
LIVING ARRANGEMENTS AS AN INDICATOR OF THE INTEGRATION OF OLDER ETHNIC RUSSIAN IMMIGRANTS IN ESTONIA

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Abstract

This study is about living arrangements of older ethnic Russians living in Estonia most of whom are long-term immigrants. Studies involving immigrant populations have suggested that the integration process would decrease their differences with the host population, including their living arrangement preferences. Our investigation shows that despite long-term residence in country, living arrangements' pattern of ethnic Russians in Estonia is rather different from that of Estonians and that can be explained by low integration. The study is based on the microdata of the Estonian 2011 population and housing census and the 5% sample of the Russian 2010 census from the IPUMS database. In the first part of the analysis, we employ origin-destination perspective to comparing living arrangements of Russians in Estonia with Estonians and Russians in Russia. In the second part, we use binary logistic regression to study the association between living arrangements, migration background and integration to host society.

Keywords: older persons, living arrangements, integration, immigrants, ethnic group, education, marital status, Estonia
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INTRODUCTION

The theory of the second demographic transition foresees that households all around the world converge towards the nuclear family, leaving less place for intergenerational and kinship-based households (Lesthaeghe, 2014). Although these changes in household patterns are primarily related to the younger age groups, their consequences do not leave the older age groups and their household situation

untouched. Observed trends among older adults in numerous countries confirm the expected tendency for more independent living arrangements such as living alone or living alone with a partner, not only among younger generations, (Eurostat, 2022; Kamiya – Hertog, 2020) but also among older people (Poulain et al., 2020).

In this study, we analyse the living arrangements of the older people within an immigrant sub-population,

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and we compare these with people of the same age in the host country and country of origin. Immigrants bring with them attitudes and behaviours from their country of origin, and therefore may have distinctive demographic, socioeconomic, and health profiles compared with population of their destination country, which may affect their living arrangements (Gurak – Kritz, 2013). However, studies involving immigrant groups suggest that the integration process would gradually decrease the differences with the host population and narrow the gap between their living arrangement. Therefore, it is particularly interesting to study how older people who have immigrated at a young age have adopted the norms and behaviours prevalent in the society where they have lived most of their lives. Converging trends in living arrangements may indicate the level of integration of immigrants in the host society. The Estonian case is interesting for such study, as the long-term inflow of Russian-origin immigrants after WWII resulted in a large sub-population of ethnic Russians that represent one fourth of the total population of Estonia. A large part of them immigrated in their young age — in their twenties and thirties — and has thus spent the most of their adult life in Estonia.

More specifically, we identify the possible similarities or dissimilarities in living arrangements of ethnic Russians in Estonia compared with their peers in Russia, and Estonians in Estonia. We analyse some factors that may influence differences in their living arrangements and provide possible explanations for the specific situation among ethnic Russians in Estonia compared to Estonians.

RESEARCH FINDINGS AND THEORETICAL CONSIDERATIONS

The scientific literature shows that living arrangements, defined as individuals' household status, represent the most important social environment for older persons. Living arrangements have an impact on individuals' well-being and indicate if a potential caregiver is available at home when aging and decline in health makes it difficult to live on one's own. Contacts at distance with family members may be sufficient for satisfying need for communication and may alleviate loneliness. Nevertheless, the presence

of a person in the household may become essential at the oldest ages for activities linked to the practical daily needs, including for a sense of security. Moreover, poor economic subsistence and risk of poverty are associated unequally with various living arrangements. For example, the difficulties or disadvantages linked to financial insecurity and social isolation are often associated with certain types of living arrangements, particularly with living alone in population groups such as the lower educated (Wilmoth, 2001; Shaw *et al.*, 2018). Such situations may lead to serious consequences in the countries where support from the government for older people is rather limited. The poverty may endanger older people particularly in some post-socialist Eastern Europe where for many, the average income from old-age pension may be not enough to avoid material deprivation (Sumil-Laanemaa *et al.*, 2021).

Several studies have shown that migrants' and natives' household composition and living arrangements may differ (Van Hook – Glick, 2007; Liu *et al.*, 2019). Some types of living arrangements may be associated with higher risk of social exclusion for older people with migration background, and the situation may be even more problematic due to poor integration and possibly smaller kinship networks. There could be various reasons why the living arrangements may differ among sub-populations in a given country, especially in relation to the migration context. The cultural environment may differ between the countries of origin and destination. Pre-migration cultural beliefs and social practices that are related to family and kinship ties may influence immigrants' behaviour patterns. These can be transmitted to the second generation of migrants, as well (Foner, 1997). Therefore, different frameworks have been suggested in the literature. According to Phinney *et al.* (2001), ethnical identity and behavioural traits from the country of origin may create significant stress that works against integration, as immigrants may have a desire to retain these identities. Their household and family choices may be affected as well. For instance, Giuliano (2007) found that the South-North European difference in patterns of leaving home of adult children are mirrored among immigrants of respective origin in the US. Nevertheless, migrants and their children usually adapt their household

behaviours to the norms and values dominant in the host society due to the social, political, cultural, and labour market conditions (*Alba – Nee, 1997; Mesoudi, 2018*). In addition, the culture in the society of origin of immigrants continues to change, and family patterns in the sending society have probably undergone significant changes since the older immigrants left their country of origin (*Foner, 1997*). The combination and interplay of possible opposing influences of the origin and host societies can lead migrants to patterns that may differ from both countries of origin and destination. The adoption of demographic behaviours prevalent in the county of residence is more attributed to younger generations (*Kulu – González-Ferrer, 2014*). However, as different generations interact with each other, such behaviours can also spread among older immigrants when it concerns their family, household and living arrangements. Drawing parallels with the fertility hypothesis is also relevant because the living arrangements of older parents may reflect the family formation choices of their adult children.

