in Tallinn in 2000. With all other types of moves, the percentage of

Russian-speakers in the destination neighbourhood increased for the minority population. When Estonians move, their destination neighbourhood generally has a lower percentage of Russian-speakers than their original neighbourhood (Table 2 in Publication 2). In addition to different types of moves, immobility plays an important role in changing the ethnic residential context of individuals. In Tallinn, for those majority and minority population members who stayed in the same neighbourhood, the share of Russian-speakers in their residential environment increased between 2000 and 2011.

When comparing stayers and movers, the results indicated that stayers are more likely to be Russian-speakers, older, with lower education levels, and with a lower employment status than movers (Table 3 in Publication II). Linear regression models were used to analyse the effect of different types of moves on changes in the ethnic residential contexts of the two ethnolinguistic groups. These models largely supported the findings of the descriptive analysis (Table 4 in Publication II). Compared to intra-urban residential mobility, Estonian-speakers who moved out from Tallinn more often moved to areas more dominated by Estonian-speakers. However, most of the moves by Russian-speakers resulted in an increased presence of other Russian-speakers in their immediate residential environment.

The analyses revealed that inherited ethnic segregation is very persistent and the residential integration of Russian-speaking minority population remains slow. This may also affect the more general process of social integration. The following section will focus on how living in ethnic minority neighbourhoods or together with majority population may influence the acculturation processes of individuals.

5.3. The influence of ethnic residential context on an individual's ethnic identity

Study IV looks more closely at how ethnic residential context (living in minority, majority, or ethnically mixed neighbourhoods) affects how the ethnic groups involved position themselves within the broader society. In particular, the focus is on how the ethnic residential context influences changes in the ethnic identity of the majority and minority population of Estonia, which is made operational by investigating self-reported ethnicity and mother tongue.

There were 10,746 Russians (3.1% of all Russians in Estonia) and 6,255 (1.5%) Russian-speakers who changed their ethnicity and mother tongue to Estonian between 2000 and 2011. However, when focusing on those people who filled in the census form themselves in both 2000 and 2011, the numbers drop considerably: there were 4,346 Russians and 2,825 Russian-speakers who changed their self-identified ethnic identity from Russian to Estonian between 2000 and 2011 (Table 1 and 2 in Publication IV). These results illustrate that a

considerable proportion of the change in ethnicity and language may result from the fact that not everyone fills in their own census form.

Surprisingly, there were also 8,342 Estonians (0.9%) and 5,945 Estonian-speakers (0.6%) (in 2000) who changed their ethnicity and mother tongue to Russian (by the year 2011), and among them there were 3,324 Estonians and 2,643 Estonian-speakers who completed the census form themselves (Table 1 and 2 in Publication IV). Although the percentages are very small, it is still very unexpected to see Estonians changing their ethnic identity to Russian. While most of the changers among Estonians have an immigrant background (first- or second-generation immigrants) (Table 3 in Publication IV), there are still more than 20% of Estonians and Estonian-speakers who are born in Estonia and whose parents are born in Estonia, but who have still changed their ethnic identity from Estonian to Russian.

The results clearly show that there is a strong relationship between the ethnic residential context and changes in ethnic identity. Russians and Russian-speakers who live in Estonian-dominated neighbourhoods and regions in both 2000 and 2011 are the most likely to change their ethnicity and mother tongue to Estonian compared to those who live in minority-rich areas (Table 5 in Publication IV). However, our data do not allow the identification of causal effects as we do not know exactly when people moved from one place to another or when their neighbourhood changed. We also do not know the timing of changes in ethnic identity. Nevertheless, there are many people who have lived in the same neighbourhood throughout the whole inter-census period (Table 4 in Publication IV), and the results clearly show that those who continuously live in neighbourhoods with a low percentage of Russian-speakers are the most likely to change their self-reported ethnicity to Estonian. The findings further reveal that second- and third-generation immigrants are more likely to change their ethnic identity from Russian to Estonian than first-generation immigrants. Having an Estonian partner is also shown to significantly increase the probability of ethnic identity change from Russian to Estonian. Thus, the stronger the spatial presence of members of the majority population and the stronger the social ties, the higher the probability that Russians change their ethnic identity to Estonian.

With regard to Estonians and Estonian-speakers who changed their ethnicity and mother tongue to Russian, the results again highlight the role of the immediate context that surrounds individuals. Estonians living in minority-rich neighbourhoods (both in 2000 and 2011) and regions (in 2000) have the highest probability of changing their ethnic identity to Russian. Also, those whose neighbourhood has changed from being a mixed neighbourhood to a minority neighbourhood are likely to change their ethnic identity to Russian. In addition, people who have lived in neighbourhoods with a low share of Russian-speakers (majority-majority) or whose neighbourhood type has changed to a majority neighbourhood are the least likely to change their ethnicity and mother tongue to Russian. Furthermore, Estonians who are in a mixed marriage and who have an immigrant background (e.g. born in Russia) have a significantly higher

probability of ethnicity and language change to Russian (Table 6 in Publication IV). However, there are also people who are born and raised in Estonia, do not have an immigrant background, but still changed their ethnic identity to Russian. This indicates that when native people live in neighbourhoods where there is an abundant presence of minority infrastructure and where they are surrounded by other ethnic groups influencing their views, values, and behaviours, natives may change their feelings about their belonging too.

6. DISCUSSION

The results of the thesis have shown that high levels of ethnic residential segregation in Estonia, inherited from the Soviet past, are very persistent and have even increased. The Russian-speaking minority population has been relatively immobile within the last decades and their residential patterns are largely similar to those developed in the Soviet period. It seems that Russian-speakers prefer to live in familiar cultural environments where they have access to their own-language educational system, child-care facilities, and social networks. In some ethnic concentration neighbourhoods, for example in Tallinn and north-eastern Estonia, it is also possible to work in many enterprises without speaking Estonian. Members of the ethnic minority group have developed strong ties with long-established activity spaces; they can find mutual support and important networks from ethnic concentration neighbourhoods, which also help to preserve the culture of their country of origin. These are also the reasons why members of the minority population in many other countries prefer to stay in the concentration neighbourhoods (van Kempen and Özüekren 1998).

However, not only preferences determine the decision to stay. People with low socio-economic status may not have the possibility to fulfil their wishes to live in more desirable neighbourhoods (Bolt and Kempen 2003). In Estonia, there are also big differences in socio-economic advancement between Estonians and Russian-speakers. There are proportionally more minority population members who are socioeconomically less well-off. The unemployment rate of Russian-speakers has continued to be much higher than for Estonians and the gap in employment rate between ethnic groups has even increased (Piirits et al. 2018). The results also show that people who are immobile are more likely have lower education levels and lower employment status than movers (Publication II). Therefore, there may also be a number of Russian-speakers who, for socio-economic reasons, are just not able to undertake a move out from concentration neighbourhoods.

When members of the minority population change their place of residence (for example, 34% of Russian-speakers moved between 2000–2011), they predominantly move towards neighbourhoods with a high share of Russian-speakers. Furthermore, most of their moves result in an increased presence of Russian-speakers in their immediate residential environment when comparing their origin and destination neighbourhoods (Publication II). Changes towards residential integration occur only in those few cases when Russian-speakers move to rural suburbs and peripheral villages. The mobility behaviour of members of the minority group tend to follow pre-existing ethnic networks and it seems that Russian-speakers choose destinations that they have already experiences of. However, Manley and van Ham (2011) have pointed out that we can only talk about choices and selective mobility into and out of neighbourhoods when households can exercise some level of choice in their housing behaviour. This is the case (to some extent) in the owner-occupied market, but

not so much in the social housing sector. Estonia is largely a society of homeowners. In addition, housing prices are not lower in areas where there is high share of Russian-speakers. For example, housing prices in Ida-Viru county are higher compared to many other counties in Estonia (e.g. Järva, Jõgeva, Põlva county) (Maa-amet 2018). Therefore, with regard to the Russian-speakers who move, choices and preferences towards own-language environment are the main drivers that reshape and recreate ethnic segregation.

