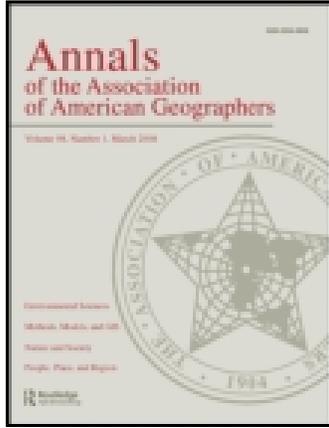


This article was downloaded by: ["University at Buffalo Libraries"]

On: 29 December 2014, At: 10:00

Publisher: Routledge

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



[Click for updates](#)

Annals of the Association of American Geographers

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/raag20>

Preferences Toward Neighbor Ethnicity and Affluence: Evidence from an Inherited Dual Ethnic Context in Post-Soviet Tartu, Estonia

Kadri Leetmaa^a, Tiit Tammaru^b & Daniel Baldwin Hess^c

^a Department of Geography, University of Tartu, Estonia

^b Department of Geography, University of Tartu, Estonia, and OTB-Research for the Built Environment, Faculty of Architecture and the Built Environment Delft University of Technology

^c Department of Urban and Regional Planning, University at Buffalo, State University of New York

Published online: 14 Nov 2014.

To cite this article: Kadri Leetmaa, Tiit Tammaru & Daniel Baldwin Hess (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, DOI: [10.1080/00045608.2014.962973](https://doi.org/10.1080/00045608.2014.962973)

To link to this article: <http://dx.doi.org/10.1080/00045608.2014.962973>

PLEASE SCROLL DOWN FOR ARTICLE

Taylor & Francis makes every effort to ensure the accuracy of all the information (the "Content") contained in the publications on our platform. Taylor & Francis, our agents, and our licensors make no representations or warranties whatsoever as to the accuracy, completeness, or suitability for any purpose of the Content. Versions of published Taylor & Francis and Routledge Open articles and Taylor & Francis and Routledge Open Select articles posted to institutional or subject repositories or any other third-party website are without warranty from Taylor & Francis of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. Any opinions and views expressed in this article are the opinions and views of the authors, and are not the views of or endorsed by Taylor & Francis. The accuracy of the Content should not be relied upon and should be independently verified with primary sources of information. Taylor & Francis shall not be liable for any losses, actions, claims, proceedings, demands, costs, expenses, damages, and other liabilities whatsoever or howsoever caused arising directly or indirectly in connection with, in relation to or arising out of the use of the Content.

This article may be used for research, teaching, and private study purposes. Terms & Conditions of access and use can be found at <http://www.tandfonline.com/page/terms-and-conditions>

It is essential that you check the license status of any given Open and Open Select article to confirm conditions of access and use.

Preferences Toward Neighbor Ethnicity and Affluence: Evidence from an Inherited Dual Ethnic Context in Post-Soviet Tartu, Estonia

Kadri Leetmaa,* Tiit Tammaru,[†] and Daniel Baldwin Hess[‡]

*Department of Geography, University of Tartu, Estonia

[†]Department of Geography, University of Tartu, Estonia, and OTB—Research for the Built Environment, Faculty of Architecture and the Built Environment Delft University of Technology

[‡]Department of Urban and Regional Planning, University at Buffalo, State University of New York

In the post-Soviet era, cities in Central and Eastern Europe inherited a rather undifferentiated sociospatial urban landscape that contrasts with the highly segregated cities in Western Europe and North America. In the Soviet era, ethnic segregation emerged as migrants were prioritized in public housing allocation. The dissolution of the Soviet Union, however, changed the economic and political position of those in-migrants. This study explores how inherited segregation patterns have evolved in the city of Tartu, Estonia. We use data from (1) 1998, 2008, and 2013 municipal surveys about stated preferences with regard to residential settings for the two main ethno-linguistic groups in Estonia (the Estonian majority and the mainly Russian-speaking minority population), and (2) the 2000 and 2011 national census that allows us to track changes in actual segregation patterns. We study two dimensions of preferences and segregation—ethnicity and neighbor affluence—and apply bivariate probit regression for the analysis of stated preferences. We detect a stronger preference among the majority population to live in its own language environment compared to minorities. Minority avoidance attitudes were strongest immediately after the collapse of the Soviet Union and restoration of Estonia's statehood; by the end of the 2000s the preferences of the two groups toward neighbor ethnicity converged. Members of the majority population, however, prefer affluent environments more than minorities do. Despite converging preferences, the actual levels of segregation have increased in Tartu. This suggests that socioeconomic differences drive patterns of ethnic segregation even when preferences with regard to ethnicity have become more tolerant. *Key Words:* Estonia, ethnic segregation, post-Soviet cities, residential preferences, socioeconomic segregation.

在后苏联时期，中欧与东欧的城市，继承了相当无差别的社会空间城市地景，并与西欧及北美高度隔离的城市形成对比。在苏联时期，种族隔离的浮现，是由于公共房屋配给优先提供给移民所导致。苏联的解体，却改变了这些移入居民的经济及政治地位。本研究探讨爱沙尼亚的塔尔图城市所继承的隔离模式如何演变。我们运用来自下列出处的数据：（1）1998、2008与2013年的市政层级调查中，爱沙尼亚两个主要族裔—语言群体（位居主流的爱沙尼亚人和以说俄语为主的少数族裔）所宣称的居住条件偏好，以及（2）2000与2011年的全国人口普查，让我们得以追溯实际的隔离模式。我们研究偏好与隔离的两个面向——族裔与邻里富裕程度，并将二元普罗比回归（bivariate probit regression）运用至宣称偏好的分析。我们发现主流人口较少数族裔而言，更强烈偏好居住于与自身语言相同的环境之中。回避少数族裔的态度，在苏联解体、爱沙尼亚恢复国家地位之后，即刻变得最为强烈；到了2000年代末期，两个群体对于邻里族裔的偏好，则产生了聚合。但主流群体的成员，却较少数群体更加偏好富裕的环境。尽管两个群体的偏好逐渐聚合，但塔尔图市实际上的隔离程度却增加了。这便表示，即便族裔的偏好逐渐更具包容性，但社会经济的差异仍然驱动着族裔隔离的模式。 *关键词：* 爱沙尼亚，族裔隔离，后苏联城市，居住偏好，社会经济隔离。

En la era post-soviética, las ciudades de Europa central y oriental heredaron un paisaje socioespacial urbano bastante indiferenciado, que contrasta con las ciudades altamente segregadas de Europa occidental y Norteamérica. En la era soviética, la segregación étnica apareció a medida que los migrantes fueron priorizados en la asignación de vivienda pública. Sin embargo, la disolución de la Unión Soviética cambió la posición

© K. Leetmaa, T. Tammaru, and D. Baldwin Hess

This is an Open Access article. Non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly attributed, cited, and is not altered, transformed, or built upon in any way, is permitted. The moral rights of the named authors have been asserted.

económica y política de aquellos migrantes internos. Este estudio explora cómo han evolucionado estos patrones de segregación heredados en la ciudad de Tartu, Estonia. Utilizamos datos de (1) los estudios municipales de 1998, 2008 y 2013 en lo que concierne a las preferencias declaradas en relación con los escenarios residenciales de los dos principales grupos etnolingüísticos de Estonia (la mayoría estoniana y la población minoritaria de habla preferencialmente rusa), y (2) los censos nacionales de 2000 y 2011 que nos permiten identificar cambios en los patrones reales de segregación. Estudiamos dos dimensiones de preferencias y segregación—etnicidad y riqueza del vecindario—y aplicamos regresión bivariable probit para el análisis de las preferencias declaradas. Detectamos una fuerte preferencia en la mayoría de la población, comparada con las minorías, por vivir en entornos en donde su idioma sea el dominante. Las actitudes de evitar las minorías fueron mucho más fuertes inmediatamente después del colapso de la Unión Soviética y de la restauración de Estonia como estado independiente; a finales de la década del 2000 ya convergían las preferencias de los dos grupos hacia la etnicidad barrial. Los miembros de la población mayoritaria, sin embargo, prefieren los entornos de mayor riqueza de lo que prefieren las minorías. A pesar de las preferencias convergentes, los reales niveles de segregación se han incrementado en Tartu. Esto sugiere que las diferencias socioeconómicas jalonan los patrones de segregación étnica incluso cuando las preferencias en relación con etnicidad se hayan hecho más tolerantes. *Palabras clave:* Estonia, segregación étnica, ciudades postsoviéticas, preferencias residenciales, segregación socioeconómica.

The residential segregation of ethnic and racial groups has been one of the most thoroughly studied topics in urban social geography in Western Europe and North America (for reviews, see Peach 1999; Musterd and van Kempen 2009; Lichter 2013). The recent literature offers growing evidence that alongside persistently high levels of residential segregation, neighborhoods are diversifying along the lines of race and ethnicity (Vertovec 2007; Clark and Maas 2009; Logan and Zhang 2010; Holloway, Wright, and Ellis 2012). For example, in the United States there is an increasing number of census tracts where all four main ethnoracial groups (whites, blacks/African Americans, Asians, Hispanics) are represented. At the same time, there is counterevidence, as whites leave mixed neighborhoods and low-diversity black/African American-dominated census tracts persist (Clark 1992; Logan and Zhang 2010; Holloway, Wright, and Ellis 2012; Logan 2013). Immigration helps drive such changes (Vertovec 2007; Hall 2013; Lichter 2013), and although emerging diverse neighborhoods might increase intergroup interaction and relieve formerly extreme segregation, integrated neighborhoods remain quite unstable. All of this suggests that processes that shape the segregation of ethnic and racial groups are becoming increasingly complex (Clark and Maas 2009; Holloway, Wright, and Ellis 2012). The renewed interest in understanding the role of preferences in shaping the ethnic and racial neighborhood diversity and segregation is occurring

not only in the United States (Lewis, Emerson, and Klineberg 2011) but also in Europe (Ibraimovic and Masiero 2014).

This research provides new evidence about underlying forces of ethnic residential segregation in a geographical context considerably different from Western Europe and North America but one where immigration has also had effects. We aim to explore how residential preferences related to neighbors' ethnicity and affluence combine in post-Soviet Estonia, a country with a sizable and mainly Russian-speaking minority population (Russians constitute 80 percent of the Russian speakers today) inherited from a time when Estonia was part of the Union of Soviet Socialist Republics (USSR, also known as the Soviet Union). Almost no new immigration has occurred here since 1991. This study site is compelling because of the initial settlement patterns: Migrants in the former Soviet Union were modestly segregated by socioeconomic status compared to a typical European or North American city (due to a ubiquitous system of central housing allocation; Gentile and Sjöberg 2006, 2013; Hess, Tammaru, and Leetmaa 2012). Although levels of socioeconomic segregation were low in all countries under central planning (Marcinčzak, Musterd, and Stępniać 2012), a specific feature of Soviet cities was remarkable ethnic segregation (Rukavishnikov 1978). Estonia thus provides an interesting laboratory for understanding how inherited segregation evolves when market forces are introduced in a dual ethnic context (two same-race but ethnolinguistically

distinct groups—the Estonian-speaking majority and the mainly Russian-speaking minority). An additional intervening factor is the change in minority–majority societal positions after the disintegration of the USSR. In 1991, when Estonia became an independent nation-state, Russians suddenly lost their formerly privileged status (cf. Kaiser 1995).

Systemic transformation in Estonia since 1991, like elsewhere in the former USSR and other centrally planned countries in Europe, is often conceptualized as a sequence of interrelated changes. Institutional reforms took place first, whereas urban transformation, both in terms of housing fabric dynamics and population redistribution, proceeded slowly (Sýkora and Bouzarovski 2012). For example, the privatization of housing for sitting tenants was completed by the late 1990s, with home ownership rates peaking in Estonia as high as 96 percent in 2000. These sequences permit researchers to study changes in segregation under the conditions of a ubiquitous housing market. The years following 1991 were characterized by building market institutions, severe economic recession, and low mobility (Leetmaa, Tammaru, and Anniste 2009). By the end of the decade, a banking system that offered mortgages was established and personal incomes started to increase, allowing people to improve their living conditions.