Initiatives taken towards integration would support becoming closer to the host society. Acquiring the citizenship of the country of residence shows a willingness to belong to this society, whereas country of birth still refers to the possibility of being influenced by norms of this country. Knowing the host language and having a higher level of education are of great importance in supporting communication and helping the individual to understand and adopt the norms of the host country. These not only directly affect individual living arrangements, but also act as mediators supporting increasing identification with the host society (*Cleveland et al., 2015; Sheikh – Anderson, 2018*). A concentration of non-native population in certain areas and their high density may hinder any effort to adopt local behaviours and norms. People with immigration background tend to intermarry and comprise mono-ethnic households. These behaviours tend to increase rather than decrease in the second generation (*Puur et al., 2018; 2021*). The living arrangements of older immigrants are also associated with the length of time they lived in the host country. Those who immigrated in their youth are often better integrated in the host country and are more likely to have adopted features of the native population, including their pattern of living

arrangements. On the contrary, those who immigrated at an older age have to rely more on their close family members, and are less likely to live independently (*Boyd, 1991*). There are at least two reasons for this. First, their resources may be not sufficient for independent living and second, the reason for migrating at an older age is often to move closer to children living abroad, rather than starting a new independent life relatively far from them.

EMERGENCE AND GROWTH OF THE POST-WWII RUSSIAN DIASPORA IN ESTONIA

The history of the large Russian-origin migration to Estonia goes back to the post-WWII decades. It has been estimated that following the transfer of border from Estonia to Russia, the Russian population in Estonian dropped to 3% of the total (*Katus – Puur – Sakkeus, 2000*). Large-scale immigration began in 1945 and remained high until the late 1980s. A large proportion of these migrants settled permanently, have lived a large part of their adult lives in Estonia and are today at retirement age. More than half of them immigrated at their young adulthood in the 1950s and 1960s. Starting from this time, the ethnic Russian population in Estonia grew to over 30% of the total population by the end of Soviet period, according to the census 1989. Moreover, the Soviet policies supported Russian-origin emigrants in maintaining their cultural environment by favouring the Russian language over Estonian in many areas of society. In addition, the Soviet migration policy supported the recruitment of migrant workers in certain branches of industry, managed directly by the Soviet central government. Its housing policy favoured migrants to non-migrants when distributing housing facilities in newly-build city areas. Consequently, the immigrant population, of mostly Russian origin, was concentrated in few industrial centres in Estonia. In these areas, they comprised a majority of the population, which lived relatively independently from the social and cultural life of the rest of Estonia. Such circumstances caused strong segregation of the migrant and native populations in Estonia, which have not disappeared even decades after the Soviet regime collapsed (*Mägi et al., 2020*). Thus, conditions existed in Estonia for

the Russian-origin immigrant population to maintain cultural preferences from their country of origin. This could be particularly true for the older population segments, despite their having lived a large part of their life in Estonia.

After restoration of Estonian independence in 1991, individuals who had been citizens of Estonia before the Soviet occupation were recognised as Estonian citizens unconditionally. Individuals who were born after the WWII were recognized as Estonian citizens if at least one of their ancestors was Estonian citizen before the WWII. According to these rules, most immigrants who arrived after the WWII had to apply Estonian citizenship. At 2011 census, 85 per cent of the total population had Estonian citizenship, while 7 per cent had Russian Federation citizenship and 6.6 per cent had not applied for any citizenship. As presented in Table 1, older ethnic Russians preferred Russian citizenship or remained without any citizenship.

As regards family formation patterns, Estonia and Russia were historically located in other sides of the geographical line that marked the spread of the West European marriage (Hajnal, 1965). The late and low prevalence marriage, as described by Hajnal, disappeared after the WWII. However, findings from more recent studies suggest that differences in patterns of family formation between Estonia and Russia persisted in the second half of the 20th century (Puur *et al.*, 2012). Furthermore, the Russian origin immigrants in Estonian have followed marriage and childbearing patterns that are characteristic to their population of origin; reflecting the relatively slow integration, the second-generation migrants of Russian origin exhibit partnership and fertility behaviour that differs from that of the native population (Rahnu *et al.*, 2015; Puur *et al.*, 2017; 2019).

AIM OF THE STUDY AND RESEARCH QUESTIONS

The household situation of older people with an immigration background from Russia has not been thoroughly studied, although systematic differences in demographic behaviour between the native and immigrant population of Estonia have been observed (Katus – Puur, 2006; Puur *et al.*, 2017; 2019). The majority of older Russian immigrants arrived

in Estonia at a younger working age, and it can be assumed that they have at least partially adopted the lifestyle patterns common among Estonians and moved away from the patterns common in Russia at the time of their departure. Therefore, we investigate whether the living arrangement patterns of older Russians living in Estonia are similar to those of Estonians or remain closer to those of Russians living in Russia. In addition, we aim to identify specific groups of Russians in Estonia who have adopted more of the norms and values common among Estonians.

Our main hypothesis is that the patterns of living arrangements of older Russians in Estonia are no longer similar to those of Russians in Russia, and that these differences may vary across socio-demographic groups. Considering the above mechanisms, we assume that older Russians in Estonia adopted closer living arrangements patterns to Estonians in socio-demographic groups that are better integrated, such as people with Estonian citizenship and Estonian language skills. We also expect to see patterns closer to Estonians in those who immigrated at younger age, as well as those who have higher level of education.

Based on these hypotheses this study expects to find answers to following questions:

- To what extent does the distribution of older ethnic Russians in Estonia by living arrangements differ from that of Estonians and from Russians in Russia? Are their patterns closer to those of their peers in Russia, or more similar to those of Estonians?
- Which socio-demographic characteristics indicating the level of integration can be associated with patterns of living arrangements of older Russians living in Estonia, which are closer to those of Estonians?