The majority population changes their place of residence more often compared to Russian-speakers. They also have better opportunities for relocating; Estonians were more advantaged by the economic restructuring of the 1990s and thus have better economic opportunities to move. With regard to the ethnic context of destination neighbourhoods, Estonians tend to move towards more Estonian residential environments and they only rarely move to neighbourhoods with a high share of Russian-speakers ('avoidance' type of migration behaviour). Estonians are also more likely to leave Tallinn and other ethnic areas than Russian-speakers (Tammaru and Kontuly 2011). This kind of mobility behaviour contributes to their low exposure to the minority population and increases ethnic concentration in cities and minority concentration neighbourhoods.

These trends in residential mobility of Estonians and Russian-speakers contribute to increasing levels of ethnic segregation and deepen already existing divisions (e.g. different communication networks and daily activity spaces) between ethnic groups in Estonian society. This may create a situation where the majority and minority population live parallel lives that often do not seem to touch at any point. The current situation of increasing ethnic segregation may be amplified by new immigration that has increased in recent years (Tammur 2018). A considerable proportion of new immigrants come from former Soviet countries (e.g. Russia, Ukraine) and they can speak Russian. This enables newcomers to enter the Estonian labour market, where in some sectors it is possible to work without speaking Estonian. Additionally, it is possible for them to receive education in Russian. Overall, it is relatively easy for these newcomers to integrate into the large Russian-speaking minority population in Estonia. It is already known that new immigrants from former Soviet republics more often tend to settle in areas where there is a high share of Russian-speakers (Leetmaa 2017). In this way, it is possible to live in Estonia without having contacts with the majority population and without getting to know the new mainstream society.

However, low levels of interethnic contact can create problems concerning ethnic prejudice, mutual respect, and understanding. There is also evidence that Estonians who have experience living with Russian-speakers in the same neighbourhood are more tolerant towards them (Leetmaa, Tammaru and Hess 2015). Thus, increasing segregation and less interaction between groups can alter degrees of tolerance and intolerance. Additionally, greater social distance between ethnic groups may cause negative stereotyping. Moreover, it is known that Estonian language proficiency is higher among those minorities who live in

neighbourhoods where the share of Russian-speakers is lower; these individuals are more motivated to learn Estonian language too (Rannut 2005). Living within ethnically segregated settings and having limited contacts with the majority population also hamper the integration and participation of minority ethnic groups in society (e.g. Gijsberts and Dagevos 2007). Estonia is no exception here. Although there are some signs of improvement in indicators of integration (e.g. better Estonian language skills), the integration of the minority population into Estonian society remains still slow (e.g. only 10% of ethnic minorities communicate with Estonians every day (IMES 2017)) and Estonians and Russian-speakers largely live in parallel worlds. One of the barriers to mutual communication between ethnic groups is that younger Estonians are not able to communicate in Russian anymore (as was common during the Soviet time) (Verschik 2008).

Identification with the mainstream society is another factor that reflects the integration and assimilation processes of ethnic minorities. Although it might be expected that over time more and more people from the minority population start to identify themselves with the mainstream society, the results of this thesis have shown that most of the members of the Russian-speaking minority population strongly self-identify themselves as Russian. Identification with the mainstream society is of course not a normative process, but it is a good indicator of the acculturation processes. The ethnic residential context which frames individuals' lives is essential in the development of ethnic identity and those Russians and Russian-speakers who live in minority concentration neighbourhoods are the least likely to self-identify themselves with the Estonian society (Publication IV). This indicates that in a situation where a sizable minority population lives highly segregated, the ethnic identity remains strong. This also supports the argument of Phinney (2006), who emphasises that the acculturation process depends a lot on the context in which ethnic minorities have settled and also on different characteristics of the minority population, such as the size of the group. However, Russians and Russian-speakers who live in Estonian-dominated neighbourhoods and regions are more likely to change their self-identified ethnicity and mother tongue to Estonian compared to those who live in minority-rich areas. Moreover, living in mixed-ethnicity households and longer-term residence in Estonia are factors that also increase the likelihood that an individual may change their ethnic identity from Russian to Estonian. Thus, the more ties minorities have with the mainstream society and the majority population, the higher the probability that they change their ethnic identity. This clearly indicates that the ethnic context which surrounds minorities, and where social interaction takes place, has a considerable impact on how people position themselves in terms of ethnic identity. Living with native people contributes to the acculturation processes and helps minorities to become a part of the mainstream society.

Interestingly, the results of this thesis reveal that assimilation can be two sided and there are also majority population members who change their ethnic identity from Estonian to Russian. This further supports the argument of Sam

(2006), who discussed the reciprocal nature of acculturation processes and found that the changes take place in both the minority and majority population. Once again, the identity change from Estonian to Russian is related to contextual factors (neighbourhood, region, mixed-ethnicity household). In addition, immigrant background and previous ties with Russia contribute to the change in ethnic identity. However, there are also people who are born and raised in Estonia and who do not have an immigrant background, but they still change their ethnic identity to Russian. These results once more highlight the role of residential context and the importance of opportunities to meet people from other ethnic groups in the process of identity change. When individuals are surrounded by people from other ethnic groups, they start to adopt their views, values, and behaviours. In turn, this can lead the individual to change their feelings about their own ethnic belonging and start to identify themselves with another ethnic group, even among members of the majority population.

What is especially concerning about the recent patterns of ethnic segregation, is that ethnic residential segregation is increasingly overlapping with socio-economic segregation; the former socio-economically undifferentiated urban space has become clearly divided along occupational lines and socio-economically disadvantaged places coincide with places with a high share of minority population (Publication I and III). This trend is considered to be a major challenge that threatens the sustainability of cities and different neighbourhoods. These developments can also influence the mobility behaviour of people. Leetmaa, Tammaru and Hess (2015) showed in their study that the very strong preferences of Estonians toward co-ethnic neighbours somewhat weakened in the 2000s and they have become a bit more tolerant toward Russian-speaking neighbours. People who have lived together with Russian-speakers are also more tolerant towards them. However, Estonians continue to demonstrate very strong preference for affluent environments. This indicates that ethnicity may be ‘compensated’ and when members of the majority population are decent and respectable then ethnic diversity is not seen as a problem (Ouwehand 2018). However, the situation is different when ethnic segregation overlaps with socio-economic segregation; this can contribute to an increase in ‘avoidance’ type mobility behaviour among Estonians.

Housing estate neighbourhoods are especially threatened by the overlap of ethnic and socio-economic segregation. For a long time, there were no clear signs of the socio-economic downgrading of housing estate neighbourhoods (e.g. Temelová et al. 2011). However, recent studies have revealed that housing estate neighbourhoods in Estonia are facing gradual ageing and social degradation (e.g. Leetmaa, Tammaru and Hess 2015; Leetmaa et al. 2016). Previously, these areas were attractive places to live for almost everyone and these neighbourhoods were the places where Estonians and Russian-speakers developed contacts. However, these areas are now turning increasingly Russian and are being drained of the population with higher socio-economic status. It is important to note that the trajectories of different housing estates vary greatly. In Tallinn, for example, some housing estate neighbourhoods are suffering more

from serious social decline, whereas others have preserved their status relatively well (Publication III). The attractiveness of the housing estate may be related to location (e.g. closeness to city centre) and the status of housing estates may also depend on when and how these estates were built. Nevertheless, the general trend of housing estates is socio-economic deprivation that follows ethnic lines. This concerning trend should be acknowledged more by contemporary urban actors as housing estates continue to be an important segment of the housing markets of post-socialist cities. Although investments and actions are being made to improve the residential quality of housing estates, it seems that so far these efforts have been insufficient to counterbalance the ongoing processes.