Data for this study come from Tartu, the second largest city in Estonia. Tartu (dating from 1030) is a historical university city. Large industrial and military investments in the Soviet years made it an important migrant destination. Most of these newcomers were ethnically Russian. We compare how stated preferences (the attitudes that people outwardly declare) toward neighbors' ethnicity and affluence have changed among the two major ethnolinguistic groups in Tartu and how the inherited ethnic and socioeconomic segregation of the city has changed under newly established market conditions. We use individual-level data from 1998, 2008, and 2013 municipal surveys, and we apply bivariate probit regression methods to analyze these stated preferences. To portray segregation dynamics, we present maps of socioeconomic and ethnic segregation patterns in Tartu based on 2000 and 2011 census data. Taken together, these sources enable us to observe changes in residential preferences and patterns from the late 1990s onward—a period following the first societal and economic shocks after Estonian independence. Before presenting our key findings, we elaborate further on how the socialist regime and postsocialist circumstances have

influenced preferences, residential mobility, and segregation patterns.

Ethnic Segregation in Cities of the Former Soviet Union

Soviet Era Migration

Estonia was part of the USSR between 1944 and 1991. The USSR was a totalitarian and highly centralized constellation of fifteen Soviet Republics governed by the Communist Party and its leaders. Insulated from the rest of the world, migration outside the Soviet Union was forbidden; consequently, all changes in ethnic composition in the constituent republics took place as the result of massive intra-Union migration. Russians were the largest ethnic and migrant group, and their movement shaped the ethnic makeup of other republics (Lewis and Rowland 1977) and fostered Russian as the *lingua franca* across the Union (Pavlenko 2008). At the time of the disintegration of the Soviet Union in 1991, approximately 25 million Russians lived in the fourteen former republics of the USSR outside Russia (Pope and Hagendoorn 2001). Rybakovskiy (1987) distinguishes three periods in the interrepublic migration in the USSR after World War II—migration managed primarily by central authorities (1940s–1950s), migration managed primarily by industrial enterprises (1960s–1970s), and a period dominated by unmanaged migration (1980s), primarily in the form of family migration.

The important centrally managed channels of migration included labor migration, transfers of school graduates to their first workplaces, and migration of military personnel and their families (Rybakovskiy 1987). The most important tools used to match industrial and migration policy (Buckley 1995) pertained to location selection for industrial investments and related central allocation of housing. Therefore, the industrialization and urbanization process in the USSR was intertwined with interrepublic migration (Tammaru 2001).

Since the 1960s, state-organized migration was increasingly driven by the labor needs of industrial enterprises; that is, decentrally managed migration (Rybakovskiy 1987). Industrial enterprises, hampered also by low labor productivity, needed more workers to meet escalating production targets. This produced, first, full employment and, second, a labor shortage

(Kornai 1992). The most strategic industrial establishments—all-Union enterprises—reported directly to central ministries in Moscow (rather than to the Republican authorities) that were the command-and-control centers of the economy (Filatotchev, Buck, and Wright 1993). These enterprises had “soft budget constraints,” using a term known in countries under central planning (Kornai 1992; Sjöberg 1999), suggesting that they were in a privileged position to attract labor and to acquire funds for constructing homes for their workers. These enterprises were the main drivers of in-migration.

The management of migration, however, whether central or decentralized, fails to explain the complexity of migration flows within the former USSR. For example, Zayontshkovskaya and Perevedentsev (1962) found that despite a continuous need for labor in Siberia, this region of Russia witnessed large-scale out-migration to western parts of the Union with better living conditions. The Baltic States were perceived as the “Soviet West,” offering attractive living conditions that drew family migrants from Russia and other Republics of the USSR (Kulu 2003). As industrial enterprises competed for labor, it was increasingly easy to find a job nearby or in another republic. In Estonia and the other Baltic countries, the community of Russian-speakers continuously grew and constituted approximately one third of Estonia’s 1991 population (Sakkeus 1991).

Housing New Migrants

Most republics of the former Soviet Union were modestly industrialized and urbanized before they were incorporated into the USSR (Tammaru 2001). To catch up with market economies, the state mobilized resources for ambitious industrialization during the 1940s and 1950s, followed by equally ambitious housing construction beginning in the late 1950s. Rapid urbanization was thus a direct consequence of industrialization, and the migration of Russians to other republics was critical to the creation of an urban-industrial society. Although the aim in the Soviet Union was to rationalize resource use, the end result was typically a shortage of resources (Kornai 1992); persistent housing shortages occurred during the vast Soviet urbanization project (Bater 1980; Sjöberg 1999). A cornerstone of Soviet socialism was to create a collective and just society, and the massive construction of standardized high-rise housing estates became the most important spatial manifestation of this

ideology (Smith 1996; Kährlik and Tammaru 2010). *Mikrorayon* (or “microdistrict”), self-contained neighborhoods of standardized high-rise apartment blocks built on greenfied sites at the urban edge, became the main unit of planning for urban residences, housing between 5,000 and 15,000 inhabitants (Smith 1996; Kovács and Herfert 2012).

Because of the housing shortages, apartments in new *mikrorayons*, equipped with modern facilities, became admired destinations. Because salaries were low, it was not possible (and in many cases not permitted) to self-finance high-quality housing. In general, the allocation of apartments was need-based, not wealth-based. For example, families with children had better access to newly built housing (Kulu 2003). The need-based housing allocation thus resulted in low levels of socioeconomic segregation in countries under central planning (Marcinićzak, Musterd, and Stępniać 2012; Marcinićzak, Gentile, and Stępniać 2013). Still, inequalities did exist. For example, various enterprises and organizations experienced differential access to centrally allocated housing (Smith 1996). All-Union enterprises enjoying priority status could offer better-than-average housing—larger apartments in areas better equipped with social infrastructure and transport facilities for their workers (Gentile and Tammaru 2006). There was an increasing demand for labor, and providing housing thus became the most important tool for employers for recruiting and retaining employees. As housing became a “good,” having or not having access to housing per se was a source of inequality.

Such inequalities in cities reflected ethnic divisions (Rukavishnikov 1978). The large and strategic all-Union enterprises hired a considerable number of Russians and other Russian-speaking migrants. These enterprises not only had their own housing opportunities but also formed their own quarters within cities. In a study of Ust’-Kamenogorsk, Kazakhstan, Gentile (2006) refers to this as an ethnification process in Soviet cities. In other words, social division is strongly rooted in ethnic segregation in the United States and Western Europe, but social and ethnic segregation were also interrelated in cities of the USSR. In the Soviet case, however, the key mechanism behind this was the economic policy of prioritizing strategic industrial enterprises and central housing allocation; inter-republic migration intersected with those mechanisms. Of course, recruiting a Russian workforce instead of host republic workers had certain ideological underpinnings (cf. Domański 1997). Russian migrant

workers were trained for jobs in high demand in priority sectors across the Soviet Union and were expected to be more trustworthy, and hiring them promoted Russian as the common working language. Another and more immediate reason for prioritizing the Russian workforce in housing allocation relates to the simple fact that interrepublic migrants needed shelter from the very first day on arrival, leaving members of the native population overrepresented in older housing stock, both in central cities as well as in districts on the outskirts with older detached housing.

Little is known, however, about the residential preferences of inhabitants of Soviet cities. A study from the late 1980s in Tartu (the case study city of this article) reveals that stated preferences of the Estonian-speaking host population and Russian-speaking migrants diverged. Estonians claimed to have a preference for single-family homes, whereas Russian speakers almost exclusively preferred living in modern apartment blocks (Kõre et al. 1987). This reaction among the host population is understandably related to rapid growth of the migrant population in cities and the perception that resources and facilities in cities were unequally distributed in favor of Russians. At the same time, Russian-speaking migrants were strongly attached to districts where their own language infrastructure (schools, child care, leisure facilities, etc.) were established (i.e., newly built *mikrorayons*) and their knowledge about other quarters was vague. It is noteworthy that, for security reasons, no detailed maps of Soviet cities were publicly available (Pae 2013), making it difficult for migrants to discover their cities and the various neighborhoods within them. Finally, it is important to note that members of the host population settled in *mikrorayons*, too. They, however, were significantly underrepresented there compared to the citywide average.

Social and Urban Transformations After the Soviet Union

The final Soviet leader, Mikhail Gorbachev, assumed power in 1985 and initiated a reform package for the stagnating Soviet society. These initiatives, however, triggered vast changes across the centrally planned countries of Europe that eventually led to the dissolution of the USSR in 1991. The path and depth of transformation varied significantly across space,

however, with the Baltic countries and the Czech Republic, Slovakia, Hungary, Poland, and Slovenia leading the change. These countries became members of the European Union in 2004 during its first wave of eastward expansion. In addition to the seismic socioeconomic shifts experienced in these countries, a large Russian-speaking population affected transformation processes in the Baltics (especially in Estonia and Latvia; Laitin 1998).

The most important new rules that affected the position of ethnic minorities pertain to two particular laws adopted after Estonia regained independence in 1991. The Language Law made Estonian the official language of the country and the 1938 Citizenship Law was reenacted in 1992 and defined citizenship based on an *ius sanguinis* principle. This law is similar in other European countries, but the context in which it applies is specific. Only people living in Estonia in 1992 who (or whose parent) possessed Estonian citizenship before the Soviet annexation in 1940 had a legal claim to automatic citizenship. Most Soviet-era migrants and their descendants did not acquire Estonian citizenship, and this excluded them from various spheres of society (Aasland and Fløtten 2001). Although Russians were overrepresented in the public sector during the Soviet period, many were either directly (lacking Estonian citizenship) or indirectly (lacking proficiency in Estonian) excluded from certain employment opportunities. The percentage of minorities working in public administration dropped from 60 percent in 1989 to 16 percent in 2000 (Tammaru and Kulu 2003). Similar changes occurred elsewhere in the former Soviet Union (Kaiser 1995). The ethnic “power relations” were replayed when the occupation ended and the nation state was re-created, with Russian speakers losing and ethnic Estonians improving their former social statuses. In the post-Soviet era, the state has directed significant resources toward improving the language skills of minorities, and the proportion of the minority population acquiring Estonian citizenship via the naturalization process has steadily increased.

The dissolution of the Soviet Union also affected commerce and industry that had a strong ethnic dimension (Saar and Unt 2006). The large and once mighty all-Union manufacturing enterprises lost their sources of raw materials and markets. Industrial employment, for example, decreased 36 percent among ethnic minorities but only 19 percent among Estonians in the first half of the 1990s (Pavelson 1997). As a consequence, Soviet-era full employment

was replaced by sweeping unemployment, especially among minorities. The labor-market “winners” in many transitioning countries tended to be mid-career professionals with established networks from the socialist period as well as young adults with contemporary education suitable for jobs in growing sectors (Brainerd 1998). In Estonia, ethnic Estonians were the clear “winners” (Titma, Tuma, and Silver 1998; Leping and Toomet 2008; Lindemann and Kogan 2013). Because of the jobs they held, ethnic Russians lost out economically but they also suffered from disrupted social networks resulting from the breakup of the Soviet Union (Vihalemm and Kalmus 2009). Even today, the moderate inter-ethnic contacts and ethnically based social networks (Korts 2009) form barriers to information and referrals about job vacancies, a longtime phenomenon in the functioning of labor markets in the United States and Western Europe (Dustmann, Glitz, and Schönberg 2011). After recovering from the shock-shift in the economy in the first transition decade, the economies of the Central and Eastern European countries have increasingly converged with global fluctuations. The Estonian economy, however, has experienced extraordinary growth since the late 1990s. Even some ethnic Russians have prospered, as Russian-language skills now offer an advantage in service sectors oriented to the bilingual community. The 2008 global financial crisis and the increasing freedom to relocate within an enlarged Europe has, however, slowed the development of the economy and intensified out-migration from Estonia, and Russian speakers leave the country even more readily than others (Anniste and Tammaru 2014).