DATA AND METHODS

Data used in the study is extracted from the 2011 Estonian Population and Housing Census database maintained by Statistics Estonia. Selected data include individuals who were usual residents in Estonia, aged 65 years or older at the time of census, and who self-defined themselves as ethnic Russians or ethnic Estonians (further in the text ‘Russians in Estonia’ or ‘Estonians’, respectively). The main characteristics

Table 1 Main characteristics of the ethnic Russian population aged 65 and over living in Estonia, compared with total population, the total population aged 65 and over, and Estonians aged 65 and over in Estonia, 2011

	Total population	%	Population aged 65+	%	Estonians aged 65+	%	Russians aged 65+	%
Total	1,294,455	100.0	229,440	100.0	159,031	100.0	54,043	100.0
Ethnic affiliation								
Estonians	902,547	69.7	159,031	69.4				
Russians	326,236	25.2	54,043	23.6				
Other ethnic groups	,65,672	5.1	16,366	7.0				
Country of birth								
Estonia	1,096,859	84.7	151,695	66.1	146,483	92.1	4,573	8.5
Russia	134,984	10.4	56,365	24.6	9,239	5.8	43,064	79.7
Other country	62,612	4.9	21380	9.3	3,309	2.1	6,406	11.8
Country of citizenship								
Estonia	1,102,618	85.2	183,827	80.1	158,486	99.7	19,178	35.5
Russia	90,510	7.0	29,716	13.0	188	0.1	25,334	46.9
Other country	5,367	1.4	2,722	1.1	52	0.0	270	0.5
Citizenship undetermined (stateless persons)	85,960	6.4	13,275	5.8	305	0.2	9,261	17.1
Knowledge of official language								
No knowledge of Estonian language	228,232	17.6	51,880	22.6	446	0.3	41,052	76.0

Source: Statistics Estonia database of Population and Housing Census 2011; authors' calculations.

of these two sub-populations and of total population of Estonia are given in Table 1.

Russians formed the largest ethnic group after Estonians in 2011. In this study, we consider both Russians who were born in Estonia and those who immigrated regardless of whether or not they hold Estonian citizenship. Individual characteristics included in analysis of living arrangement differences are as follows: sex, age, marital status, education, country of birth, country of citizenship, knowledge of official language of the country of residence, and duration of residence based on the time of immigration. A remarkable feature of older Russians in Estonia is that only a third of them have acquired Estonian citizenship. Additionally, only a quarter have Estonian language skills, despite this being the official language of their country of residence and even if only a very small number of them have lived in Estonia less than 20 years or immigrated at a very old age.

According to the 2011 census in Estonia, household was defined as people living together and having a

common budget. The typology of living arrangements for this study is built up based on the relationship of household members with the household reference person, combined with the information about the presence of a spouse in household, marital status and cohabitation with a partner. Five living arrangements are distinguished: living alone, living with a partner alone, living with a partner and others, living with a child or children (regardless of their age) but without a partner, and living with others who are not partners or children. The latter also includes those living in institutional households. The method consists in applying relevant inclusion and exclusion criteria for identifying the type of living arrangements in each individual in the census data. The first selection was based on the number of household members. Individuals having household size one were considered as living alone and left aside from further selections. Thereafter, from two-member households, married or cohabiting partners, and people living with a child or others were identified and excluded from further

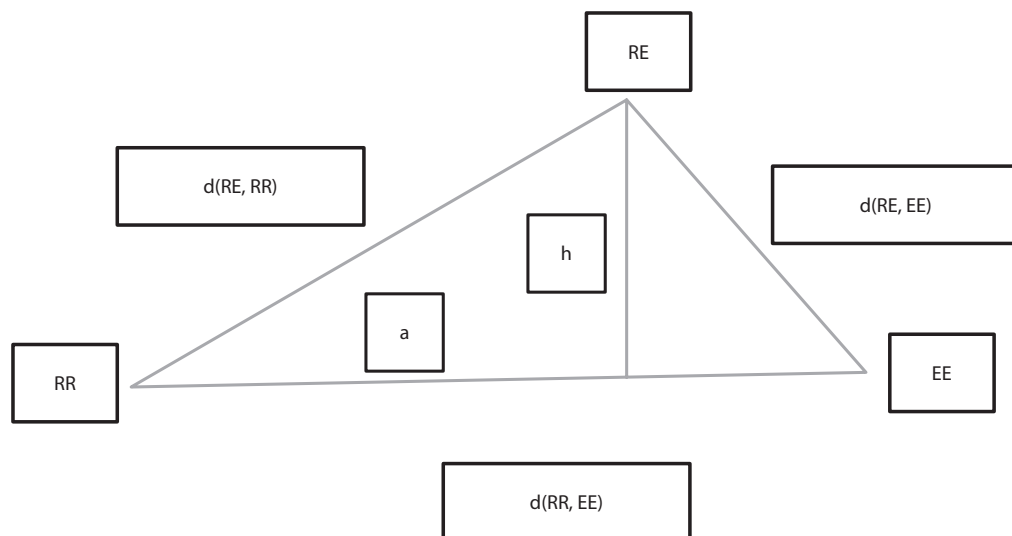
selections. From households that had more than two members, those with or without a spouse or partner in household, and those with or without children were distinguished. Finally, those who did not live with a spouse, partner, or child in the household were considered altogether as living with other persons, including those living in nursing homes. The latter type of living arrangements was not separately distinguished due to data limitations. The resulting typology of living arrangements allows for generalizing the individual status and social environment for each person regardless of the size and complexity of the household composition.

Similar data for older Russians living in Russia were obtained from a 5% sample of the Russian 2010 census available in the IPUMS database (*IPUMS*, 2021). In contrast to Estonian census data, as self-defined ethnicity was not available, we selected those who spoke Russian as a mother tongue to represent ethnic Russians (further in the text, ‘Russians in Russia’). A household is defined as a group of people living together and occupying the whole or a part of housing unit, jointly provide themselves with food and other essentials for living, i.e. completely or partly combine and spend their means (*IPUMS*,

2021). For the 5% sample of the IPUMS international census database, every 20th household was selected by the Russian Federal State Statistics Service. In order to compensate for the oversampling of individuals in smaller households, weights are applied. The living arrangements typology, prepared for Estonian census data, was then also applied to Russian census data. Other socio-demographic characteristics considered in the analysis age (in 5-years groups from age 65 till age 85 or more), sex, marital status (never-married, married or cohabiting, divorced, and widowed) and level of education (primary or less, secondary and higher).