How might the situation of increasing ethnic residential segregation and slow integration of Russian-speaking minority population into the Estonian society be changed? Lately, there have been numerous discussions about the need to change the dual-language school system in Estonia; the linguistically separated schools are considered to be one of the main reasons behind slow integration and continuing ethnic divisions in Estonian society. There is general consensus about the crucial role of education in supporting integration. If Estonians and Russian-speakers were to study in the same school, they would have more contacts with each other, it would be much easier for Russian-speakers to learn Estonian, and it would enhance mutual understanding and acceptance. According to the Integration Monitoring of the Estonian Society (IMES 2017), more and more people in Estonia (both Estonians and Russian-speakers) are ready for changes in the Estonian school system. People agree that better Estonian language skills ensure a greater level of choices in terms of education and stronger competitiveness on the labour market in later life. More contacts with the majority population and better language skills can expand social networks and housing options (e.g. people get to know Estonian society and different Estonian places more). This may in turn impact the mobility behaviour of Russian-speakers and may help to decrease the levels of ethnic segregation.

The Estonian example is a valuable case study for the broader segregation literature too; it contributes a better understanding of the dynamics of ethnic residential segregation. Although the Estonian case is unique in the sense that there is a very large, quite stable, and homogeneous immigrant population, the comprehensiveness of the data set, on the other hand, offers very good opportunities to study ethnic segregation and its mechanisms more deeply. The results of this thesis show that in situations where sizeable ethnic minority groups live in separate parts of a country's settlement system and in different neighbourhoods within cities, and their communication networks and daily activity spaces are also different, they may behave as 'parallel populations' in their destination choices while moving as well. In addition, this thesis provides new insights into the effects of the residential context on changes in the self-reported ethnic identity of ethnic groups. The results indicate that changes in ethnic identity are not common, but are most likely to occur when people are

exposed to the ‘other’ ethnic group in their residential environment. Thus, there are many things to learn from the Estonian example.

In conclusion, the results of this thesis reveal the importance of thoroughly investigating the processes of ethnic residential segregation and integration in a society where there are clear ethnic divisions in many spheres of life. The process of spatial separation and its effects on individuals and different spaces need further study. More attention needs to be paid to explanations of why ethnic segregation is increasing and why the integration process has been slow. Further research should also use qualitative approaches to gain more in-depth knowledge about segregation and integration processes.

7. CONCLUSIONS

Residents of segregated neighbourhoods are often perceived as being hampered by their residential environments, which hinder successful integration and participation in society. This is one of the main reasons why ethnic segregation has received significant attention in recent decades in many different parts of the world. This is also the case in Estonia, where there is large Russian-speaking minority population who formed mainly in the Soviet period. The Russian-speaking immigrants settled in larger cities and industrial areas, where they in turn concentrated to certain neighbourhoods, mainly in housing estate areas. The inherited ethnic segregation patterns have not changed much since then. Although there have been very many different studies on ethnic divisions in different domains of life, there are still facets of ethnic segregation that have not been studied thoroughly. For example, there are not many studies that investigate ethnic residential segregation from the perspective of individuals. This thesis addressed this gap and investigated how and why the ethnic residential segregation context changes for members of the majority and minority population in Estonia and how living in different ethnic contexts may affect individual's acculturation processes. Cross-sectional individual-level data from the last three censuses (1989, 2000, and 2011) and linked data from the 2000 and 2011 censuses were used for the main analysis.

The findings of this thesis show that high levels of ethnic residential segregation in Estonia are very persistent and have even increased. The mobility behaviour of both Estonians and Russian-speakers have contributed to these trends. The Russian-speaking minority population has been relatively immobile within the last decades and their residential patterns are therefore largely similar to those developed in the Soviet period. When Russian-speakers change their place of residence, they predominantly move towards minority concentration neighbourhoods. Furthermore, most of their moves result in an increased presence of Russian-speakers in their immediate residential environment when comparing their origin and destination neighbourhoods. Changes towards residential integration occur only in those few cases when Russian-speakers move to rural suburbs and peripheral villages. The mobility behaviour of members of the minority group tend to follow pre-existing ethnic networks and it seems that Russian-speakers choose destinations that they already have experiences with and where they can find their own-language infrastructure (e.g. education system, child-care facilities). In contrast to Russian-speakers, when Estonians change their place of residence they move towards more Estonian residential environments and they only rarely move to neighbourhoods with a high share of Russian-speakers. Since Estonians also change their place of residence more often compared to Russian-speakers, this kind of mobility behaviour contributes to their low exposure to the minority population and thus increasing levels of ethnic segregation. This in turn deepens already existing divisions between ethnic groups in the society.

Living within ethnically segregated settings and having limited contact with the majority population also hampers social integration and the participation of the minority ethnic groups in society (Gijsberts and Dagevos 2007). In Estonia, this is reflected in the identification with the broader society too: most of the members of the Russian-speaking minority population strongly self-identify themselves with Russian identity. Furthermore, the results indicated that the ethnic residential context which frames individuals' lives is essential in the development of ethnic identity and those Russians and Russian-speakers who live in minority concentration neighbourhoods are the least likely to change their ethnic identity to Estonian. However, Russians and Russian-speakers who live in Estonian-dominated neighbourhoods and regions are more likely to change their self-identified ethnicity and mother tongue to Estonian compared to those who live in minority-rich areas. These results clearly show that the ethnic context which surrounds minorities, and the places where social interactions occur, has a considerable impact on how people position themselves in terms of their ethnic identity. Moreover, living in mixed-ethnicity households and longer-term residence in Estonia are factors which also increase the probability of an individual changing their ethnic identity from Russian to Estonian. Thus, the more ties minorities have with the mainstream society and the majority population, the higher the probability that they change their ethnic identity. Living with native people contributes to the acculturation processes and helps minorities to become a part of the mainstream society.

This thesis has also highlighted some of the most problematic trends in the development of ethnic segregation in Estonia: ethnic segregation is increasingly overlapping with socio-economic segregation. This may create major challenges for cities and different neighbourhoods in the future. Housing estate neighbourhoods are especially threatened by these trends. Previously, these areas were attractive places to live for almost everyone and these neighbourhoods were the places where Estonians and Russian-speakers developed contacts. Now, however, housing estate neighbourhoods are facing gradual ageing, are becoming more and more Russian, and are also being drained of the population with higher socio-economic status. Although investments and actions are being taken to improve the residential quality of housing estates, it seems that these efforts are insufficient to counterbalance the ongoing processes.

The results of this thesis show that more attention needs to be paid to the ethnic residential segregation of ethnic groups in Estonia. There are concerning trends that we can see in the society: ethnic residential segregation is very persistent and this in turn creates problems with social integration into the broader society. Additionally, there are very clear socio-economic divisions between Estonians and the Russian-speaking minority population that are increasingly projected into urban space. If these trends continue in the same way, they may have far-reaching consequences for the sustainability of cities and neighbourhoods. It is not easy to change this situation and reverse the ongoing processes, however there are some actions that may help to counter the separation of ethnic groups in society. There is a general consensus about the

crucial role of education in supporting integration and there have been numerous discussions in Estonia over the need to change the dual-language school system. The results of this thesis support these ideas and show that something needs to be changed. A common school environment for Estonian- and Russian-speakers may create a good basis for big changes in Estonian society.