Changes in social and ethnic stratification have also affected ethnic differences in housing and residential segregation. In the Baltic states, almost all housing units were privatized in the 1990s. State governments that once largely controlled (and subsidized) the housing supply wanted to get rid of this costly responsibility. Again, this reform had an ethnic dimension but in a nuanced way that did not clearly favor one ethnic group. Members of the minority population had had better access to housing with modern facilities in larger cities in the Soviet period (Hess, Tammaru, and Leetmaa 2012), and they consequently gained more from the privatization process that provided former state-owned housing free of charge to sitting tenants. Housing construction during the first post-Soviet decade was modest (Leetmaa, Tammaru, and Anniste

2009). Contrary to predictions (in the early 1990s) of ghettoization of large housing estates (Szelényi 1996), the social decline of Soviet-era apartments has been slow (Kährrik and Tammaru 2010).¹

This started to change with the mid-2000s housing boom that paralleled unprecedented economic growth. The perception of “better” housing gradually changed, first, because former housing subsidies were withdrawn. Second, as the housing market started to function, people increasingly realized the negative qualities of large housing estates, such as high residential density, meager dwelling space, and standardized buildings (Temelová et al. 2011; Kovács and Herfert 2012), compared to older apartments in central gentrifying districts or suburban housing. Estonia was no exception in this regard (Leetmaa, Tammaru, and Anniste 2009; Kährrik and Tammaru 2010). Even when the global financial crisis and its prolonged aftermath slowed residential mobility, the shift toward historical inner-city and suburban districts continued (Temelová, Kadarik, and Kährrik 2013).

Studies of changes in ethnic differences in housing and segregation in post-Soviet space show that the residential mobility of ethnic Estonians has been higher compared to minorities since 1991 (Tammaru et al. 2013), and this tendency persists throughout the postsocialist period. They also indicate that migration patterns differ markedly between ethnic groups. For example, Estonians are more likely than minorities to move out of high-rise tower blocks (Kährrik and Tammaru 2010) and to settle in new suburban areas (Leetmaa and Tammaru 2007). Interestingly, Russians have some “favorite” districts in suburbs, namely, the Soviet-era summer home areas (*dacha* areas; Leetmaa et al. 2012), suggesting that connections and knowledge about places also structure preferences. In addition, the main differences in housing conditions have not changed considerably; Estonians still enjoy more living space but with less access to modern facilities compared to ethnic minorities (Hess, Tammaru, and Leetmaa 2012). These pieces of evidence suggest that the better performance of Estonians in the labor market and their moves toward the most valued (according to contemporary perceptions) housing has replaced Soviet-era housing allocation (channeling Russians into better housing according to the perceptions of that time) as the main segregation-generating mechanism. Still, inherited segregation patterns are the starting point on which new and emerging processes are layered.

Analytical Framework

We have presented the principles of residential choice formation during the Soviet era among Estonians and Russian-speaking immigrants and detailed how economic transformation and change in minority–majority positions have affected the two ethnolinguistic groups. There is, however, a gap in direct empirical evidence about how residential preferences have changed in the post-Soviet period and how such changes have impacted inherited segregation. We therefore specify two main research questions:

1. How have residential preferences of the majority and minority populations evolved in a post-Soviet city under newly established market conditions?
2. Have changes occurred to segregation patterns inherited from the Soviet period? If so, what is the nature of the changes?

We develop an analytical framework for our empirical study that encompasses characteristics gleaned from the vast segregation literature in the U.S. and Western European contexts, coupled with context-specific features of post-Soviet cities.

First we investigate “stated” preferences by analyzing people’s explicit statements about where they would like to live. During the Soviet period, people had difficulties in translating preferences into actual mobility because structural circumstances channeled them into subsidized housing. Today, the main gap between preferences and actual mobility is strongly mediated by household income, because more than 90 percent of housing is privately owned. We know that during the 1990s social transformations and related economic recession, people were relatively immobile in Estonia (Marksoo 1999). Average personal incomes have gradually increased since then. We therefore expect that stated preferences more and more match real residential choices.

Second, we study two important dimensions of segregation—ethnicity and socioeconomic status of people living nearby. Although preferences are usually related to various interconnected qualities of a potential destination, we expect neighbors’ ethnicity and neighbors’ socioeconomic status to be prime characteristics that shape segregation in a market economy (Bolt and van Kempen 2010). These aspects presumably also illustrate key changes in preferences in post-Soviet market contexts. The status change of minority

and majority groups during the transition period might influence how social distance between ethnic groups is perceived. Socioeconomic status is an essential feature shaping segregation (Holloway, Wright, and Ellis 2012), and it is measured as income, occupational status, or other characteristics that indirectly reflect the economic resources at the disposal of a household that enable or restrict preferred residential choices. We also expect that ethnic and socioeconomic dimensions are interrelated, because people naturally envision existing residential environments in their cities when they make a decision to move (Timmermans, Molin, and van Noortwijk 1994). We therefore presume that joint preferences (combinations of ethnic and affluence considerations) might help to explain changes in preferences and segregation.

Third, because different ethnic groups typically demonstrate divergent preferences and choice principles in ethnically diverse and segregated cities (Clark 1991; Ibraimovic and Masiero 2014), we also consider the behavior of majority and minority populations separately. Finally, we include a temporal dimension in our research to explore changes in ethnic and socioeconomic preferences between both ethnolinguistic groups.

Data and Methods

Our data come from the city of Tartu, Estonia. Tartu is a medium-sized post-Soviet city. In a continuum of cities in former Soviet Republics—spanning from completely new towns with an exclusively Russian-speaking population on the one end to historical cities with spatial layers from many preceding periods on the other—Tartu clearly belongs in the latter group. The city experienced rapid growth during the Soviet period when industrial enterprises and a military air base were established (Kulu 2003). The population (113,000) and the percentage of Russian-speaking migrants (27 percent) peaked in 1989. In the early 1990s, many Russian speakers returned to Russia, including military forces, and the population declined to 101,000; the percentage of Russian-speaking minorities decreased to 21 percent in 2000. Immigration since then, to the country and to Tartu, has been negligible. Compared to other post-Soviet cities with a higher share of Russian speakers, Tartu is even more compelling because its minority population is relatively well integrated into the host society. For example, 2011 census data suggest that two thirds of

Russian-speaking minorities in Tartu (compared to half in Tallinn) are able to speak Estonian in everyday situations.

Tartu consists of diverse residential environments. Half of the housing stock was destroyed in World War II, and the state subsequently launched housing construction programs beginning in the 1960s. About two thirds of the residents of Tartu live in apartment blocks built in the Soviet years, both in compact housing estates (e.g., the district of Annelinn in the north-east of the city) as well as in panel housing dispersed throughout the city. The pre-World War II residential districts (single-family homes and smaller apartment houses) received almost no public investments during the Soviet period, but now these areas have increasingly become prestigious destinations for intraurban movers (Kährik, Temelová, and Kadarik 2012; Hess and Hiob 2014).

Our data come from two sources. Rich individual-level data about stated preferences originate from a regular cross-sectional municipal sample survey, "Tartu and Its Residents," conducted by the Tartu City Government. We use data from three study years—1998, 2008, and 2013. Segregation data come from the two most recent Estonian censuses in 2000 and 2011. These sources enable us to estimate changes in residential preferences and segregation from the late 1990s onward. Due to low mobility rates in the 1990s in Estonia (Marksoo 1999), circumstances in 2000 still mostly reflected inherited segregation. Stated preferences since the late 1990s, however, serve as an indicator for anticipating forthcoming changes, and segregation patterns in 2011 allow a first look into the actual segregation changes that have occurred.

The sample survey consists of identical questions in each year concerning residential preferences and personal characteristics that could influence preferences. Residents aged sixteen and over were surveyed, with sample sizes of 1,489 in 1998, 1,632 in 2008, and 1,485 in 2013. In 1998, the population register was used as a sample frame, whereas in 2008 and 2013 the address database was used for sampling. In all years, samples were geographically stratified by official planning districts. The initial response rates were 47, 50, and 42 percent, respectively. All missing respondents (administrative mistakes in register, people not at home, refusals) were replaced by new respondents near the original address (following the sex and age composition of district population).

We use two dependent variables that originate from survey responses to the following two questions:

Which residential environment would you choose if you could freely change your place of residence: (a) according to the ethnicity of neighbors and (b) according to the affluence of neighbors (Table 1)? In the first question, almost all respondents fell into two response categories in each year: People chose either "I prefer to live with coethnics" or "The ethnicity of neighbors is not important." It was also possible to choose the answers "Other ethnic group" or "Different ethnic groups," but as these options were seldom selected (2 to 3 percent in each year), we excluded them from the analysis. In the second question, the available responses were "I prefer to live with people without financial problems," "The financial situation of the neighbors is not important," and "With less demanding neighbors." The latter answer was rarely selected—11, 7, and 4 percent in 1998, 2008, and 2013, respectively—reflecting conditions in the early transition decade when purchasing power remained limited. We elected to merge the last two categories to represent the people for whom it was "not important to live in an affluent residential environment." We created binary variables, coding those who want to live with coethnics or affluent neighbors with 1 and those for whom these aspects were not important with 0 (this was treated as the reference group).

Descriptive analysis (Table 1) suggests that the preferences of the Estonian-speaking majority population and Russian-speaking ethnic minorities diverge. A majority of Estonians preferred to live with coethnics in 1998; by 2008, this share had fallen to 40 percent and it stayed at the same level thereafter. Meanwhile, minorities rarely preferred to live with their own ethnic group in 1998, and this remained constant throughout the observed period. A desire to live with more affluent people is more common among Estonians (one third of the majority population so wishes) than for minorities, with no considerable change over time.

We designate a set of control variables to estimate how various population groups have formed preferences. Table 1 presents descriptive statistics (unweighted percentages). The key explanatory variable of interest is an individual's ethnic belonging (Estonians are coded as 1 and Russian-speaking minorities are coded as 0). In Estonia, people define their "ethnic belonging" according to their own perception, which is strongly related to mother tongue (mainly Estonian and Russian) and unrelated to citizenship. A suite of common variables reflecting respondents' demographic and socioeconomic background is also

Table 1. Variables in bivariate probit models (unweighted percentages)

	1998			2008			2013		
	Estonian (%)	Minority (%)	All (%)	Estonian (%)	Minority (%)	All (%)	Estonian (%)	Minority (%)	All (%)
Number of cases (<i>N</i>)	1,198	291	1,489	1,404	228	1,632	1,279	206	1,485
Dependent variable 1: Ethnic preferences									
Prefer to live with coethnics	58.4	8.2	51.4	39.7	7.5	35.2	38.9	8.7	34.4
Ethnicity not important (ref.)	41.6	91.8	48.6	60.3	92.5	64.8	61.1	91.3	65.6
Dependent variable 2: Affluence preferences									
Prefer to live with more affluent people	33.0	25.8	31.6	34.5	24.1	33.1	33.3	23.3	31.9
Not important to live in affluent environment (ref.)	67.0	74.2	68.4	65.5	75.9	66.9	66.7	76.7	68.1
Independent variables									
Ethnicity									
Estonian			80.5			86.0			86.1
Russian-speaking minority (ref.)			19.5			14.0			13.9
Age									
16–29	24.9	20.6	24.0	28.1	19.7	27.0	24.6	16.5	23.4
30–49 (ref.)	32.3	39.5	33.8	36.3	37.3	36.5	35.3	32.5	35.0
50–64	25.5	26.8	25.7	19.2	29.4	20.5	19.3	30.1	20.8
65+	17.3	13.1	16.5	16.4	13.6	16.0	20.8	20.9	20.8
Marital status									
Married or cohabitating	55.8	64.9	57.6	55.8	59.2	56.2	56.9	61.2	57.6
Single (ref.)	44.2	35.1	42.4	44.2	40.8	43.8	43.1	38.8	42.4
Educational level									
Primary	23.9	27.2	24.5	14.8	16.3	15.0	14.2	18.4	14.6
Secondary (ref.)	52.4	53.8	52.7	49.7	60.4	51.2	49.3	62.4	51.3
University	23.7	19.0	22.8	35.5	23.3	33.8	36.5	19.2	34.1
Income									
Low income	34.2	38.1	34.9	38.5	50.0	40.1	37.1	40.8	37.5
Average income (ref.)	45.7	53.3	47.2	41.6	40.8	41.5	41.4	40.3	41.2
High income	20.1	8.6	17.9	19.9	9.2	18.4	21.5	18.9	21.3
Current neighborhood									
Large housing estate	13.4	48.1	20.1	15.6	46.9	20.0	19.8	53.4	24.7
Other neighborhood (ref.)	86.6	51.9	79.9	84.4	53.1	80.0	80.2	46.6	75.3

included in the models. These characteristics include age, sex, and marital status (as demographic controls) as well as educational level and three income groups (as socioeconomic controls). Income was collected differently in three study years (precise sum per household member was collected in 1998 but aggregated income intervals in 2008 and 2013); we have created low-, middle-, and high-income groups with comparable sizes in each year based on the reported data.