In the first part of analysis, we compare living arrangements patterns of Russians in Estonia with Estonians and with Russians in Russia. We compute dissimilarity indicators by using the relative distribution of people in each living arrangement and comparing the patterns of these distributions between pairs of populations. More precisely, we compute the dissimilarity of two relative distributions of living arrangements as the sum of absolute differences between these proportions in pairs of the three populations, Russians in Estonia (RE), Russians in Russia (RR) and Estonians (EE), using following formulas:

Figure 1 Geometric perspective for the indexes of difference



$$d(RE, RR) = \sum |p(i, RE) - p(i, RR)|$$

$$d(RE, EE) = \sum |p(i, RE) - p(i, EE)|$$

$$d(RR, EE) = \sum |p(i, RR) - p(i, EE)|$$

where i represents the different living arrangements. The larger values of these measures indicate larger difference in living arrangement patterns of the two populations under study.

As the three observed populations are not expected to have the same socio-demographic composition, the above-mentioned socio-demographic characteristics are included in the analysis. The dissimilarity between patterns of living arrangements of population pairs is therefore computed for groups distinguished by each of the socio-demographic characteristics given above. Further analysis of these differences will be based on two indexes computed by considering the geometric perspective shown in Figure 1 and the measure of ‘a’ and ‘h’.

As

$$h^2 = d(RE, RR)^2 - a^2 = d(RE, EE)^2 - (d(RR, EE) - a)^2$$

$$a = \frac{d(RE, EE)^2 - d(RE, RR)^2 + d(RR, EE)^2}{2d(RR, EE)}$$

$$h = \sqrt{d(RE, RR)^2 - a^2}$$

the two measures ‘a’ and ‘h’ allow computing the following relative dissimilarity components:

- the proportion of distance covered between RR and EE that characterises the position of RE between RR and EE on a linear way (from 0 to 1), computed by the formula

$$I = \frac{a}{d(RR, EE)}$$

and

- the deviation from straight line between RR and EE, that characterises the specificity of the pattern of living arrangements of Russians in Estonia compared to both Russians in Russia and Estonians in Estonia, computed by the formula

$$s = \frac{h}{d(RR, EE)}$$

The value of index ‘s’ is zero when the position of Russians in Estonia is aligned between Russians in Russia and Estonians and moves away from zero when the pattern of Russians in Estonia deviates from it.

The two indicators explained above will be computed for each group specified by gender, age, marital status and level of education.

In the second part of analysis, we use binary logistic regression to study the association between each living arrangement and selected characteristics of migration background and level of integration. More specifically, we estimate regression models for the following variables: knowledge of official language of the host country, citizenship, country of birth and age at the time of immigration. We compute odds ratios for each type of living arrangement for Russians in Estonia compared to Estonians in Estonia and Russians in Russia.

RESULTS

Living arrangements’ differences in three studied populations

The first part of the analysis aims to identify whether the pattern of living arrangements of Russians in Estonia is closer to the pattern of Estonians in Estonia or presents more similarities with Russians in Russia. Whereas, as expected, the general patterns of living arrangements in three observed populations demonstrate rather a similar situation, there is a specific feature that distinguishes two populations in Estonia from that of Russians in Russia. More precisely, in Russia, a remarkably greater proportion of older people live with their child but without a partner. The distribution of Russians in Estonia by living arrangements is in an intermediate position between that of Russians in Russia and Estonians (Table 2).

The socio-demographic composition of the three populations is different, which may influence their distribution by living arrangements. Therefore, the differences in the patterns of living arrangements were examined separately by sex, age-groups, marital status and level of education. Figure 2 shows in which distance (Figure 2 left) the pattern of living arrangements of Russians in Estonia is between the respective pattern of their peers in Russia (at point 0) and Estonians (at point 1) in various

Table 2 Distribution of ethnic Russians living in Russia and in Estonia and Estonians living in Estonia aged 65 and over by types of living arrangements

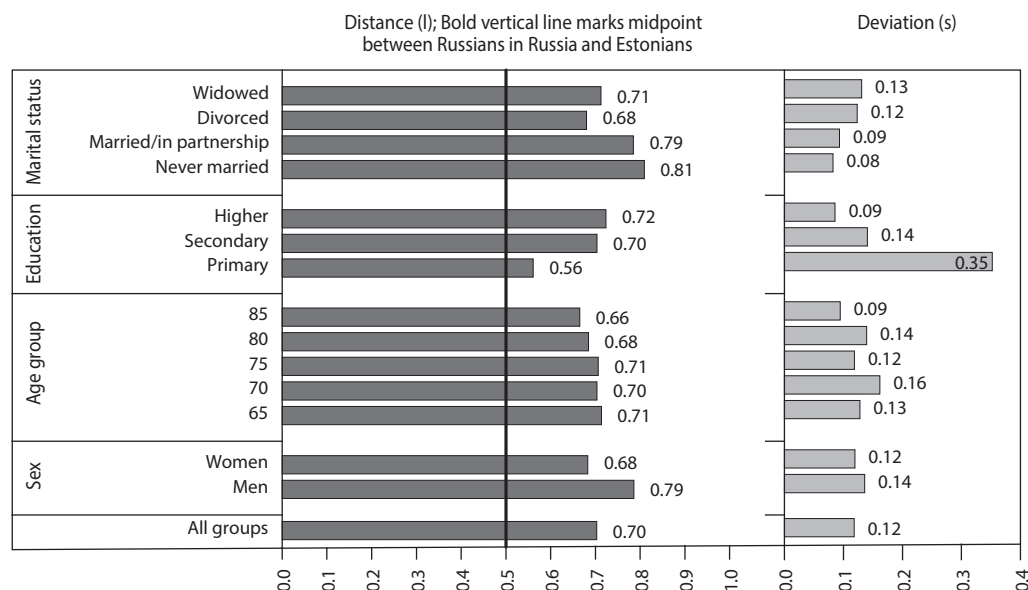
	Russians in Russia		Russians in Estonia		Estonians in Estonia	
	Count	%	Count	%	Count	%
Alone	4,770,780	30.5	20,484	37.9	61,662	38.8
With partner	3,938,000	25.2	16,689	30.9	54,427	34.2
With partner and others, including with children	1,965,340	12.6	4,727	8.8	12,500	7.8
With child but without partner	4,344,780	27.8	10,349	19.1	22,378	14.1
With others or in institution	615,640	3.9	1,794	3.3	8,064	5.1
Total	15,634,540	100.0	54,043	100.0	159,031	100.0