REFERENCES

- Bater, J. (1980). *The Soviet City*. London: Arnold.
- Bauder, H. (2002). Neighbourhood effects and cultural exclusion. *Urban Studies* 39(1): 85–93.
- Berry, J.W. (1997). Immigration, Acculturation and Adaptation. *Applied Psychology: An International Review* 46(1): 5–68.
- Berry, J.W. (2006). Contexts of Acculturation. In: *The Cambridge Handbook of Acculturation Psychology*, 27–41. Sam, D.L. and John W.B. (eds.) Cambridge: Cambridge University Press.
- Bolt, G., Burgers, J., and van Kempen, R. (1998). On the Social Significance of Spatial Location: Spatial Segregation and Social Inclusion. *Netherlands Journal of Housing and the Built Environment* 13: 83–95.
- Bolt, G., Hooimeijer, P., and van Kempen, R. (2002). Ethnic Segregation in the Netherlands: New Patterns, New Policies? *Tijdschrift voor Economische en Sociale Geografie* 93(2): 214–220.
- Bolt, G. and van Kempen, R. (2003). Escaping poverty neighbourhoods in the Netherlands. *Housing, Theory and Society* 20(4): 209–222.
- Bolt, G. and van Kempen, R. (2010) Ethnic Segregation and Residential Mobility: Relocations of Minority Ethnic Groups in the Netherlands. *Journal of Ethnic and Migration Studies* 36(2): 333–354.
- Bolt, G., Özüekren, A.S. and Phillips, P. (2010). Linking Integration and Residential Segregation. *Journal of Ethnic and Migration Studies* 36(2): 169–186.
- Bråmă, Å. (2006). “White flight”? The production and reproduction of immigrant concentration areas in Swedish cities, 1990–2000. *Urban Studies* 43(7): 1127–1146.
- Chiswick, B.R. and Miller, P.W. (2001). A Model of Destination-language Acquisition: Application to Male Immigrants in Canada. *Demography* 38(3): 391–409.
- Cloke, P. and Johnston, R. (2005). Deconstructing human geography’s binaries. In: *Spaces of Geographical Thought: Deconstructing Human Geography's Binaries*, 1–20. Cloke, P. and Johnston, R. (eds.). London, Thousand Oaks, New Delhi: Sage Publications.
- Clark, W.A.V. (1992). Residential preferences and residential choices in a multiethnic context. *Demography* 29(3): 451–466.
- Constant, A.F., Gataullina, L., and Zimmermann, K.F. (2009). Ethnosing Immigrants. *Journal of Economic Behavior & Organization* 69(3): 274–287.
- Cooke, T.J. (2011). It is not just the economy: Declining migration and the rise of secular rootedness. *Population, Space and Place* 17(3):193–203.
- Coulter, R. and van Ham, M. (2013). Following people through time: An analysis of individual residential mobility biographies. *Housing Studies* 28(7): 1037–1055.
- Cowgill, D.O. and Cowgill, M.S. (1951). An Index of Segregation Based on Block Statistics. *American Sociological Review* 16(6): 825–831.
- Crowder, K. (2000). The racial context of white mobility: An individual-level assessment of the white flight hypothesis. *Social Science Research* 29(2): 223–257.
- Danzer, A.M. and Yaman, F. (2013). Do Ethnic Enclaves Impede Immigrants’ Integration? Evidence from a Quasi-experimental Social-interaction Approach. *Review of International Economics* 21(2): 311–325.
- Drever, A.I. (2004). Separate Spaces, Separate Outcomes? Neighbourhood Impacts on Minorities in Germany. *Urban Studies* 41(8): 1423–1439.

- Duncan, O. D. and Duncan, B. (1955). A Methodological Analysis of Segregation Measures. *American Sociological Review* 20(2): 210–217.
- Erdurcan, M.R. (2018). In search of the Russian identity: Addressing the contemporary challenges of a Russian-speaking minority in the post-Soviet space. Master thesis. University of Leiden and the think tank Clingendael Institute of International relations.
- Farley, R. and Frey, W.H. (1994). Changes in the Segregation of Whites from Blacks During the 1980s: Small Steps Toward a More Integrated Society. *American Sociological Review* 59(1): 23–45.
- Farrell, C.R. (2016). Immigrant suburbanisation and the shifting geographic structure of metropolitan segregation in the United States. *Urban Studies* 53(1): 57–76.
- Freeman, L. (2000). Minority Housing Segregation: A Test of Three Perspectives. *Journal of Urban Affairs* 22(1): 15–35.
- Gentile, M. and Tammaru, T. (2006). Housing and ethnicity in the post-Soviet city: Ust-Kamenogorsk, Kazakhstan. *Urban Studies* 43(10): 1757–1778.
- Gijsberts, M. and Dagevos, J. (2007). The Socio-cultural Integration of Ethnic Minorities in the Netherlands: Identifying Neighbourhood Effects on Multiple Integration Outcomes. *Housing Studies* 22(5): 805–831.
- Goering, J.M. (1978). Neighbourhood tipping and racial transition. *Journal of the American Institute of Planners* 44(1): 68–78.
- Harris, C. (1970). Cities of the Soviet Union: Studies in their Function, Size, Density and Growth. Chicago: Rand McNally.
- Heckmann, F. (2005). Integration and Integration Policies: IMISCOE Network Feasibility Study. Bamberg: European Forum for Migration Studies.
- Hess, D.B., Tammaru, T., and Leetmaa, K. (2012). Ethnic differences in housing in post-Soviet Tartu, Estonia. *Cities* 29(5): 327–333.
- Integration Monitoring of the Estonian Society (IMES) (2017). Estonian Ministry of Culture, Institute of Baltic Studies and Praxis Center for Policy Studies.
- Jasinskaja-Lahti, I., Liebkind, K., Horenczyk, G. and Schmitz, P. (2003). The interactive nature of acculturation: perceived discrimination, acculturation attitudes and stress among young ethnic repatriates in Finland, Israel and Germany. *International Journal of Intercultural Relations* 27: 79–97.
- Johnston, R., Forrest, J., and Poulsen, M. (2002). The ethnic geography of EthniCities: The ‘American model’ and residential concentration in London. *Ethnicities* 2(2): 209 – 235.
- Johnston, R., Poulsen, M. and Forrest, J. (2006). Ethnic Residential Segregation and Assimilation in British Towns and Cities: A Comparison of those claiming Single and Dual Ethnic Identities. *Migration Letters* 3(1): 11–30.
- Johnston, R., Poulsen, M. and Forrest, J. (2007). The Geography of Ethnic Residential Segregation: A Comparative Study of Five Countries. *Annals of the Association of American Geographers* 97(4): 713–738.
- Kalmus, V. and Vihalemm, T. (2017). Väärtused ja identiteetid (Values and Identities). In: *Eesti ühiskond kiirenevas ajas. Uuringu “Mina. Maailm. Meedia” 2000–2014 tulemused (Estonian Society in an Accelerating Time: Results of the Survey “Me. The World. The Media” 2000–2014)*, 111–133. Vihalemm, P., Lauristin, M., Kalmus, V., and Vihalemm, T. (eds.) Tartu: Tartu Ülikooli Kirjastus.
- Kamenik, K., Tammaru, T., and Toomet, O. (2015). Ethnic segmentation in leisure time activities in Estonia. *Leisure Studies* 34(5): 566–587.