Residential choices reflect a mix of life experiences (Feijten, Hooimeijer, and Mulder 2008), including aspirations for residential integration or separation (Lewis, Emerson, and Klineberg 2011). Having lived in an integrated neighborhood might lessen social distance and readiness for segregation. We therefore

include current place of residence as an additional explanatory variable. We define two types of neighborhoods—large housing estate districts (Soviet-planned *mikrorayons*) with a relatively high share of minorities (coded as 1) and other types of urban neighborhoods (coded as 0). Sixty-two percent of Russians and 27 percent of Estonians in Tartu live in the largest housing estate district (Annelinn), where the share of Russian speakers is the highest in the city and where Russian-language child care and schools were established during the Soviet period. In post-Soviet cities, these minority-dense districts are mixed ethnic areas, whereas the rest of the city is overwhelmingly Estonian. Finally, we study temporal changes in preferences by introducing survey year dummy variables into the model.

We initially considered estimating two separate probit models to show the relationship between the outcome variables (ethnic and affluence preferences) and covariates. The two dependent variables are related to each other, which implies that the preferences with regard to neighbor ethnicity and wealth form simultaneously. To address the interrelated dependent variables, we estimated a bivariate probit regression model. Bivariate probit is applicable when it is expected that error terms in two binary regression equations are correlated, and it permits modeling a simultaneous relationship of two response variables (cf. Albert and García-Serrano 2010; Sari 2012).

In our research context, we confirm—using statistical tests on the descriptive data—that ethnic and wealth preferences with regard to neighbors are interrelated (with a Pearson correlation coefficient of 0.24 when we merge data for all study years). Both dependent variables, however, have a significant variation not explained by the other as well. When people express their attitudes, they often imagine many qualities of a possible destination neighborhood that they envision (McCrea 2009). As mentioned earlier, people combine different dimensions in their “joint” preferences—for example, ethnic, religious, lifestyle, age, and socioeconomic composition of the neighborhood, but also housing and tenure type or surrounding milieu. Understandably, people’s images of neighborhoods existing in real life influence preference formation. Not all dimensions of choice are measurable with straightforward survey questions. Neighbor ethnicity and affluence are easier to identify (this is accomplished in this survey) and they also are the most influential choice factors according to segregation literature. We apply a standard bivariate probit modeling strategy (i.e., we do not instrument; cf. Corrado, Corrado, and Santoro 2013), and we hold constant the set of covariates for analyzing both types of preferences; this allows us to observe how different population subgroups combine two observed aspects of their preferences. As we do not have suitable instruments in our data, these results might not be possible to interpret causally.

We first estimate models for each survey year separately to understand how the relationship between the preferences and ethnicity, demographic and socioeconomic characteristics, and residential environment has changed over time. In addition to model estimates, we calculate marginal effects for sample average explanatory variables, permitting a measurement of change in joint preferences probability for four distinct

combinations of the two types of observed neighbor preferences. We define these joint preferences as follows—coethnic-affluence aspirants (a respondent simultaneously prefers coethnic and affluent neighbors, coded as 1/1), coethnic aspirant (prefers coethnics but it is not important that the neighbors were affluent, coded as 1/0), affluence-aspirant (neighbors’ ethnicity is not important but prefers affluent neighbors, coded as 0/1), and coethnic-affluence neutral (a respondent is indifferent toward both aspects of preferences, coded as 0/0). We proceed by pooling the data sets for all study years, and we construct analogous models to observe how preferences have changed over the years.

For separate and pooled models we first use simple likelihood ratio (LR) tests to estimate whether a bivariate probit model fits the data better than two separate probits for dimensions of ethnicity and wealth (i.e., the test compares the joint log-likelihood of the separate models to that for the bivariate probit model). The LR test of Rho in each model in our study suggests that the correlation in the error terms (across the two outcome variables) was significantly different from zero, providing support for the chosen modeling strategy. And second, for each model we present the value of log-pseudolikelihood and Wald tests statistics with *p* values, confirming significant improvement over the baseline model that only includes a constant.

We study the change in the patterns of ethnic and socioeconomic segregation based on 2000 and 2011 census data. First, we calculate a dissimilarity index (Duncan and Duncan 1955) for both years between Estonians and Russian speakers on the one hand and between people with higher socioeconomic status and the rest of the population on the other. To compare the results with the analysis of stated preferences, we use occupational status—managers and other professional occupations—as a proxy for income because the latter was not included in census questionnaires. Previous studies suggest that these groups tend to segregate themselves most from other people (cf. Morgan 1975; Reardon and Bischoff 2011; Marcińczak, Musterd, and Stępniaak 2012), and our analysis of data from the Estonian Labor Force survey also reveals that these occupational groups earn, on average, significantly more than other workers.

As a final step, and to observe changes in segregation patterns, we map the location quotient values for Russian speakers and for people with higher socioeconomic status in the neighborhoods of Tartu with an

average population size of 2,566 inhabitants.² We illustrate changes in the ethnic geography in Tartu by presenting maps with location quotients, allowing us to take into account the change in the group proportion over time; although the proportion of minorities has not changed considerably between 2000 and 2011, occupations have changed as a result of rapid professionalization of the workforce.

Results: Preferences Toward Neighbor Ethnicity and Wealth

Modeling Results for Stated Preferences

We estimate three identical bivariate probit models for each study year (1998, 2008, 2013; Tables 2–4). Results suggest that Estonians—in all study years—have a greater preference for living with other Estonians than Russian speakers have for living with other Russian speakers. Estonians are also more likely in each year than minorities to prefer living with affluent neighbors.

When calculating marginal effects of ethnicity on joint preferences probability, we find that Estonians possess higher joint probability of preferring both coethnic and affluent neighbors by about 19 percent (compared to Russian speakers) in 1998 but slightly

less in 2008 (15 percent) and 2013 (14 percent). In other words, Estonians are more likely than Russian speakers to belong to the coethnic-affluence aspirant group. A combination of preferences, in which coethnic neighbors are important but wealthy neighbors are not—coethnic-aspirants—is also more common among Estonians but with a declining trend. In 1998, Estonians had a 30 percent higher probability of being coethnic-aspirants, but this indicator fell to 17 in 2008 and to 16 in 2013. Russian speakers, in contrast, are more likely (by 12 percent more than Estonians) affluence-aspirants in all years, especially in 1998.³ Finally, the situation where none of the observed aspects of preferences is considered important is also less characteristic among Estonians and again with a declining trend (in marginal probabilities 37, 26, and 23 percent in the respective study years).

A preference for living with affluent neighbors decreases with age and thereby the oldest age group (age sixty-five years or more) is less likely to prefer affluent neighbors. University-educated people are the most likely to emphasize affluence in their preferences. In 1998 and 2008, a higher income exerted a positive influence on the probability that people prefer more affluent neighbors; interestingly, however, income differences disappeared by 2013. Living in a large housing estate (a place with a high share of minorities) related to stronger preferences toward affluent neighbors only

Table 2. Model estimates and average marginal effects: 1998

	Model estimates						Average marginal effects							
	With coethnics			With affluent			Coethnic-affluence aspirant	Coethnic aspirant		Affluence aspirant		Coethnic-affluence neutral		
	Coeff.	SE	p	Coeff.	SE	p		p	p	p	p			
Estonian (ref. Russian speakers)	1.54	0.12	0.00	0.19	0.10	0.05	0.19	0.00	0.30	0.00	-0.12	0.00	-0.37	0.00
Men (ref. women)	-0.04	0.07	0.56	0.02	0.07	0.82	-0.00	0.91	-0.01	0.49	0.01	0.55	0.01	0.72
16–29	-0.10	0.10	0.31	0.05	0.10	0.63	-0.00	0.87	-0.04	0.21	0.02	0.28	0.02	0.56
50–64	-0.07	0.09	0.45	-0.15	0.09	0.11	-0.04	0.09	0.01	0.80	-0.02	0.34	0.04	0.18
65+ (ref. 30–49)	-0.17	0.11	0.13	-0.42	0.12	0.00	-0.09	0.00	0.02	0.51	-0.05	0.01	0.11	0.01
Married (ref. single)	-0.06	0.08	0.45	-0.22	0.08	0.00	-0.05	0.01	0.03	0.26	-0.03	0.04	0.05	0.05
University	0.14	0.09	0.12	0.35	0.09	0.00	0.09	0.00	-0.03	0.26	0.04	0.04	-0.10	0.00
Primary (ref. secondary)	-0.28	0.09	0.00	-0.27	0.09	0.00	-0.08	0.00	-0.03	0.23	-0.01	0.44	0.12	0.00
Low income	-0.13	0.08	0.11	-0.24	0.08	0.00	-0.06	0.00	0.01	0.80	-0.02	0.12	0.08	0.01
High income (ref. average income)	0.15	0.10	0.13	0.31	0.10	0.00	0.08	0.00	-0.02	0.46	0.03	0.10	-0.09	0.00
Large housing estate (ref. other neighborhoods)	-0.17	0.10	0.08	0.17	0.10	0.07	0.01	0.71	-0.08	0.00	0.05	0.01	0.02	0.64
Constant	-1.13	0.15	0.00	-0.48	0.13	0.00								

Note: $N = 1,489$. Wald test of $\rho = 0$: $\chi^2(1) = 62.3, p < 0.00005$. Log-pseudolikelihood = $-1,704.1$, Wald $\chi^2(22) = 341.2, p < 0.00005$.