Source: Authors' calculations based on data from Statistics Estonia database of Population and Housing Census 2011 and from IPUMS database of 2010 Russian census.

socio-demographic groups. It also shows the deviation (Figure 2 right) of each this pattern from the alignment between Russians in Russia and Estonians in each socio-demographic group. Clearly, living arrangements of older Russians in Estonia are closer to older Estonians than to older Russians in Russia. Overall, the index for all socio-demographic groups of Russians in Estonia is at the level 0.70 between 0 and 1.

All socio-demographic sub-groups of Russians in Estonia have passed more than half of the distance between their peers in their country of origin and the native population of the country of residence. Nevertheless, there are important differences in the progression by these groups. The closest patterns to Estonians are observed among men, and in marital status sub-groups among persons who never married

Figure 2 Location of living arrangements of older Russians in Estonia between Russians in Russia and Estonians and deviation from the alignment by socio-demographic groups



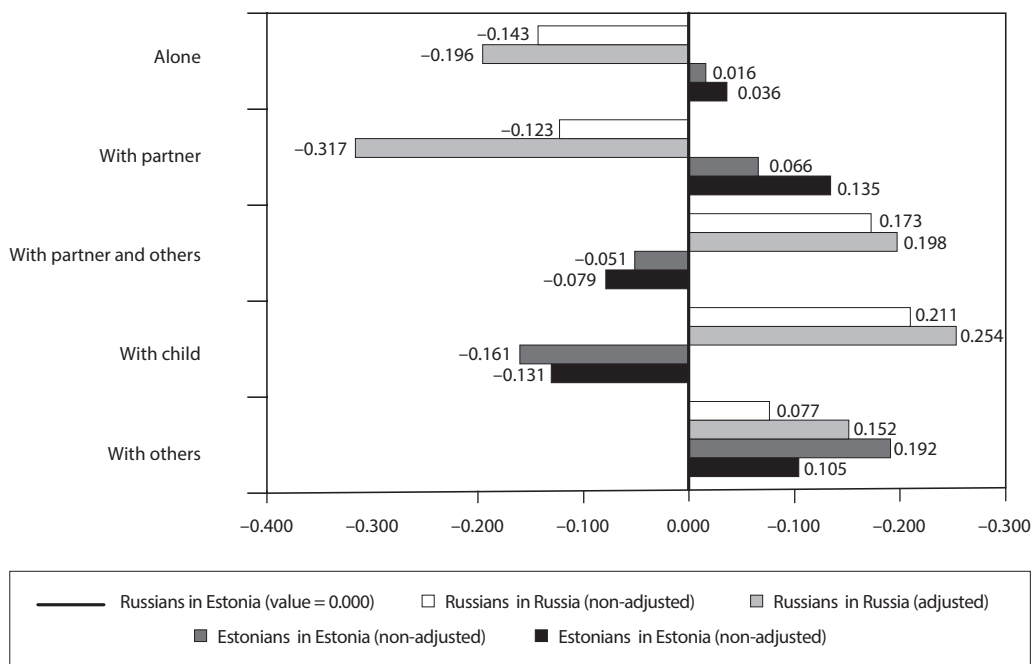
Source: Authors' calculations based on data from Statistics Estonia database of Population and Housing Census 2011 and from IPUMS database of 2010 Russian census.

or who are currently married/in a partnership. In educational sub-groups, people with less than secondary education have the least similar living situation compared to Estonians. The latter sub-group also demonstrates the largest deviation. As shown in Figure 2, living arrangements of Russians in Estonia are less similar to Estonians among the oldest age groups. The correlation between the dissimilarity indicator (distance) and the deviation from linearity is negative (-0.74), which shows that a higher level of integration is related to lower deviation in living arrangements patterns compared to Estonians.

Logistic regression models run separately for each living arrangement, unadjusted and adjusted by the above-mentioned socio-demographic characteristics, make it possible to identify how much the different composition by these characteristics impacts observed differences between the three populations (Figure 3). To make the pattern of Russians in Estonia more

clearly visible compared to the other two populations, Russians in Estonia have been chosen as the reference (value 0 in Figure 3). Overall, this analysis reveals that socio-demographic composition is not similar in the three populations, and the impact of these differences vary by types of living arrangements. The most pronounced compositional difference appears in living with a partner and living with other people who are not a partner or child. After adjusting the results for socio-demographic characteristics, the differences between three populations are preserved, but the scale of differences changes by types of living arrangements and population group. Differences between Russians in Estonia and Russia increase after adjustment in all living arrangements. By contrast, Russians in Estonia and Estonians become closer after the adjustment in living with a child and in living with others who are not children or partners. Further, in those living alone and living with a partner only, the difference become much larger between Russians in Russia

Figure 3 Logistic regression coefficients (in log scale) by types of living arrangements, compared with Russians in Estonia as reference (in value 0), non-adjusted and adjusted for socio-demographic variables



Source: Authors' calculations based on data from Statistics Estonia database of Population and Housing Census 2011 and from IPUMS database of 2010 Russian census.

and Russians in Estonia. These two living arrangements are most frequent for older people in Estonia among both Estonians and Russians. Compositional effects are also important in the odds for living with others who are not family members in which Russians in Estonia have lower value of regression coefficients than both other populations. However, the difference with Russians in Russia increases after adjustment directly contrasting to difference with Estonians.