- Kaplan, D.H. and Douzet, F. (2011). Research In Ethnic Segregation III: Segregation Outcomes. *Urban Geography* 32(4): 589-605.
- Kaplan, D.H. and Woodhouse, K. (2004) Research in Ethnic Segregation I: Causal Factors. *Urban Geography* 25(6): 579-585.
- Katus, K. and Sakkeus, L. (1993). Foreign-born Population in Estonia. EKDK working papers, B 19. Tallinn: Estonian Interuniversity Population Research Centre.
- Kinket, B. and Verkuyten, M. (1997). Levels of Ethnic Self-Identification and Social Context. *Social Psychology Quarterly* 60(4): 338-354.
- Korts, K. (2009). Inter-ethnic attitudes and contacts between ethnic groups in Estonia. *Journal of Baltic Studies* 40(1): 121-137.
- Krysan, M. and Crowder, K. (2017). Cycle of Segregation: Social Processes and Residential Stratification. New York: Russell Sage Foundation.
- Kukk, K., van Ham, M., and Tammaru, T. (2018). EthniCity of Leisure: A Domains Approach to Ethnic Integration During Free Time Activities. *Tijdschrift voor Economische en Sociale Geografie*. Published online 20 February 2018.
- Kulu, H. (2003). Housing differences in the late Soviet city: The case of Tartu, Estonia. *International Journal of Urban and Regional Research* 27(4): 897-911.
- Laitin, D.D. (1998). *Identity in formation: The Russian-speaking populations in the near abroad*. New York: Cornell University Press.
- Leetmaa, K., Brade, I., Anniste, K., and Nuga, M. (2012). Socialist Summer Home Settlements in Post-Socialist Suburbanisation. *Urban Studies* 49(1): 3-21.
- Leetmaa K. and Väiko, A. (2015). Siseränne asustussüsteemi kujundajana perioodil 1989-2011 (Internal migration shaping the Estonian settlement system in 1989-2011). In: *Rahvastiku areng (Population trends)*, 76-113. Rosenberg, T. (ed.) Tallinn: Estonian Statistical Office.
- Leetmaa, K., Tammaru, T. and Hess, D.B. (2015). Preferences Toward Neighbor Ethnicity and Affluence: Evidence from an Inherited Dual Ethnic Context in Post-Soviet Tartu, Estonia. *Annals of the Association of American Geographers* 105(1): 162-182.
- Leetmaa, K., Mägi, K., Holvandus, J., Varblane, U., and Tõnnisson, K. (2016). The Past, Present, and Future of a Post-Soviet Panel Housing District: The Case of Annelinn, Tartu, Estonia. RAKE final report. Tartu: University of Tartu.
- Leetmaa, K. (2017). Elukoht kui lõimumise mõõdupuu: muutused keelekogukondade elukohtade eraldatuses (Place of residence as a measure of integration: changes in ethno-linguistic residential segregation). In: *Eesti inimarengu aruanne 2016/2017. Eesti rändeajastul (Estonian Human Development Report 2016/2017. Estonia at the Age of Migration)*, 139-148. Tammaru, T. (ed.). Tallinn: Eesti Koostöö Kogu.
- Leppik, M. and Vihalemm, T. (2017). Venekeelse elanikkonna hargmaisus ja meedia-kasutus (Transnationality and media use of Russian-speaking population). In: *Eesti ühiskond kiirenevas ajas. Uuringu "Mina. Maailm. Meedia" 2000-2014 tulemused (Estonian Society in an Accelerating Time: Results of the Survey "Me. The World. The Media" 2000-2014)*, 591-619. Vihalemm, P., Lauristin, M., Kalmus, V., and Vihalemm, T. (eds.) Tartu: Tartu Ülikooli Kirjastus.
- Liebkind, K. (2006). Ethnic identity and acculturation. In: *The Cambridge Handbook of Acculturation Psychology*, 78-96. Sam, D.L and Berry, J.W. Cambridge: Cambridge University Press.
- Lindemann, K. (2009). Ethnic Inequalities in Labour Market Entry in Estonia. The Changing Influence of Ethnicity and Language Proficiency on Labour Market

- Success. Working Paper No. 125. Mannheim: Mannheimer Zentrum für Europäische Sozialforschung.
- Lindemann, K. and Saar, E. (2012). Ethnic inequalities in education: Second generation Russians in Estonia. *Ethnic and Racial Studies* 35(11): 1974–1998.
- Lindemann, K. and Kogan, I. (2013). The role of language resources in labour market entry: Comparing Estonia and Ukraine. *Journal of Ethnic and Migration Studies* 39(1): 105–123.
- Maa-amet (2018). Eesti kinnisvaraturg 2017.aastal (Estonian real estate market in 2017). Tallinn: Maa-Amet.
- Manley D. and van Ham, M. (2011) Choice-based letting, ethnicity and segregation in England. *Urban Studies* 48(14): 3125–3143.
- Marcinčzak, S., Tammaru, T., Novák, J., Gentile, M., Kovács, Z., Temelová, J., Valatka, V., Kährik, A., and Szabó, B. (2015). Patterns of socioeconomic segregation in the capital cities of fast-track reforming postsocialist countries. *Annals of the Association of American Geographers* 105(1): 183–202.
- Martinovic, B., van Tubergen, F. and Maas, I. (2009). Dynamics of Interethnic Contact: A Panel Study of Immigrants in the Netherlands. *European Sociological Review* 25(3): 303–318.
- Massey, D.S. and Denton, N.A. (1985). Spatial assimilation as a socioeconomic outcome. *American Sociological Review* 50(1): 94–106.
- Massey, D.S. and Denton, N.A. (1988). The dimensions of residential segregation. *Social Forces* 67: 281–315.
- Massey, D.S. and Fischer, M.J. (2000). How segregation concentrates poverty. *Ethnic and Racial Studies* 23(4): 670–691.
- Musterd, S. and van Kempen, R. (2007). Trapped or on the springboard? Housing careers in large housing estates in European cities. *Journal of Urban Affairs* 29(3): 311–329.
- Musterd, S. and van Kempen, R. (2009). Segregation and housing of minority ethnic groups in Western European cities. *Tijdschrift voor Economische en Sociale Geografie* 100(4), 559–566.
- Musterd, S. (2003). Segregation and Integration: A Contested Relationship. *Journal of Ethnic and Migration Studies* 29(4): 623–641.
- Ouwehand, A. (2018). ‘It used to be very pleasant and then there were also – I hate the word – foreigners’ Mixed and changing feelings about neighbourhood change. Paper to the ENHR Conference, 26–29 June, Uppsala, Sweden.
- Peach, C. (1996). Good segregation, bad segregation. *Planning Perspectives* 11: 379–398.
- Phinney, J.S. (1990). Ethnic Identity in Adolescents and Adults: Review of Research. *Psychological Bulletin* 108: 499–514.
- Phinney, J.S. (1996). Understanding Ethnic Diversity: The Role of Ethnic Identity. *American Behavioral Scientist* 40(2): 143–152.
- Phinney, J.D. (2006). Foreword. In: *The Cambridge Handbook of Acculturation Psychology*, Sam, D.L and Berry, J.W. (eds.) Cambridge: Cambridge University Press.
- Phinney, J.S., Horenczyk, G., Liebkind, K., and Vedder, P. (2001). Ethnic Identity, Immigration, and Well-Being: An Interactional Perspective. *Journal of Social Issues* 57(3): 493–510.

- Piirits, M., Anniste, K., Masso, M., Melesk, K., Osila, L., Michelson, A., and Praxis Estonia. (2018). Eesti tööturg: hetkeolukord ja tulevikuväljavaated (Current situation and future prospects of Estonian labour market). RITA-RÄNNE project report.
- Portes, A. and Zhou, M. (1996). Self-employment and the earnings of immigrants. *American Sociological Review* 61(2): 219-239.
- Quillian, L. (2003). How long are exposures to poor neighbourhoods? The long-term dynamics of entry and exit from poor neighbourhoods. *Population Research and Policy Review* 22(3): 221-249.
- Rannut, Ü. (2005). Keelekeskkonna mõju vene õpilaste eesti keele omandamisele ja integratsioonile Eestis (Impact of the Language Environment on Integration and Estonian Language Acquisition of Russian-speaking Children in Estonia). PhD thesis. Tallinn University.
- Ruoppila, S. and Kährik, A. (2003). Socio-economic residential differentiation in post-socialist Tallinn. *Journal of Housing and the Built Environment* 18(1): 49-73.
- Sam, D.L. (2006). Acculturation: Conceptual Background and Core Components. In: *The Cambridge Handbook of Acculturation Psychology*, 11-26. Sam, D.L and Berry, J.W. (eds.) Cambridge: Cambridge University Press.
- Schelling T.C. (1971). Dynamic models of segregation. *Journal of Mathematical Sociology* 1(2): 143-186.
- Silm, S. and Ahas, R. (2014). Ethnic differences in activity spaces: A study of out-of-home nonemployment activities with mobile phone data. *Annals of the Association of American Geographers* 104(3): 542-559.
- Silm, S., Ahas, R., and Mooses, V. (2017). Are younger age groups less segregated? Measuring ethnic segregation in activity spaces using mobile phone data. *Journal of Ethnic and Migration Studies* 44(11): 1797-1817.
- Simpson, L. (2004). Statistics of Racial Segregation: Measures, Evidence and Policy. *Urban Studies* 41(3): 661-681.
- Simpson, L. (2007). Ghettos of the mind: the empirical behaviour of indices of segregation and diversity. *Journal of the Royal Statistical Society. Series A: Statistics in Society* 170(2): 405-424.
- Sýkora, L. (2009). Post-socialist cities. In: *International Encyclopedia of Human Geography*, vol. 8, 387-395. Kitchin, R. and Thrift, N. (Eds.) Oxford: Elsevier.
- Sýkora, L. and Bouzarovski, S. (2012). Multiple transformations: Conceptualising the post-communist urban transition. *Urban Studies* 49(1): 43-60.
- Tajfel, H. (1982). Social Psychology of Intergroup Relations. *Annual Review of Psychology* 33:1-39.
- Tammaru, T. and Kontuly, T. (2011). Selectivity and destinations of ethnic minorities leaving the main gateway cities of Estonia. *Population, Space and Place* 17(5): 674-688.
- Tammaru, T., van Ham, M., Leetmaa, K., Kährik, A., and Kamenik, K. (2013). The ethnic dimensions of suburbanisation in Estonia. *Journal of Ethnic and Migration Studies* 39(5): 845-862.
- Tammaru, T. and Kulu, H. (2003). The ethnic minorities of Estonia: Changing size, location, and composition. *Eurasian Geography and Economics* 44 (2): 105-120.
- Tammaru, T., Kulu, H., and Kask, I. (2004). Urbanization, suburbanization, and counterurbanization in Estonia. *Eurasian Geography and Economics* 45(3): 212-229.
- Tammaru, T., Musterd, S., van Ham, M., and Marcińczak, S. (2016). A multi-factor approach to understanding socio-economic segregation in European capital cities.