Table 3. Model estimates and average marginal effects: 2008

	Model estimates						Average marginal effects							
	With coethnics			With affluent			Coethnic-affluence aspirant				Coethnic-affluence neutral			
	Coeff.	Robust SE	<i>p</i>	Coeff.	Robust SE	<i>p</i>	Coeff.	SE	<i>p</i>	Coeff.	SE	<i>p</i>	Coeff.	SE
Estonian (ref. Russian speakers)	1.15	0.13	0.00	0.25	0.10	0.02	0.15	0.00	0.17	0.00	-0.06	0.04	-0.26	0.00
Men (ref. women)	0.04	0.07	0.57	0.13	0.07	0.06	0.02	0.13	-0.01	0.57	0.02	0.15	-0.04	0.12
16–29	0.04	0.09	0.64	0.11	0.08	0.20	0.02	0.27	-0.01	0.76	0.02	0.36	-0.03	0.26
50–64	-0.02	0.09	0.84	-0.10	0.09	0.26	-0.02	0.39	0.01	0.65	-0.02	0.32	0.03	0.42
65+ (ref. 30–49)	-0.12	0.10	0.27	-0.48	0.11	0.00	-0.08	0.00	0.03	0.20	-0.08	0.00	0.12	0.00
Married (ref. single)	0.15	0.07	0.03	-0.05	0.07	0.45	0.01	0.39	0.04	0.01	-0.03	0.05	-0.02	0.37
University	0.06	0.07	0.42	0.29	0.07	0.00	0.05	0.00	-0.03	0.11	0.06	0.00	-0.08	0.00
Primary (ref. secondary)	-0.14	0.10	0.17	-0.31	0.10	0.00	-0.06	0.00	0.01	0.72	-0.05	0.02	0.10	0.01
Low income	0.02	0.08	0.81	-0.20	0.08	0.79	0.00	0.98	0.01	0.70	-0.01	0.70	0.00	0.99
High income (ref. average income)	0.07	0.09	0.44	0.14	0.09	0.10	0.03	0.16	0.00	0.84	0.02	0.33	-0.05	0.15
Large housing estate (ref. other neighborhoods)	-0.07	0.09	0.41	0.06	0.09	0.46	0.00	0.95	0.02	0.22	0.02	0.25	0.00	0.96
Constant	-1.51	0.15	0.00	-0.71	0.13	0.00								

Note: *N* = 1,632. Wald test of rho = 0: $\chi^2(1) = 79.3, p < 0.00005$. Log-pseudolikelihood = -1,944.4, Wald $\chi^2(22) = 181.2, p < 0.00005$.

Table 4. Model estimates and average marginal effects: 2013

	Model estimates						Average marginal effects							
	With coethnics			With affluent			Coethnic-affluence aspirant				Coethnic-affluence neutral			
	Coeff.	Robust SE	<i>p</i>	Coeff.	Robust SE	<i>p</i>	Coeff.	SE	<i>p</i>	Coeff.	SE	<i>p</i>	Coeff.	SE
Estonian (ref. Russian speakers)	1.04	0.13	0.00	0.21	0.11	0.05	0.14	0.00	0.16	0.00	-0.06	0.03	-0.23	0.00
Men (ref. women)	0.06	0.07	0.43	0.02	0.07	0.73	0.01	0.48	0.01	0.57	0.00	0.88	-0.02	0.47
16–29	0.05	0.09	0.62	-0.02	0.09	0.83	0.00	0.87	0.01	0.55	-0.01	0.61	-0.01	0.84
50–64	0.08	0.10	0.42	-0.03	0.09	0.71	0.01	0.80	0.02	0.33	-0.02	0.39	-0.01	0.74
65+ (ref. 30–49)	0.09	0.10	0.37	-0.36	0.10	0.00	-0.04	0.04	0.07	0.01	-0.08	0.00	0.05	0.18
Married (ref. single)	0.08	0.07	0.25	0.07	0.07	0.34	0.02	0.18	0.01	0.58	0.00	0.82	-0.03	0.18
University	0.03	0.08	0.66	0.33	0.08	0.00	0.05	0.00	-0.04	0.03	0.07	0.00	-0.08	0.00
Primary (ref. secondary)	-0.14	0.11	0.19	-0.08	0.11	0.49	-0.03	0.20	-0.02	0.36	0.00	0.94	0.05	0.21
Low income	0.04	0.08	0.60	-0.08	0.08	0.31	-0.01	0.73	0.02	0.27	-0.02	0.19	0.01	0.79
High income (ref. average income)	0.05	0.09	0.56	-0.04	0.09	0.66	0.00	0.95	0.02	0.41	-0.02	0.42	0.00	0.89
Large housing estate (ref. other neighborhoods)	-0.08	0.08	0.33	-0.07	0.08	0.38	-0.02	0.23	-0.01	0.66	0.00	0.80	0.03	0.24
Constant	-1.45	0.16	0.00	-0.68	0.14	0.00								

Note: *N* = 1,485. Wald test of rho = 0: $\chi^2(1) = 86.5, p < 0.00005$. Log-pseudolikelihood = -1,769.0, Wald $\chi^2(22) = 124.0, p < 0.00005$.

in 1998 and also lowered the coethnic preference in that year. According to marginal probabilities, the main tendency is that younger age and higher socioeconomic status relate to neighbor affluence-related

preferences rather than neighbor ethnicity-related preferences. Only in 2013 did people with higher education display a lower tendency for being a coethnic-aspirant. There is further evidence of a weakening

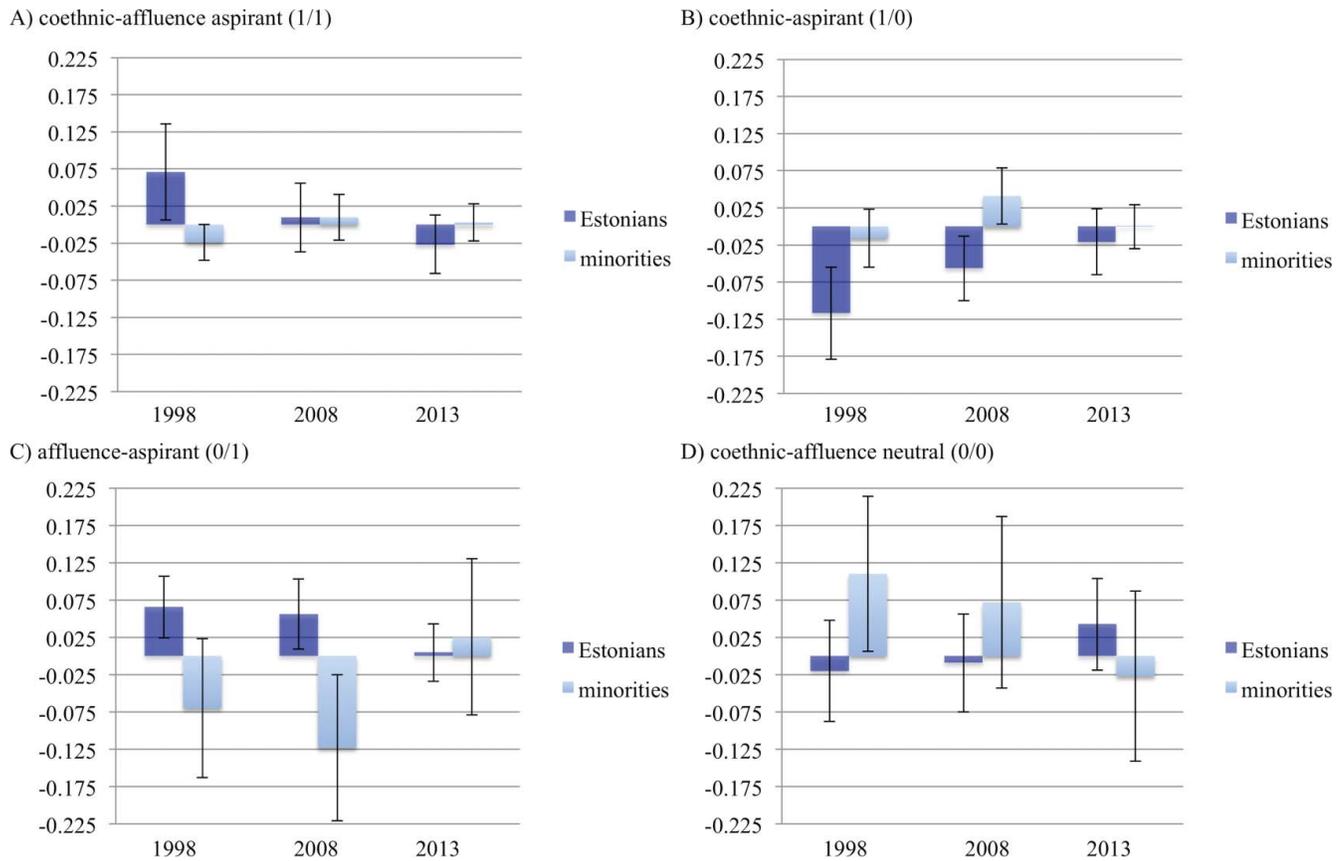


Figure 1. Effect of living in a large housing estate on stated preferences to live with coethnic and/or affluent neighbors by ethnic groups, average marginal effects with 95 percent confidence intervals (reference—living elsewhere). *Note:* Interaction of ethnicity and current neighborhood added to the models in Tables 2, 3, and 4. Models with interaction: (1998) log-pseudolikelihood = -1,698.8, Wald $\chi^2(24)$ = 341.0, $p < 0.00005$; (2008) log-pseudolikelihood = -1,938.4, Wald $\chi^2(24)$ = 188.4, $p < 0.00005$; (2013) log-pseudolikelihood = -1,768.8, Wald $\chi^2(24)$ = 125.3, $p < 0.00005$. (Color figure available online.)

relationship between other socioeconomic characteristics and residential preference types. The same is true for current residential context: Living in a large housing estate related to preferences only in 1998 (by increasing the probability to prefer solely affluent neighbors and decreasing the affinity for living with coethnics) and not in more recent surveys.

Next, we added interaction terms for ethnicity with demographic and socioeconomic indicators and with current residential context. The results for demographic and socioeconomic covariates do not differ between ethnic groups (not shown). In other words, the results obtained so far for observed population groups apply equally for Estonians and members of the Russian-speaking minority. The interaction of ethnicity with current residential neighborhood type, however, is compelling. Figure 1 presents the relationship between living in a minority-dense housing estate (as opposed to living in another type of district) with

the preference types of Estonians and minorities in different survey years. Findings suggest that, compared to Estonians living elsewhere, Estonians living in large housing estates are more likely to be coethnic-affluence aspirants and affluence-aspirants and less likely to strongly prefer a coethnic environment. Estonians who have recent experience living with ethnic minorities are consequently more tolerant about living with them, but Estonians' affluence preferences were still strong in this residential environment. Interestingly, these differences determined by current neighborhood weakened over the survey years.

For the Russian-speaking population, the results are opposite. Due to the smaller sample size, most effects are not statistically significant. The joint probability for a coethnic-affluence aspiration was smaller among those living in large housing estates in 1998; after ten years this effect disappeared. In the earlier study years, especially in 2008 (at the peak of the economic boom)

Russian speakers living in housing estates (rather than those living elsewhere) less likely belonged to the affluence-aspirants group. Interestingly, in 2008, minorities in housing estates more likely belonged to the Russians' coethnic-aspirants group, but by 2013, this effect no longer occurred. The probability of belonging to the group neutral toward both observed dimensions was also higher (until 2008) among Russian speakers who live in housing estates. The interactions of ethnicity and recent residential context demonstrate that living in a minority-dense urban environment influences the preferences of Estonians and minorities differently. The residential context of large housing estates provides a potential contact-creating environment for Estonians and it continues to offer ethnic infrastructure and minority culture context for Russian speakers. During the postsocialist period the preferences of two ethnolinguistic groups converged, however.

We next estimate similar models for the merged data for all survey years (Table 5) to explore changes in preferences between 1998 and 2013 (2008 is the reference year). A remarkable result is that the propensity for expressing a coethnic preference seems to lose its importance in the 2000s. In 1998, a preference for coethnics was strongest among the entire population (Estonians and minorities together), and after 2008 it did not change significantly. Preferences related to neighbors' affluence are expressed evenly for the entire population in each study year.

Marginal effects of ethnicity suggest that the joint probability in merged data for coethnic-affluence preference is 16 percent higher among Estonians than Russian speakers. Estonians' probability for belonging to the coethnic-aspirants' group is 21 percent higher than the same probability among minorities. The host population, compared to the minority population, expresses lesser affluence-oriented attitudes, and Russian speakers are likely more coethnic-affluence neutral in their preferences. We see, however, that people were clearly less indifferent in 1998 (using 2008 as the reference).