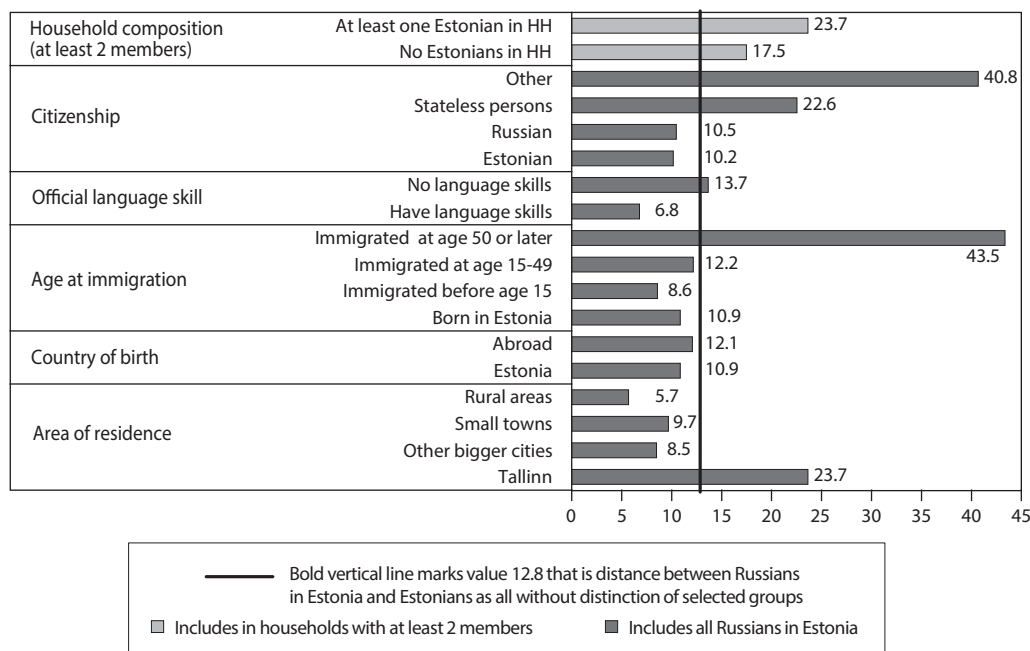
Factors affecting living arrangements' among ethnic Russians in Estonia

The second part of the analysis is focused on living arrangements in various sub-groups of older Russians living in Estonia based on selected migration- and integration-related characteristics. More specifically, Russians in Estonia are grouped according to country of citizenship, country of birth, age at immigration, knowledge of official language of the host country, area of residence in the host country, and living or

not in mixed-ethnicity household. Figure 4 presents the dissimilarity index for sub-groups of Russians in Estonia and Estonians.

The dissimilarity index in Figure 4 is computed as the sum of absolute differences between the proportions of people in two populations in each of our five types of living arrangements. For computing this index for each sub-group of Russians in Estonia, the average proportions in each living arrangement for Estonians were considered, without distinguishing any sub-groups. The bold line on Figure 4 shows the overall dissimilarity between living arrangements of two populations as whole. Living arrangements of Russians having Estonian citizenship and those having Russian citizenship do not differ greatly, but a large difference is observed for those who do not hold any citizenship (individuals with undetermined citizenship or stateless persons) or hold citizenship of other countries than Estonia and Russia. The difference between Estonian-born and foreign-born Russians living in Estonia, most of the latter were born in Russia, is rather

Figure 4 Living arrangements' dissimilarity index for sub-groups by migration- and integration-related characteristics of age 65 or older Russians in Estonia compared with Estonians



Source: Authors' calculations based on data from Statistics Estonia database of Population and Housing Census 2011.

small. Russians who immigrated at older age, above 50 years, and those having no Estonian language skills demonstrate a more pronounced dissimilarity in their living arrangements compared to Estonians. Area of residence was included in the analysis because Russians are concentrated in few regions of Estonia, where they form large and mostly Russian monolingual communities. Interestingly, the largest differences with Estonians appear among Russians who live in the capital city of Tallinn, compared to other major cities and smaller towns, even if several of these have large Russian immigrant populations. The smallest differences are found, as expected, in villages. In overall, no one from the selected groups can be considered as fully having the same living arrangement pattern as Estonians.

For the last part of our investigation, logistic regression models are estimated for each living arrangement separately for older Russians living in Estonia. The purpose of these models is to examine if and how characteristics related to migration background and the level of integration are associated with different living arrangement (Table 3a and 3b). Age group, sex, education, and area of residence are included in the models as controls to remove the effects of these socio-demographic characteristics. Table 3a presents the odds ratios for each type of living arrangements among Russians aged 65 and over who do not have Estonian citizenship compared

with those who have, among Russians who were not born in Estonia compared with those who were born in the country, and among Russians who have no Estonian language skills compared to those who have these skills. In Table 3b, the odds ratios for each type of living arrangements are presented for age at immigration in two age-groups compared with those who were born in Estonia or immigrated as child, aged less than 15.

As shown in Table 3a, the three migration- and integration-related characteristics – not holding Estonian citizenship, being born abroad, and having no Estonian language skills – adjusted by above-mentioned socio-demographic characteristics, associate positively and significantly with higher odds of living with a partner and others. Two characteristics, not holding Estonian citizenship and having no Estonian language skills, associate positively with living with a child but no partner, and being born abroad associates with living with a partner. Negative association appears between all three migration- and integration-related characteristics and living with non-family others or living in institution.