- In: *Socio-economic segregation in European capital cities: East meets West*, 1–29. Tammur, T., Marcińczak, S., van Ham, M., and Musterd, Sako. (eds.) London and New York: Routledge.
- Tammur, A. (2009). Siserände suundumused (Trends of internal migration). In: *Ränne (Migration)*, 35–59. Haugas, L. (ed.) Tallinn: Statistics Estonia.
- Tammur, A. (2018). Eesti on juba kolm aastat olnud positiivse siserännu maa (Estonia has been already three years a country with positive net migration). In: *Eesti Statistika Kvartalikirj. 2/18 (Quarterly Bulletin of Statistics Estonia. 2/18)*, 12–13. Tallinn: Estonian Statistics.
- Temelová, J., Novák, J., Ouředníček, M., and Puldová, P. (2011). Housing Estates in the Czech Republic after Socialism: Various Trajectories and Inner Differentiation. *Urban Studies* 48(9): 1811–34.
- Toomet, O. (2011). Venekeelse elanikkonna eesti keele oskus, sissetulek ja tööpuudus Eestis: miks naistele on keeleoskus olulisem? (Estonian language skill, income and unemployment: why does language matter more for the Russian minority women?) *Ariadne Lõng* 58–68.
- Van Ham, M. and Clark, W.A.V. (2009). Neighbourhood mobility in context: Household moves and changing neighbourhoods in the Netherlands. *Environment and Planning A* 41(6): 1442–1459.
- Van Ham, M. and Feijten, P. (2008). Who wants to leave the neighbourhood? The effect of being different from the neighbourhood population on wishes to move. *Environment and Planning A* 40: 1151–1170.
- Van Ham, M. and Tammur, T. (2016). New Perspectives on Ethnic Segregation Over Time and Space. A Domains Approach. *Urban Geography* 37(7): 953–962.
- Van der Laan Bouma-Doff, W. (2007). Confined Contact: Residential Segregation and Ethnic Bridges in the Netherlands. *Urban Studies* 44(5/6): 997–1017.
- Van Kempen, R. and Özüekren, A.S. (1998). Ethnic segregation in cities: New forms and explanations in a dynamic world. *Urban Studies* 35(10): 1631–1656.
- Van Kempen, R. and Murie, A. (2009). The new divided city: Changing patterns in European cities. *Tijdschrift voor Economische en Sociale Geografie* 100(4): 377–398.
- Verkuyten, M. (2000). The Benefits to Social Psychology of Studying Ethnic Minorities. *European Bulletin of Social Psychology* 12(3): 5–21.
- Verkuyten, M. (2005). *The Social Psychology of Ethnic Identity*. New York and Hove: Psychology Press.
- Verschik, A. (2008). *Emerging Bilingual Speech. From Monoilingualism to Code-Coping*. London, New York: Continuum International Publishing Group
- Vihalemm, T. (1999). Group Identity Formation Processes among Russian-speaking Settlers of Estonia: A Linguistic Perspective. *Journal of Baltic Studies* 30(1): 18–39.
- Wagner, U., van Dick, R., Pettigrew, T.F., and Christ, O. (2003). Ethnic Prejudice in East and West Germany: The Explanatory Power of Intergroup Contact. *Group Processes and Intergroup Relations* 6(1): 22–36.
- White, M.J., Biddlecom, A.E. and Guo, S. (1993). Immigration, Naturalization and Residential Assimilation among Asian Americans in 1980. *Social Forces* 72(1): 93–117.
- Wirth, L. (1928). *The Ghetto*. Chicago: University of Chicago Press.
- Zabrodskaia, A. (2015). What is My Country to Me? Identity Construction by Russian-speakers in the Baltic Countries. *Sociolinguistic Studies* 9: 217–241.

SUMMARY IN ESTONIAN

Venekeelse elanikkonna elukohasegregatsioon ja integratsioon Eestis

Suure rahvusvahelise rände ja üha kasvava kultuurilise mitmekesisuse valguses on rahvusgruppide elukohasegregatsioon ehk elukohtade eraldatus saanud üha rohkem tähelepanu mitmete elualade esindajatelt. Uude riiki saabudes on sisse­rändajad tavaliselt suundunud suurematesse linnadesse ning seal omakorda naabruskondadesse, kus on võimalik elada koos rahvuskaaslastega. Kuigi segregatsiooniuuringute ajalugu on pikk (nt Wirth 1928; Duncan and Duncan 1955), ei tea me siiani kõike protsessidest ja teguritest, mis elukohasegrega­tsiooni kujundavad ja taastoodavad ning millised tagajärjed võivad segre­gaatsiooni inimeste jaoks olla. Etniline elukohasegregatsioon annab aga mitmetel põhjustel alust muretsemiseks. Erinevates piirkondades elamine avab rahvus­gruppidele erinevad võimalused (nt tööturul, hariduses) ühiskonnas toime­ tulemiseks ning sageli on just vähemusrahvused põhirahvusega võrreldes kehvemas olukorras, Lisaks muudab eraldi elamine uue kultuuriga kohanemise keerulisemaks ning seda on peetud eduka ühiskonda integreerumise takistuseks (nt ei saa inimesed keelt selgeks) (Gijsberts and Dagevos 2007). Etniline segre­gaatsioon ei vähene väga kiiresti ning kipub olema püsiv. See võib omakorda aga tekitada olukorra, kus rahvusgruppide vaheline ebavõrdsus ning eraldatus ühiskonnas kandub ühelt põlvkonnalt teisele ning pidevalt taastoodab ennast (Krysan ja Crowder 2017).