Temporal dynamics are well illustrated by the interaction of ethnicity with the survey year. Figure 2 suggests the extent to which joint probabilities for different combinations of preferences differ in 1998 and 2013 (compared to the 2008 base year) among the majority and minority population. The marginal effects are statistically significant for Estonians but not for the minority population. Choosing the combination of both coethnic and affluence preferences was

remarkable among Estonians in 1998; the same can be said for the coethnic-aspiration preference. These joint preferences, however, weakened considerably by 2008 and remained stable thereafter. At the same time, the likelihood of belonging to the affluence-oriented group, and especially the probability of being neutral toward both dimensions of preferences, increased between 1998 and 2008 among Estonians. In the Russian speakers group, statistically significant changes over the years were not apparent.

During the study period, the preferences of the two ethnic groups began to converge, mostly due to the changing preferences of Estonians. Although the convergence process that potentially leads toward less segregated residential space is a positive sign, descriptive statistics provide evidence of persistent segregationist preferences in Tartu. The actual mobility patterns are, however, influenced both by preferences and by the constraints that structure the opportunities in different temporal and spatial contexts. Our literature review suggested that two ethnolinguistic groups in Estonia have different opportunity structures. To understand the way the opportunity structure interacts with preferences, and to what extent stated preferences manifest into actual residential mobility, we turn next to an exploration of changes in segregation levels and patterns.

Changes in Patterns of Ethnic and Socioeconomic Segregation

We start our analysis by exploring citywide segregation levels. In 2000, the dissimilarity index for Russian speakers compared to the rest of the population was 31 and by 2011 it increased to 38. We know from previous studies (Tammaru et al. 2013) that the migration propensity of Russian speakers is lower compared to the majority population. This is related to various constraints on residential mobility (e.g., a disadvantage in the labor market) and also to the fact that neighborhoods where minorities were accommodated in the Soviet period continuously offered a comfortable own-language environment. In addition, our stated preferences study demonstrates that Estonians rather than Russian speakers preferred living with coethnics and in more affluent environments. We could therefore assume an increase in ethnic segregation resulted from the revealed preferences of Estonians, a notion that is consistent with recent findings in other cities (Kährrik and Tammaru 2010). Yet, because Estonians living in

Table 5. Model estimates and average marginal effects (for merged data)

	Model estimates						Average marginal effects							
	With coethnics			With affluent			Coethnic-affluence aspirant		Coethnic aspirant		Affluence aspirant		Coethnic-affluence neutral	
	Coeff.	Robust SE	<i>p</i>	Coeff.	Robust SE	<i>p</i>		<i>p</i>		<i>p</i>		<i>p</i>		<i>p</i>
Estonian (ref. Russian speakers)	1.29	0.07	0.00	0.22	0.06	0.00	0.16	0.00	0.21	0.00	-0.09	0.00	-0.28	0.00
1998	0.46	0.05	0.00	0.02	0.05	0.61	0.06	0.00	0.11	0.00	-0.06	0.00	-0.12	0.00
2013 (ref. 2008)	-0.01	0.05	0.78	-0.02	0.05	0.69	0.00	0.66	0.00	0.97	0.00	0.85	0.01	0.68

Note: $N = 4,606$. Wald test of $\rho = 0$: $\chi^2(1) = 227.9$, $p < 0.00005$. Log-pseudolikelihood = $-5,449.4$, Wald $\chi^2(26) = 632.0$, $p < 0.00005$. Other controls were sex, age, marital status, education, income, and current neighborhood.

large housing estates are less likely to state avoidance toward Russian speakers, certain aspects of residential environments—such as neighbors' affluence and better dwellings—likely play a role when they depart from mixed-ethnic large housing estates. Evidence from preferences research similarly shows that ethnic

preferences alone do not strongly predict actual residential mobility patterns (Ibraimovic and Masiero 2014).

We also find an increase in socioeconomic segregation (measured as occupational segregation), although the overall values of dissimilarity indexes for the

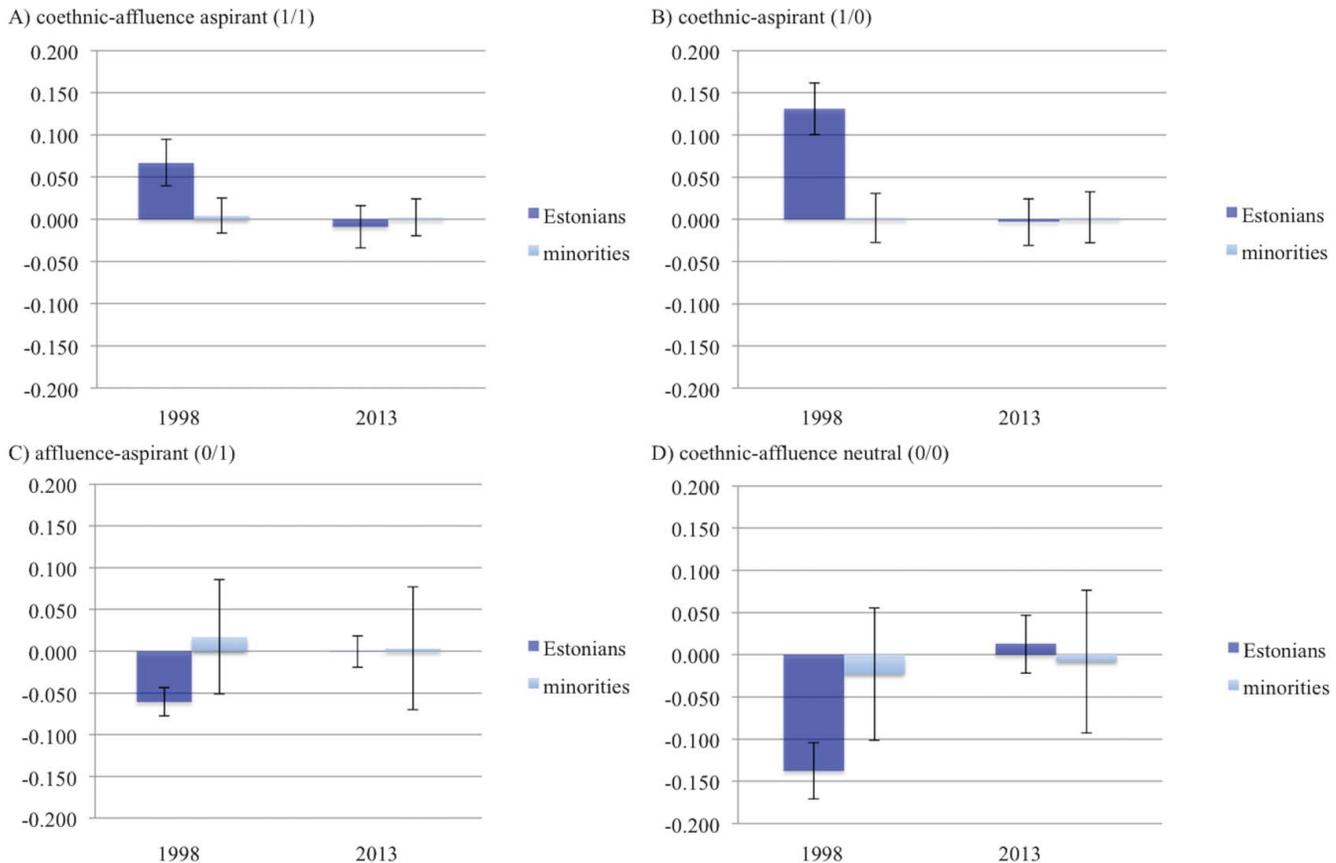


Figure 2. Effect of study year on stated preferences to live with coethnic and/or affluent neighbors by ethnic groups, average marginal effects with 95 percent confidence intervals (reference—year 2008). Note: Interaction of ethnicity and study year added to the model in Table 5. Model with interaction: log-pseudolikelihood = $-5,443.0$, Wald $\chi^2(30) = 704.4$, $p < 0.00005$. (Color figure available online.)

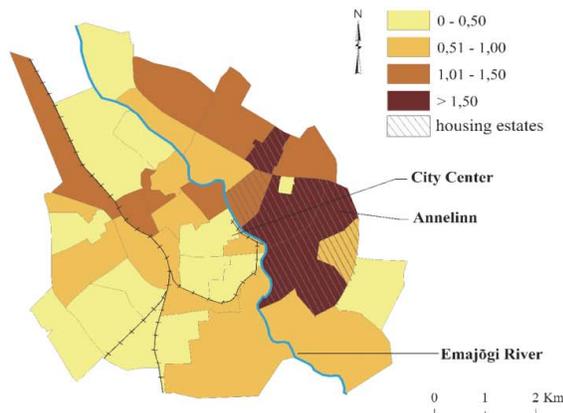
managers' and professionals' group are still low, reflecting a generally homogenous social landscape. The dissimilarity index for managers and professionals was 10 in 2000, and by 2011 it rose to 13. We are thus witnessing an increase in segregation and, in parallel, the urban socioeconomic and ethnic landscape is reshaping itself.

Figure 3 presents the location quotients (LQs) for Russian-speaking minority and higher occupational groups (managers and professionals) in 2000 and 2011. LQs show the concentration of a particular group in a neighborhood compared to citywide average (e.g., LQ is 2 when the percentage of the group in a neighborhood is two times higher than the city average). Russian-speaking minorities are now overrepresented in fewer places than in 2000, but these areas still overlap with large housing estates, whereas in other districts the LQ values have decreased. Although the Russian-speaking migrants were, on arrival, mostly accommodated in the largest housing estate districts (Annelinn,

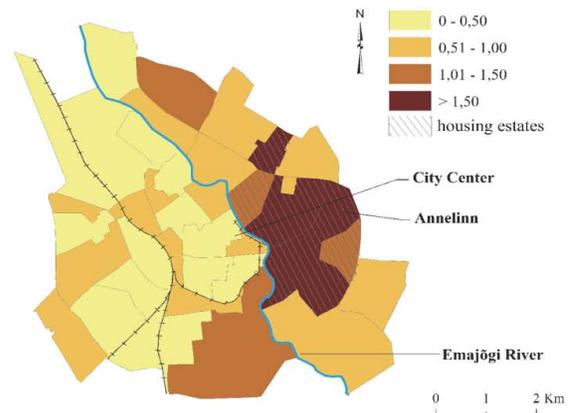
where the share of Russian speakers reached 33 percent and in some *mikrorayons* also up to 50 percent), some migrants also received apartments in modern tower blocks that are dispersed throughout the city, in older urban housing stock with lower quality and prestige, or on the outskirts close to the military base and airport. By 2011, the relatively higher proportion of minorities was, however, continually found only in the largest housing estate districts, where Russian speakers' infrastructure continues to function. Furthermore, the share of Russian speakers decreased in most neighborhoods and increased not only in some *mikrorayons* but also in new residential areas that Russian speakers are most familiar with, including places at the edge of the city (e.g., year-round living in former summer home areas). This complicates the explanations for segregation of Russians even further.