Age at immigration also appears to be an important factor to the choice of living arrangements at older age for immigrants (Table 3b). People who immigrated at younger ages (15–49), compared to those who were born in or lived in host country since childhood, had significantly higher odds of living with a partner

Table 3a Odds ratios for each living arrangement among older Russians in Estonia by selected migration- and integration-related characteristics

Living arrangement	Model	Country of citizenship (ref = Estonia)	Country of birth (ref = Estonia)	Estonian language (ref = skilled)
Alone	non-adjusted	0.888***	1.038	0.938**
	adjusted	0.965	1.002	0.931***
With partner	non-adjusted	1.023	1.025	0.908***
	adjusted	0.939**	1.163***	0.927***
With partner and others, including with children	non-adjusted	1.216***	0.994	1.090**
	adjusted	1.156***	1.158**	1.205***
With child but without partner	non-adjusted	1.092***	1.112**	1.218***
	adjusted	1.107***	0.988	1.155***
With others or in institution	non-adjusted	0.843***	0.495***	0.975
	adjusted	0.837***	0.490***	0.869*

Note: *p < 0.90, ** p < 0.95, *** p < 0.99.

Models are controlled for sex, age group, education, and area of residence.

Source: Authors' calculations based on data from Statistics Estonia database of Population and Housing Census 2011.

Table 3b Odds ratios for each living arrangements among older Russians in Estonia by age at immigration

Living arrangement	Model	Age 15–49	Age 50 and above
		(ref=born in Estonia or arrived a child)	(ref=born in Estonia or arrived a child)
Alone	non-adjusted	1.060*	0.947
	adjusted	0.949	0.728***
With partner	non-adjusted	0.921***	0.659***
	adjusted	1.145***	0.916
With partner and others, including with children	non-adjusted	0.860***	0.574**
	adjusted	1.121**	1.008
With child but without partner	non-adjusted	1.221***	2.162***
	adjusted	0.973	1.622***
With others or in institution	non-adjusted	0.699***	1.087
	adjusted	0.587***	0.805*

Note: *p < 0.90, ** p < 0.95, *** p < 0.99.

Models are controlled for sex, age group, education, and area of residence.

Source: Authors' calculations based on data from Statistics Estonia database of Population and Housing Census 2011.

only, and with partner and others, but largely lower for living with non-family people or in an institution. Persons who immigrated at older ages (50 or later), had highest odds of living with their children, and smaller odds in all other living arrangements compared to those who immigrated at younger ages. Comparing the adjusted results with non-adjusted reveals that these associations are importantly affected by the composition by age, sex, education, and area of residence of people having each of these living arrangements.

Summary of findings

Altogether, this study's findings confirm that living arrangements of ethnic Russians in Estonia are not similar to those of Russians in Russia, while also differing from those of ethnic Estonians in Estonia. Nevertheless, they are closer to Estonians than to Russians in Russia. The main difference with Russians in Russia appears for those living with their children only, which is less frequent in Estonia among both ethnic Russians and Estonians. Analysing living arrangements in sub-groups of the population defined on the basis of socio-demographic characteristics reveals that some sub-groups of Russians in Estonia associate to greater similarity of living arrangements with Estonians. This is the case for men more than for women. Concerning the level of education, the living arrangement patterns of Russians in Estonia who have a higher education are closer to those

of Estonians, in both men and women. Nevertheless, the socio-demographic composition, including age, sex, marital status, and level of education, only partly explains the dissimilarities in living arrangements between Russians in Estonia, and populations in the origin and destination countries. In contrast, migration background and related characteristics remarkably associate with the choice of living arrangements at old age. The ability to speak Estonian seem to favour similarity of living arrangements of Russians living in Estonia and Estonians. Furthermore, Russians in Estonia born in Estonia, as well as those holding Estonian citizenship, have more similar living arrangements with Estonians. The regression analysis performed separately for each living arrangements demonstrates that the association of living arrangements with migration- and integration-related characteristics is affected by the socio-demographic composition of population in each living arrangement.

DISCUSSION

This study examines the differences in living arrangements at an older age between the Estonian native population and a population group with a migration background, Russians living in Estonia. It shows the distinctiveness of the living arrangements of the older immigrant population compared to the native population of the host country, and to their peers in their country of origin, Russia.

In general, the results of the study confirmed the posed hypothesis that the immigrant population exhibits living arrangement's pattern more similar to that of the host population than to that of their country of origin. The results also show that within this immigrant population, acquisition of local behaviours varies depending on the level of integration measured by country of citizenship, knowledge of host country official language, age at immigration, and concentration in certain regions.

Overall, despite remaining dissimilarities, the patterns of living arrangements of older Russians in Estonia are closer to that of the native Estonian population. These results are in line of the tendency for decreasing diversity by living arrangements of the older population in Estonia. With such trends, patterns of living arrangements of older people in Estonia are approaching those of their peers in Western European countries, as described by *Herm and Poulain (2022)*. Nevertheless, the results of this study confirmed that living arrangements of Russians in Estonia differ from those of Estonians as well as from those of their peers in Russia. This can be attributed to differences in development, and the current socio-economic and demographic situation in two countries, as found in other studies (*Kritz – Gurak – Chen, 2000*). Even if there is an increasing preference in the developed world towards more independent living arrangements among older people, the availability of resources differs for population groups even in the same country and limits the choice. In particular, resources can be more limited for people who have immigrated, compared with the native-born population. Whereas older people generally prefer independent living arrangements, co-residence may actually be more advantageous for older immigrants by lowering the risk of social isolation (*Wilmoth, 2001*). However, this is not universal, as immigrants with higher income and education, as well as those who are more integrated to host society, might be keener to choose living independently (*Lee – Edmonston, 2019*).