Käesolev doktoritöö keskendub eesti- ja venekeelse elanikkonna elukoha­segregatsioonile Eestis. Eesti on näide endisest Nõukogude Liidu osast, kuhu sotsialismiperioodil toimunud sisse­rände järel jäi 1990. aastate alguseks elama arvukas peamiselt venekeelne immigrantrahvastiku grupp. Kuna sisse­rändajad asusid saabudes elama kindlatesse piirkondadesse (Eesti puhul Ida-Viru maa­kond, pealinn Tallinn ja teised suuremad linnad) ja linnades kindlatesse linna­osadesse (paneelilamupiirkonnad), siis paiknes sinne immigrantrahvastik üle­minekuaja alguseks asustussüsteemis kontsentreeritult ja linnades segre­geerunult. Need väljakujunenud mustrid on suuresti püsinud siiani. Eestis on rahvusgruppide vahelisi erinevusi palju uuritud, kuid mitte niivõrd indiviidi vaatenurgast. See doktoritöö püüab seda tühimikku täita ja analüüsida etnilist elukohasegregaatsiooni indiviidi seisukohast vaadatuna. Töö laiemaks ees­märgiks on selgitada, kuidas ja miks segregatsioonikontekst eesti- ja venekeelse elanikkonna jaoks muutub ning kuidas elamine erinevas keelekeskkonnas võib mõjutada inimeste akultuuratsiooniprotsesse. Laiema eesmärgi täpsustamiseks esitati kolm uurimisküsimust:

- Kuidas muutis üleminekuperiood nõukogude aja lõpuks välja kujunenud madala sotsiaalmajandusliku ja kõrge etnilise segregatsiooni mustreid?
- Kuidas muutub etniline elukohakontekst inimeste jaoks eri tüüpi rände tulemusena?
- Kuidas mõjutab erinevas keelekeskkonnas elamine inimeste etnilist identiteeti?

Väitekiri põhineb kahe raamatupeatüki ja kahe eelretsenseeritud teadusartikli tulemustel. Mõlemad raamatupeatükid on rahvusvahelise võrdlusanalüüsi osad ning annavad tööle laiemat tausta ja konteksti. Teadusartiklid heidavad pisut sügavamalt pilgu etnilise segregatsiooni sisse ning avavad seda rohkem indiviidi vaatenurgast. Esimene neist keskendub rahvusgruppide rändele ning otsib vastust küsimusele, kuidas inimeste elukoha etniline kontekst eri tüüpi rände tulemusena muutub. Teises artiklis analüüsitakse, millist mõju võib inimest ümbritsev keeleline keskkond avaldada tema etnilisele identiteedile.

Uurimustöö peamiseks andmeanalüüsiks kasutati kolme viimase loenduse – 1989., 2000. ja 2011. aasta – andmeid. Lisaks kasutati 2000. ja 2011. aasta loenduste ühendatud longituudandmebaasi, mis võimaldas samu inimesi jälgida peaaegu 12 aasta jooksul. Eesti loendusandmed on geokodeeritud individuaalandmed, mis sisaldavad infot kogu Eesti elanikkonna kohta. See teeb Eesti andmestiku unikaalseks, sest paljudes riikides ei ole loenduse individuaalandmestikule võimalik ligi pääseda või on uurimistöö tegemiseks antud kasutada ainult valim (näitks USAs ja Suurbritannias). Kasutatud andmestik on unikaalne ka võrreldes Põhjamaade registriandmetega. Nimelt võimaldab loendusandmestik iseloomustada rahvusgruppe mitmete lisatunnuste järgi, mida tüüpiliselt ei ole riiklikes registrites; näiteks sisaldavad loendusandmed infot rahvuse, koduse keele ja eesti keele oskuse kohta ning neile küsimustele on vastanud inimesed ise (v.a alla 15-aastased lapsed; lisaks on võimalik eristada neid inimesi, kelle eest on vastanud mõni teine leibkonnaliige). See võimaldab jälgida muutusi rahvusgruppide etnilises identiteedis, mis venekeelse elanikkonna puhul on ka üheks ühiskonda integreerumise indikaatoriks.

Doktoritöö tulemustest selgub, et nõukogude perioodist päritud kõrge etniline elukohasegregatsioon on siiani püsinud ja isegi pisut kasvanud. Nii eesti- kui ka venekeelse elanikkonna rändekäitumine on sellisele trendile kaasa aidanud. Venekeelne elanikkond on viimaste aastakümnete jooksul olnud üsna vähemobiilne ja seepärast on nende elukohamuutused sarnased nõukogude perioodil väljakujunenud mustritele. Kui venekeelne elanikkond elukohta vahetab, siis liiguvad nad peamiselt sellistesse naabruskondadesse, kus on juba ees suur omakeelne kogukond. Kui täpsemalt rände lähte- ja sihtkohti analüüsida, siis selgub, et peaaegu kõigi 2000. aastal Tallinnas elanud vene emakeelega elanike jaoks muutus kodu lähiümbrus perioodil 2000–2011 venekeelsemaks. Üksnes nende jaoks, kes rändasid Tallinna ümbruse maalistesse valdadesse ja kaugematesse maapiirkondadesse, muutus elukeskkond eestikeelsemaks. Neid venekeelseid oli aga väga vähe. Ka nende vene emakeelega inimeste jaoks, kes Tallinnasse jäid, muutus kodukoht venekeelsemaks. Tundub, et vene emakeelega inimeste rändekäitumine järgib olemasolevaid rahvuspõhiseid võrgustikke ning liigutakse piirkondadesse, mis on juba tuttavaks saanud ja kus on olemas venekeelne infrastruktuur (nt venekeelsed koolid ja lasteaiad).

Vastupidiselt venekeelsele elanikkonnale muutus eestlaste jaoks elukeskkond lähte- ja sihtkohtade võrdluses enamasti eestikeelsemaks. Ainult väga harva liikusid eestlased venekeelsete naabruskondade suunas. Kuna eestikeelne

elanikkond vahetab elukohta sagedamini kui venekeelsed, siis panustab selline rändekäitumine segregatsiooni suurenemisse ja võib süvendada juba olemasolevat lõhet rahvusgruppide vahel. Eesti- ja venekeelse elanikkonna rändekäitumine võib nii luua olukorra, kus rahvusgruppid elavad oma elusid paralleelselt ning ei puutu omavahel kokku. See võib omakorda tekitada rahvusgruppide vahel eelarvamusi ning vähendada omavahelist mõistmist. On teada, et need eestlased, kes on elanud koos venekeelsetega samas naabruskonnas, on nende vastu ka tolerantsemad (Leetmaa, Tammaru ja Hess 2015). Kui eesti- ja venekeelne elanikkond üksteisest üha rohkem eraldi elab, siis võib aga väheneda ka sallivus rahvusgruppide vahel. Vähenenud kontakt rahvusgruppide vahel võib halvasti mõjuda ka ühiskonda integreerumisele (Gijssberts ja Dagevos 2007). Nii näib olevat ka Eestis. Kuigi teatud integratsiooninäitajad on Eestis aastate jooksul paremaks läinud (nt venekeelse elanikkonna eesti keele oskus, rohkem inimesi on võtnud Eesti kodakonduse), siis on üldine venekeelse elanikkonna integratsioon Eesti ühiskonda olnud aeglane (IMES 2017) ning eestlased ja venekeelne elanikkond elavad suuresti paralleelmaailmades.

Uue ühiskonnaga samastumine on samuti üheks ühiskonda integreerumise indikaatoriks. Kuigi venekeelne elanikkond on elanud Eestis väga kaua, on nad siiski tugevalt jäänud vene identiteedi juurde ja vähesed samastavad end Eesti riigiga ning määratlevad end eestlasena. Doktoritöö tulemused näitavad, et enese rahvuslikku määratlemist mõjutab oluliselt vahetu elukeskkond, mis inimesi igapäevaselt ümbritseb. Need vene kogukonna liikmed, kes elasid venekeelses keskkonnas, määratlesid end kõige väiksema tõenäosusega eestlasena. Eestikeelses keskkonnas elanud inimesed aga vahetasid vene identiteedi palju sagedamini eesti identiteedi vastu (muutsid oma rahvust ja emakeelt). Segaleibkonnas elamine ning kauem Eestis elatud aeg mõjutasid samuti oluliselt etnilise identiteedi muutumist ja suurendasid tõenäosust, et venelased ja venekeelsed muudavad oma rahvust ja emakeelt. Seega, mida rohkem sidemeid eestlastega ja Eesti ühiskonnaga laiemalt, seda suurem tõenäosus, et vene kogukond hakkab end rohkem Eesti ühiskonnaga samastama.