Patterns of socioeconomic segregation have changed much more. In 2000, areas typified by detached housing built before the Soviet period as

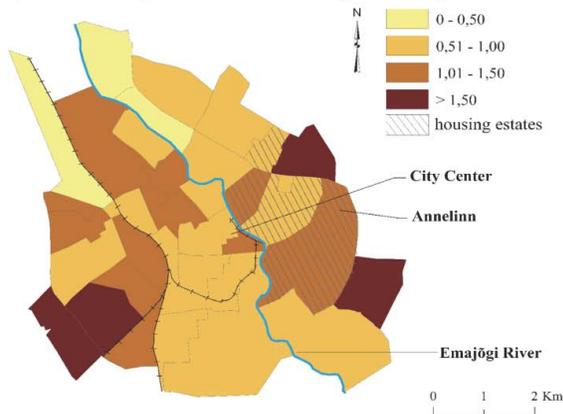
A) Location quotients for Russian speakers, 2000



B) Location quotients for Russian speakers, 2011



C) Location quotients for managers and professionals, 2000



D) Location quotients for managers and professionals, 2011

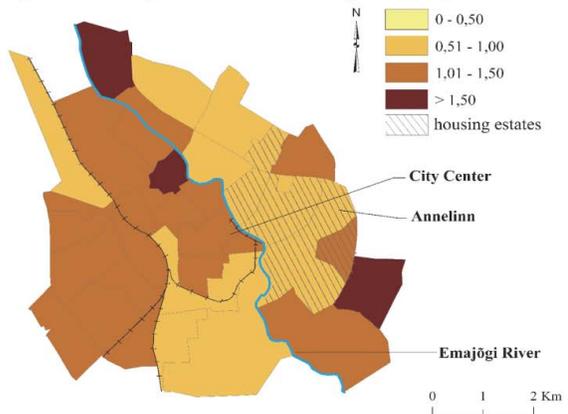


Figure 3. Location quotients for Russian-speaking minority population (A, B) and higher occupational groups (C, D) in 2000 and 2011. Source: Census data. (Color figure available online.)

well as the few districts with Soviet-era single-family homes attracted the most prestigious occupational group—managers and professionals. Housing-estate neighborhoods displayed a relatively favorable position regarding occupational composition. By the 2000s, many other areas became attractive destinations for higher occupational groups as well. For example, a former summer-home district to the southeast was rebuilt and adapted for year-round living. A newly built district in the northern part of the city close to the river dates from the housing boom of the 2000s. Other areas with relatively high LQs include (1) traditional single-family housing districts within the city borders originating from the interwar period and established as “garden city” districts in the Soviet years and (2) city center and traditional inner-city housing areas containing cozy, small, wooden apartment houses and gardens (Hess 2011). The maps also demonstrate that, in 2000, the largest housing estate area, Annelinn, was still comparable to the rest of the city concerning its relative representation of managers and professionals; by 2011, however, the share of this occupational group had become one of the lowest in the city.

Our main finding regarding changing ethnic geography is that even amid turbulent social change that has taken place in Estonia during post-Soviet transition, the urban ethnic landscape has only modestly changed compared to inherited segregation patterns; we even observe a modest increase in ethnic segregation. We are witnessing a process in which formerly prestigious minority-dominated neighborhoods (which formed through state-led segregation) are becoming the least socioeconomically prestigious areas, reflecting events in other European and U.S. cities where ethnic and racial segregation tends to overlap with poverty patterns. Although changes in segregation patterns do not allow us to draw a direct link between stated and revealed preferences, we argue that Estonians were more able to realize their preferences, whereas the residential mobility of Russians has been determined by combinations of factors including economic constraints, proximity to own-language environments, and a limited knowledge of different urban districts.

Conclusion: Evidence of Inherited and New Segregation

The Soviet city was characterized by low levels of socioeconomic segregation coupled with high levels of

ethnic residential segregation (Rukavishnikov 1978; Gentile and Tammaru 2006; Hess, Tammaru, and Leetmaa 2012). Russians were a majority group in the former Soviet Union, but they were a minority in Soviet republics other than Russia. They were privileged in Soviet society, and they had better access to newly built, modern subsidized housing. When the Soviet Union collapsed in 1991, these privileges evaporated. Housing reform introduced in the transition period provided opportunities to privatize Soviet-era apartments equally to Estonians and Russian speakers. A change in the status of Soviet housing estates, however, began to occur in parallel with an increase in household wealth and with emerging new alternatives in the housing market, especially during the mid-2000s housing boom (Tammaru et al. 2009), which has continued at a slower pace since the 2008–2009 global economic crisis. The areas that formerly could not enjoy housing subsidies, including central city neighborhoods, became attractive in the course of transition (Haase, Großmann, and Steinführer 2012; Temelová, Kadarik, and Kährik 2013; Hess and Hiob 2014). Thus, as economic and societal changes unfolded, the prestige of various residential environments inversed, and Russian-speaking minorities no longer lived in the most desired housing.

The most important result of our study is that the former socioeconomically relatively undifferentiated urban landscape of a post-Soviet city begins to resemble European and U.S. cities (cf. Musterd, van Kempen, and Rowlands 2009), with minority-dense places—notably Soviet-era housing estates—increasingly overlapping with socioeconomically disadvantaged places. This is new evidence about the possible future of large housing estate districts in Eastern European cities. The research carried out until now has shown no clear signs of socioeconomic downgrading, and housing estates are still home for a large part of the population (Temelová et al. 2011; Kovács and Herfert 2012; Kabisch and Großmann 2013). We see that the ethnic dimension, present in post-Soviet cities, might lend a special character to these districts (Kährik and Tammaru 2010; Hess, Tammaru, and Leetmaa 2012). Comparative studies in post-Soviet space, however, are increasingly difficult to conduct because the successor countries of the former Soviet Union increasingly have divergent development trajectories and institutional structures.

Lessons learned from Estonia about stated preferences are, however, valuable for understanding how preferences relate to segregation. On the one hand,

it is quite complicated to differentiate to what extent and which particular changes of the transition period have driven residential choices the most, because all changes (in labor market, purchasing power and socioeconomic stratification, minority–majority political positions, neighborhood status, housing ownership, etc.) occurred within a short period and in complex interaction with other changes. On the other hand, the existence of only two ethnolinguistic groups in the context of no new immigration provides an interesting “laboratory” for studying changes in preferences and segregation between these two groups.

Our results suggest that Russian-speaking minorities have a weak preference toward coethnic neighbors throughout the study period. Estonians prefer living with neighbors who are both coethnics and more affluent, as well as with coethnic neighbors irrespective of their affluence. The preferences toward neighbor affluence did not change during our study period, whereas the preference toward coethnic neighbors weakened among Estonians in the 2000s. Still, our study also reveals increasing rather than decreasing levels of actual residential segregation in the 2000s. We find compelling evidence that under the conditions of ubiquitous markets characteristic of Estonia, the formation of more tolerant attitudes toward other ethnic groups is not a sufficient condition for desegregation when substantial socioeconomic differences exist between ethnic groups. Conversely, segregation can even increase in such context due to the very modest role of the welfare state in shaping housing and residential outcomes.

Preferences have many dimensions, and not all of them are supported by relevant opportunity structures. Our results show that both Estonians and minorities consider neighbor affluence to be important; however, Estonians have had better opportunities to realize their preferences due to their better position in the Estonian labor market (Lindemann and Kogan 2013). From the perspective of minority population, however, in addition to disadvantages in social status and labor market, inherited elements of the urban landscape—ethnic infrastructure, own-language environment in certain districts, and poor knowledge about other districts—offer them a comfortable residential choice in areas where they are already overrepresented and contribute to persistently high levels of segregation. In other words, minorities simply do not have obvious motives for leaving their initial concentration areas even if they do not have a strong preference toward coethnic neighbors per se.

Our results are consistent with recent studies. For example, Ibraimovic and Masiero (2014) found in Switzerland that ethnic preferences alone have a limited capability to predict real moves. Likewise, rich evidence from studies of socioeconomic segregation shows that higher status groups tend to segregate the most in urban space, preferring to live together with their kind (Duncan and Duncan 1955; Morgan 1975; Reardon and Bischoff 2011). Thus, socioeconomic status seems to have a relatively strong impact on segregation. These results are interesting in the light of the classic model by Schelling (1969; Clark 1991), which shows that even the existence of small differences in ethnic preferences could lead to remarkable levels of segregation. Our study, in line with other more recent studies, shows that preferences do not necessarily have a straightforward impact on segregation, at least when it comes to the lowering of segregation levels. It is possible that preferences are reactionary and time-specific or that preferences need more time to be realized (actual moves must await a favorable combination of structural opportunities and dismantling of barriers). Our joint analysis of various dimensions of preferences—helping to clarify the relationship between stated preferences and actual choices—could offer new pathways for understanding the complex socioeconomic and ethnic landscape of cities.

Acknowledgments

We are grateful for the valuable comments made by the anonymous reviewers and the editor. We owe special thanks to Professor Liina-Mai Tooming and Dr. Ott Toomet for their advice on statistical modeling, doctoral student Kadi Mägi for her assistance with cartography, and to the Estonian Statistical Office and the Tartu City Government for providing data for our study.

Funding

The project was funded by Institutional Research Grant No. IUT2-17 of the Ministry of Education and Science Estonia, and Grant No. 9247 of the Estonian Science Foundation.

Notes

1. This differs, of course, from many U.S. and European cities, where units in public housing are highly devalued.

2. These neighborhoods largely overlap with planning districts used for the sample stratification in the stated preferences survey. In a few cases we have adjusted the neighborhood borders to result in more homogeneous tracts.
3. The marginal effects for the combined categories equal 0, i.e., Russians are more often affluence-aspirants because they choose the other combinations of observed preferences less frequently.