In addition, we show that sub-groups of Russians in Estonia distinguished by their socio-demographic characteristics present varying level of difference in their patterns of living arrangements, compared to both the sending and the host population. For example, the observed dissimilarity in patterns

is rather similar by age groups while by the level of education differences appear to be large. With this, our results are in line with those found by *Wilmoth (2001)* based on immigrant groups in the United States, showing that individual-level characteristics such as resources and demographic characteristics do not fully explain the differences in likelihood of living with family across the sub-populations in country.

Among remarkable differences, it emerges that compared to native Estonians Russians in Estonia live more frequently with their children (with or without a partner in the household). Such situation could be counted on several factors. Previous studies have shown positive impact on the poverty alleviation for older immigrants living with kin (*Kaida – Boyd, 2011*). Therefore, it could be a deliberate choice of such living arrangement done in the family, and it is particularly relevant in case older parents have immigrated after retirement to join their children in the host country. These older immigrants may lack or have insufficient state support in their country of residence. Another explanation could be that the custom for co-residence of adult children with their parents, which was forced by the chronic housing deficit and low retirement age for women, in combination with the shorter generational length, is still followed (*Botev, 2012*). In fact, the housing conditions of families of immigrants during Soviet times differed somewhat from that of most of native population in Estonia, and this might have influenced further opportunities for independent living or cohabitation with younger generations. Lower childlessness among the immigrant population may also partly explain why older Russians are more frequently living with children, compared to Estonians. (*Katus – Puur, 2006; Klesment – Puur, 2009*).

Some migration-related characteristics, such as knowledge of the language of the host country, age at immigration, having a foreign country of birth, and not holding citizenship in the country of residence may explain why people with immigrant backgrounds have different choices of living arrangements than the host population. The duration of residence is associated with the choices and behaviours of immigrants: the longer duration supports acculturation experiences, social connection and integration to the host society, and well-being (*Liu et al., 2019*). The difference in odds

of living independently for older immigrants compared to the native population may also be associated with the degree of adoption of local norms and behaviours (Kritz – Gurak – Chen, 2000). Therefore, age at migration can have impact on living arrangement patterns observed among older immigrants. Burr *et al.* (2012) found that the less time older immigrants lived in the host country, the more likely they lived in a multigenerational or extended household. Arrival in childhood is an important predictor of integration of immigrants, related to greater proficiency in host country language, but also providing more time for getting accustomed to host country norms (Myers *et al.*, 2009). Our study confirms these findings, as those who immigrated at younger ages and were skilled in the Estonian language present largely more similar living arrangement patterns with Estonians than those who arrived at middle age or later, and who did not practise the Estonian language. We show that knowing Estonian and obtaining citizenship is associated with more similar living arrangement patterns to Estonians.

We also found that difference in living arrangements' patterns of two populations vary between areas of residence. More specifically, compared to their urban counterparts, older ethnic Russians living in rural areas of Estonia have closer living arrangement patterns to Estonians. This supports the finding of Myers *et al.* (2009) regarding the impact of area of residence on integration. We found the largest difference in living arrangement patterns for those living in the capital city. The concentration of immigrant population in urban areas in combination with the linguistically divided schools system inhibited the distribution of Estonian language skills and the closer contacts with the host population of immigrants who settled in Estonia during the Soviet period, and thus supported segregation of the immigrant population from the native. Nevertheless, in urban areas outside of capital city, even if the proportion of people with migration background is very high in most of these areas, the living arrangement patterns are more similar to the native population.

The integration through mixed marriages has been very slow in the past. However, there is a tendency of increasing proportion of mixed marriages between younger Estonians and non-Estonians that is expected

to bring closer their other family behaviours (Puur *et al.*, 2018). The differences between family and household patterns of the Estonians and Russians in Estonia is expected to diminish in future. Better knowledge of Estonian language is among the factors driving this development. The number of people having no Estonian language skills decreases due to the generations of post-war immigrants are becoming older and will pass away. Among younger generations of Russians, knowledge of the Estonian language is much more common, which is why they could be better integrated into Estonian society (Voog *et al.*, 2023). Also, the ongoing reform of the education system, that will bring the existence of language-segregated schools in Estonia to an end, is expected to make a major contribution to integration processes.

By evidence, our study suffers from some limitations. First, we used ethnicity as reported in 2011 census for distinguishing native and Russian-origin population groups in Estonia, while the selection of Russians in Russia was done based on native language. We consider that in Estonia, data collected on self-declared ethnicity is more suitable for identifying the Russian-origin population than data on speakers of Russian as a native language, which was often also declared by immigrants of other ethnic origins from former Soviet regions. However, ethnic Russians in Estonia also include people who have lived in Estonia for many generations, and therefore cannot be considered among people with immigrant backgrounds. Nevertheless, as their number is very small, their behaviour, even if different compared with immigrated ethnic Russians, would not distort the results of this study. Second, data on Russians in Russia used in this study is a weighted sample of census data. Because of this and the possible methodological differences in collection of data on household membership, it is possible that the full comparability of the typology of living arrangements in two counties was not achieved. The third limitation is that the difference in economic resources was assessed in this study only as a proxy based on the level of education. Fourth, we did not have data on children who are alive but live separately from their old parents. Because of this, it is not possible to assess how much living without children reflects individuals' free choice. Despite all these limitations, we believe that the main

features of living arrangements in studied populations are sufficiently captured.

Extending the study on living arrangements to younger adult ages could be useful, as it would shed light on the living arrangements available for older adults. Enlarging the study above to younger ages would also provide a possibility to examine if the patterns of living arrangements observed among older people in this study are more related to their behaviours than to the ones of their family

members. Some additional information, for instance socio-demographic characteristics of the person at immigration and changes in these characteristics after settling in the host country, could be helpful to better explain the differences of living arrangement patterns between native and immigrant-origin population groups. Finally, a study involving not only individual characteristics measured in the censuses, but also more general cultural, social and economic characteristics of the sending and host society would be needed.

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