Huvitava tulemusena selgus doktoritööst, et ka eestlased võivad oma rahvuslikku identiteeti muuta. Nende eestlaste hulk ei olnud küll suur, kes oma eesti identiteedi vene vastu vahetasid, kuid ka selle protsessi puhul mängis olulist rolli inimesi ümbritsev vahetu keeleline keskkond: need eestlased ja eesti-keelsed, kes elasid venekeelses naabruskonnas ja regioonis ning kes elasid segaleibkonnas, vahetasid palju suurema tõenäosusega oma eesti identiteedi vene vastu. Lisaks vahetasid oma identiteeti sagedamini sisse- ja välisrändest eestlased. Oma eesti identiteedi vahetasid vene vastu aga ka osa eestlastest, kes on sündinud ja kasvanud Eestis ja kel ei ole sisse- ja välisrändest. See näitab veelkord, kui oluline on ümbritsev elukohakontekst. Kui inimesed on ümbritsetud teise rahvuse esindajatest, siis võivad nad omaks võtta nende väärtused, vaated ja käitumise ning nagu selgub, võivad muutuda ka tunded oma rahvusliku kuuluvuse osas ning inimesed võivad oma identiteeti muuta.

Üheks kõige enam muret tekitavaks asjaoluks praeguste suundumuste juures on üha kasvav sotsiaalmajandusliku ja etnilise segregatsiooni kattumine. Kui

1990. aastate alguses oli sotsiaalmajanduslik segregatsioon madal, siis aastakümnete jooksul on see olukord muutunud ning linnaruumis on üha selgemalt eristatavad rikkamad ja vaesemad piirkonnad ning viimased on tihti ka need kohad, kus elab suur hulk mitte-eestlasi. Sellised suundumused on suureks ohuks linnade ja naabruskondade jätkusuutlikkusele. Paneelelamupiirkonnad on selliste muutuste poolt eriti ohustatud. Pikka aega ei olnud viiteid sellele, et paneelelamupiirkondades toimuks sotsiaalmajanduslik allakäik (nt Temelová jt 2011). Viimased Eestis tehtud uurimused (nt Leetmaa, Tammaru ja Hess 2015; Leetmaa et al. 2016) ja ka selle doktoritöö tulemused on aga näidanud, et paneelelamupiirkondades toimub selge elanikkonna vananemine, kõrgema sotsiaal-majandusliku staatusega inimesed ning eestlased lahkuvad piirkonnast. Kui varasemalt on paneelelamupiirkonnad olnud need kohad, kus eestlased ja venekeelsed kohtuvad ja suhtlevad, siis nüüd muutuvad piirkonnad üha venekeelsemaks ja võimalus rahvustevaheliseks suhtluseks väheneb. Selliseid suundumusi peaksid üha rohkem teadvustama poliitikud, sest paneelelamupiirkonnad jäävad alatiseks oluliseks osaks eluasemeturust. Kuigi investeeringuid ning pingutusi on tehtud, et paneelelamupiirkondade elukvaliteeti parandada, siis need pingutused ei tundu olevat piisavad selleks, et tasakaalustada käimasolevaid protsesse.

Kokkuvõtvalt, püsiv ja üha suurenev rahvusgruppide eraldatus paneb küsima, kuidas sellist olukorda muuta. Kuidas soodustada eesti- ja venekeelse elanikkonna omavahelisi kontakte, mis võiks eraldumise asemel viia eduka integreerumiseni ning ka sarnaste elukohavalikuteni? Avalikkuses on viimasel ajal palju arutletud selle üle, et keele alusel eristatud koolisüsteem on üheks peamiseks põhjuseks, miks meil on siiani suur lõhe rahvusgruppide vahel ja integratsioon on olnud aeglane. Kui eestlased ja venekeelne elanikkond käiksid ühes koolis, siis oleks neil üksteisega rohkem suhtlust, vene emakeelega inimestel oleks palju lihtsam õppida eesti keelt ning see aitaks kindlasti kaasa ka vastastikusele mõistmisele ja sallivusele. See kõik aitaks venekeelsel elanikkonnal palju kergemini integreeruda Eesti ühiskonda. Viimase integratsiooni-
monitooringu kohaselt on nii eestlased kui ka venekeelne elanikkond valmis suurmateks muutusteks koolisüsteemis (IMES 2017). Seega peaks laiem avalikkus ning poliitikud veelgi tõsisemalt nende teemade üle arutlema ning midagi ette võtma.

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- Mägi, K., Leetmaa, K., Tammaru, T., and van Ham, M. (2016). Types of spatial mobility and change in people's ethnic residential contexts. *Demographic Research*, 34 (41): 1161–1192.
- Leetmaa, K., Mägi, K., Holvandus, J., Varblane, U., and Tönnisson, K. (2016). The Past, Present, and Future of a Post-Soviet Panel Housing District: The Case of Annelinn, Tartu, Estonia. *RAKE final report*. Tartu: University of Tartu.
- Tammaru, T., Kährik, A., Mägi, K., Novák, J., and Leetmaa, K. (2015). The 'market experiment': Increasing socio-economic segregation in the inherited bi-ethnic context of Tallinn. In: *Socio-Economic Segregation in European Capital Cities. East meets West*, 333–357. Tammaru, T., Marcinczak, S., Van Ham, M. and Musterd, S. (eds.). London and New York: Routledge.
- Leetmaa, K., Tammaru, T., Hess, D.B., and Mägi, K. (2014). Naabrite rahvuse ja jõukusega seotud elukohaelistused Tartus (Preferences Toward Neighbor Ethnicity and Affluence: Evidence from Tartu). In: *Uurimusi eestikeelse*

- geograafia 95. Aastapäeval*, 180–203. Tammiksaar, E., Pae, T., and Mander Ü. (eds) Tartu: Eesti Ülikoolide Kirjastus. (Publicationes Instituti Geographici Universitatis Tartuensis).
- Mägi, K. and Leetmaa, K. (2013). Vanemaealiste ränne Eestis perioodil 2000–2008 (Migration of elderly in Estonia during the period from 2000 to 2008). In: Eesti Geograafia Seltsi Aastaraamat 38, 119–137. Arvo Järvet (ed.). Eesti Geograafia Selts.

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- Leetmaa, K., Holvandus, J., Mägi, K., and Kährik, A. (2018). Population Shifts and Urban Policies in Housing Estates of Tallinn, Estonia. In: *Housing Estates in Europe: Poverty, Ethnic Segregation, and Policy Challenges*, 389–412. Hess, D.B., Tammaru, T., van Ham, M. (eds.) Springer.
- Mägi, K., Leetmaa, K., Tammaru, T., and van Ham, M. (2016). Types of spatial mobility and change in people's ethnic residential contexts. *Demographic Research*, 34 (41): 1161–1192.
- Leetmaa, K., Mägi, K., Holvandus, J., Varblane, U., and Tönnisson, K. (2016). The Past, Present, and Future of a Post-Soviet Panel Housing District: The Case of Annelinn, Tartu, Estonia. *RAKE final report*. Tartu: University of Tartu.
- Tammaru, T., Kährik, A., Mägi, K., Novák, J., and Leetmaa, K. (2015). The 'market experiment': Increasing socio-economic segregation in the inherited bi-ethnic context of Tallinn. In: *Socio-Economic Segregation in European Capital Cities. East meets West*, 333–357. Tammaru, T., Marcińczak, S., Van Ham, M. and Musterd, S. (eds.). London and New York: Routledge.
- Leetmaa, K., Tammaru, T., Hess, D.B., and Mägi, K. (2014). Naabrite rahvuse ja jõukusega seotud elukohaeelistused Tartus. In: *Uurimusi eestikeelse geograafia 95. Aastapäeval*, 180–203. Tammiksaar, E., Pae, T., and Mander Ü.

- (eds) Tartu: Eesti Ülikoolide Kirjastus. (Publicationes Instituti Geographici Universitatis Tartuensis).
- Mägi, K. and Leetmaa, K. (2013). Vanemaealiste ränne Eestis perioodil 2000–2008. In: Eesti Geograafia Seltsi Aastaraamat 38, 119–137. Arvo Järvet (ed.). Eesti Geograafia Selts.

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