References

- Aasland, A., and T. Fløtten. 2001. Ethnicity and social exclusion in Estonia and Latvia. *Europe-Asia Studies* 53 (7): 1023–49.
- Albert, C., and C. García-Serrano. 2010. Cleaning the slate? School choice and educational outcomes in Spain. *Higher Education* 60 (6): 559–82.
- Anniste, K., and T. Tammaru. 2014. Ethnic differences in integration levels and return migration intentions: A study of Estonian migrants in Finland. *Demographic Research* 30 (13): 377–412.
- Bater, J. H. 1980. *The Soviet city*. London: Edward Arnold.
- Bolt, G., and R. van Kempen. 2010. Ethnic segregation and residential mobility: Relocations of minority ethnic groups in the Netherlands. *Journal of Ethnic and Migration Studies* 36 (2): 333–54.
- Brainerd, E. 1998. Winners and losers in Russia's economic transition. *American Economic Review* 88 (5): 1094–1116.
- Buckley, C. 1995. The myth of managed migration: Migration control and market in the Soviet period. *Slavic Review* 54 (4): 896–916.
- Clark, W. A. V. 1991. Residential preferences and neighborhood racial segregation: A test of the Schelling segregation model. *Demography* 28 (1): 1–19.
- . 1992. Preferences and residential choices in a multiethnic context. *Demography* 29 (3): 451–66.
- Clark, W. A. V., and R. Maas. 2009. The geography of a mixed-race society. *Growth and Change* 40 (4): 565–93.
- Corrado, G., L. Corrado, and E. Santoro. 2013. On the individual and social determinants of neighbourhood satisfaction and attachment. *Regional Studies* 47 (4): 544–62.
- Domański, B. 1997. *Industrial control over the socialist town: Benevolence or exploitation*. London: Praeger.
- Duncan, O., and B. Duncan. 1955. A methodological analysis of segregation indexes. *American Sociological Review* 20 (2): 210–17.
- Dustmann, C., A. Glitz, and U. Schönberg. 2011. Referral-based job search networks. IZA (Institute for the Study of Labor) Discussion Paper No. 5777, Bonn, Germany.
- Feijten, P., P. Hooimeijer, and C. H. Mulder. 2008. Residential experience and residential environment choice over the life-course. *Urban Studies* 41 (1): 141–62.
- Filatovchev, I., T. Buck, and M. Wright. 1993. Soviet all-Union enterprises as new multinationals of the CIS. *The International Executive* 35 (6): 525–38.
- Gentile, M. 2006. From migration to segregation in the former closed city. *Geographica Polonica* 79 (2): 23–46.
- Gentile, M., and Ö. Sjöberg. 2006. Intra-urban landscapes of priority: The Soviet legacy. *Europe-Asia Studies* 58 (5): 701–29.
- . 2013. Housing allocation under socialism: The Soviet case revisited. *Post-Soviet Affairs* 29 (2): 701–29.
- Gentile, M., and T. Tammaru. 2006. Housing and ethnicity in the post-Soviet city: Ust'-Kamenogorsk, Kazakhstan. *Urban Studies* 43 (10): 1757–78.
- Haase, A., K. Großmann, and A. Steinführer. 2012. Transitory urbanites: New actors of residential change in Polish and Czech inner cities. *Cities* 29 (5): 318–26.
- Hall, M. 2013. Residential integration on the new frontier: Immigrant segregation in established and new destinations. *Demography* 50 (5): 1873–96.
- Hess, D. B. 2011. Early 20th-century tenement buildings in Estonia. *Town Planning and Architecture* 35 (2): 110–16.
- Hess, D. B., and M. Hiob. 2014. Preservation by neglect in Soviet-era town planning in Tartu, Estonia. *Journal of Planning History* 13 (1): 24–29.
- Hess, D. B., T. Tammaru, and K. Leetmaa. 2012. Ethnic difference in housing in post-Soviet Tartu, Estonia. *Cities* 29 (5): 327–33.
- Holloway, S. R., R. Wright, and M. Ellis. 2012. The racially fragmented city? The neighborhood racial segregation and diversity jointly considered. *Professional Geographer* 64 (1): 63–82.
- Ibraimovic, T., and L. Masiero. 2014. Do birds of a feather flock together? The impact of ethnic segregation, preferences on neighbourhood. *Urban Studies* 51 (4): 4693–711.
- Kabisch, S., and K. Großmann. 2013. Challenges for large housing estates in light of population decline and ageing: Results of a long-term survey in East-Germany. *Habitat International* 39 (7): 232–39.
- Kährik, A., and T. Tammaru. 2010. Soviet prefabricated panel housing estates: Areas of continued social mix or decline? The case of Tallinn. *Housing Studies* 25 (2): 201–19.
- Kährik, A., J. Temelová, and K. Kadarik. 2012. Residential mobility and inner-urban areas' change in the second-tier cities of East-Central Europe. Paper presented at the annual conference of the European Network for Housing Researchers, Lillehammer, Norway.
- Kaiser, R. J. 1995. Nationalizing the work force: Ethnic restratification in the newly independent states. *Post-Soviet Geography and Economics* 36 (2): 87–111.
- Kõre, J., T. Paas, M. Preem, E. Tani, and K. Vahter. 1987. *Uuringu raport: Tartu ja tartlased* [Survey report: Tartu and its residents]. Tartu, Estonia: Tartu State University.
- Kornai, J. 1992. *The socialist system: The political economy of communism*. Princeton, NJ: Princeton University Press.
- Korts, K. 2009. Inter-ethnic attitudes and contacts between ethnic groups in Estonia. *Journal of Baltic Studies* 40 (1): 121–37.
- Kovács, Z., and G. Herfert. 2012. Development pathways of large housing estates in post-socialist cities: An international comparison. *Housing Studies* 27 (3): 324–42.
- 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 population in the near abroad*. Ithaca, NY: Cornell University Press.
- Leetmaa, K., I. Brade, K. Anniste, and M. Nuga. 2012. Socialist summer home settlements in post-socialist suburbanisation. *Urban Studies* 49 (1): 3–21.
- Leetmaa, K., and T. Tammaru. 2007. Destinations of suburbanisers in the Tallinn metropolitan area. *Geografiska Annaler, Series B: Human Geography* 89 (2): 127–46.
- Leetmaa, K., T. Tammaru, and K. Anniste. 2009. From priority-led to market-led suburbanisation in a post-communist metropolis. *Tijdschrift voor Economische en Sociale Geografie* 100 (4): 436–53.
- Leping, K.-O., and O. Toomet. 2008. Emerging ethnic wage gap: Estonia during political and economic transition. *Journal of Comparative Economics* 36 (4): 599–619.
- Lewis, R. A., and R. H. Rowland. 1977. East is West and West is East . . . Population redistribution in the USSR and its impact on society. *International Migration Review* 11 (1): 3–29.
- Lewis, V. A., M. O. Emerson, and S. L. Klineberg. 2011. Who we'll live with: Neighborhood racial composition preferences of whites, blacks and Latinos. *Social Forces* 89 (4): 1385–1407.
- Lichter, D. T. 2013. Integration of fragmentaion? Racial diversity and the American future. *Demography* 50 (2): 359–91.
- Lindemann, K., and I. Kogan. 2013. The role of language resources in labour market entry: Comparing Estonia and Ukraine. *Journal of Ethnic and Migration Studies* 39 (1): 105–23.
- Logan, J. R. 2013. The persistence of segregation in the 21st century metropolis. *City & Community* 12 (2): 160–68.
- Logan, J. R., and C. Zhang. 2010. Global neighborhoods: New pathways to diversity and separation. *American Journal of Sociology* 115 (4): 1069–1109.
- Marciniak, S., M. Gentile, and M. Stępiak. 2013. Paradoxes of (post)socialist segregation: Metropolitan sociospatial divisions under socialism and after in Poland. *Urban Geography* 34 (3): 327–52.
- Marciniak, S., S. Musterd, and M. Stępiak. 2012. Where the grass is greener: Social segregation in three major Polish cities at the beginning of the 21st century. *European Urban and Regional Studies* 19 (4): 388–403.
- Marksoo, A. 1999. Restructuring of urban and rural settlement in Estonia. In *Shock-shift in an enlarged Europe: The geography of socio-economic change in East-Central Europe after 1989*, ed. F. Carter and W. Maik, 81–102. Aldershot, UK: Ashgate.
- McCrea, R. 2009. Explaining sociospatial patterns in South East Queensland, Australia: Social homophily versus structural homophily. *Environment and Planning A* 41 (9): 2201–14.
- Morgan, B. S. 1975. The segregation of socioeconomic groups in urban areas: A comparative analysis. *Urban Studies* 12 (1): 47–60.
- Musterd, S., and R. van Kempen. 2009. Segregation and housing of minority ethnic groups in Western European cities. *Tijdschrift voor Economische en Sociale Geografie* 100 (4): 559–66.
- Musterd, S., R. Van Kempen, and R. Rowlands. 2009. Mass housing estates on different tracks: An introduction to the book. In *Mass housing in Europe: Multiple faces of development, change and response*, ed. R. Rowlands, S. Musterd, and R. van Kempen, 1–19. Hampshire, UK: Palgrave Macmillan.
- Pae, T. 2013. Maps of Soviet cities: Case of Estonia. Paper presented at the 5th International Urban Geographies of Post-Communist States Conference, Tbilisi, Georgia.
- Pavelson, M. 1997. Mitte-eestlased Eesti tööturul [Minorities in Estonian labor market]. In *Vene noored Eestis: Sotsioloogiline mosaiik* [Russian youth in Estonia: A sociological landscape], ed. P. Järve, 183–95. Tallinn, Estonia: Avita.
- Pavlenko, A. 2008. Russian in post-Soviet countries. *Russian Linguistics* 32 (1): 59–80.
- Peach, C. 1999. London and New York: Contrasts in British and American models of segregation: With a comment by Nathan Glazer. *International Journal of Population Geography* 5 (5): 319–51.
- Poppe, E., and L. Hagendoorn. 2001. Types of identification among Russians in the “near abroad.” *Europe-Asia Studies* 53 (1): 57–71.
- Reardon, S. F., and K. Bischoff. 2011. Income inequality and income segregation. *American Journal of Sociology* 116 (4): 1092–1153.
- Rukavishnikov, V. 1978. Ethnosocial aspects of population distribution in cities of Tataria. *Soviet Sociology* 3: 59–79.
- Rybakovskiy, L. 1987. *Migratsiya naseleniya: Prognozy, factory, politika* [Population migration: Prognoses, factors, politics]. Moscow: Statistika.
- Saar, E., and M. Unt. 2006. Self-employment in Estonia: Forced move or voluntary engagement. *Europe-Asia Studies* 58 (3): 415–37.
- Sakkeus, L. 1991. *Post-war migration trends in Estonia*. Tallinn, Estonia: EKDK Population Research Series B.
- Sari, F. 2012. Analysis of neighbourhood effect and work behaviour: Evidence from Paris. *Housing Studies* 27 (1): 45–76.
- Schelling, T. C. 1969. Models of segregation. *The American Economic Review* 59 (2): 488–93.
- Sjöberg, Ö. 1999. Shortage, priority and urban growth: Towards a theory of urbanisation under central planning. *Urban Studies* 36 (13): 2217–36.
- Smith, D. M. 1996. The socialist city. In *Cities after socialism: Urban and regional change and conflict in post-socialist cities*, ed. G. Andrusz, M. Harloe, and I. Szélenyi, 70–99. Malden, MA: Blackwell.
- Sýkora, L., and S. Bouzarovski. 2012. Multiple transformations: Conceptualizing the post-communist urban transition. *Urban Studies* 49 (1): 43–60.
- Szélenyi, I. 1996. Cities under socialism—and after. In *Cities after socialism: Urban and regional change and conflict in post-socialist cities*, ed. G. Andrusz, M. Harloe, and I. Szélenyi, 286–317. Malden, MA: Blackwell.
- Tammaru, T. 2001. The Soviet Union as a deviant case? Underurbanization in Soviet Estonia. *Urban Geography* 22 (6): 584–603.

- Tammaru, T., and H. Kulu. 2003. The ethnic minorities of Estonia: Changing size, location, and composition. *Eurasian Geography and Economics* 44 (2): 105–20.
- Tammaru, T., K. Leetmaa, S. Silm, and R. Ahas. 2009. Temporal and spatial dynamics of the new residential areas around Tallinn. *European Planning Studies* 17 (3): 423–39.
- Tammaru, T., M. van Ham, K. Leetmaa, A. Kährlik, and K. Kamenik. 2013. Ethnic dimensions of suburbanization in Estonia. *Journal of Ethnic and Migration Studies* 39 (5): 845–62.
- Temelová, J., K. Kadarik, and A. Kährlik. 2013. Understanding neighbourhood change through the perceptions of long-term and new residents in post-socialist inner cities. Paper presented at the International Sociological Association RC43 Conference, Amsterdam, The Netherlands.
- Temelová, J., J. Novák, M. Ouredníček, and P. Puldová. 2011. Housing estates in the Czech Republic after socialism: Various trajectories and inner differentiation. *Urban Studies* 48 (9): 1811–34.
- Timmermans, H., E. Molin, and L. van Noortwijk. 1994. Housing choice process: Stated versus revealed modeling approaches. *Housing and the Built Environment* 9 (3): 215–27.
- Titma, M., N. B. Tuma, and B. D. Silver. 1998. Winners and losers in the post-communist transition: New evidence from Estonia. *Post-Soviet Affairs* 14 (2): 114–36.
- Vertovec, S. 2007. Super-diversity and its implications. *Ethnic and Racial Studies* 30 (6): 1024–54.
- Vihalemm, T., and V. Kalmus. 2009. Cultural differentiation of the Russian minority. *Journal of Baltic Studies* 40 (1): 95–119.
- Zayontshkovskaya, Z., and V. I. Perevedentsev. 1962. K voprosu o sovremennyh migratsionnyh svyazyah nasele-nya Krasnoyarskogo kraya [On the question of the current migration relations of population of Krasnoyarsk region]. In *Geografiya naseleniya Vostotshnoy Sibiri*, ed. V. Vhishevskiy and V. Vorobyev, 82–101. Moscow: Akademiya Nauk.

Correspondence: Department of Geography, University of Tartu, Vanemuise 46–243, Tartu 51014, Estonia, e-mail: kadri.leetmaa@ut.ee (Leetmaa); e-mail: tiit.tammaru@ut.ee (Tammaru); Department of Urban and Regional Planning, University at Buffalo, State University of New York, 114 Diefendorf Hall, Buffalo, NY 14214, e-mail: dbhess@buffalo.edu (Hess).