

# Trends in Living Arrangements for Older Persons in Estonia Compared to Belgium

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## Abstract

The proportion of older people is increasing. During the years lived with disease and functional mobility loss, ensuring their well-being becomes a challenge for society. In addition to health, well-being in old age depends on various circumstances of an individual's personal life. While contact with family members from a distance or irregular contact may be sufficient for satisfying the need for communication and may alleviate loneliness, it cannot replace the assistance that being present can provide. The difficulties or disadvantages are associated with some types of living arrangements. Therefore, patterns of living arrangements for older people are of key importance in studies of their well-being.

The demographic characteristics vary by country but differences are expected to be less between societies experiencing a similar path in development. Since the last decade of the 20th century, rapid changes have brought Eastern Europe closer to the more developed areas of Europe, both in economic and social terms. The patterns of living arrangements for older people in Estonia compared to people of similar age in Belgium show some signs of convergence, the latter being considered representative of Western Europe. The studied period for Estonia includes the transition period from the Soviet regime to the current situation. Accordingly, we address the question of whether this transition accounts for some specific features in Estonia, compared with Belgian trends. We find rather different patterns in the distribution of older people's living arrangements in the two countries but similar trends in the changes indicating convergence between the two countries.

**Keywords:** living arrangements, older population, comparative recent trends, Estonia, Belgium.

## Introduction

The proportion of older people is increasing, and will continue to increase in current societies due to the ageing of the population. The well-being of an older person, in addition to health, depends on various factors in the individual's life, including social inclusion and frequent contact with family and friends. Among these factors, living arrangements and the presence at home of a person who can provide daily care to an older member of the household is crucial. It becomes even more important when the health status of this older person deteriorates to the point that living independently becomes difficult. According to evidence, living with another person does not guarantee the provision of care as neither does living alone necessarily cause the deprivation of care. Studies have shown that older people tend to receive assistance from their spouse or child when they live together, but from friends or other non-family persons when living alone (Chappell, 1991). Contact with family members from a distance or irregular contact may be sufficient for satisfying the need for communication and may alleviate loneliness, but these cannot not replace the assistance that a present person can provide. In addition, difficulties or disadvantages, like financial insecurity and social isolation are associated with some types of living arrangements, particularly living alone (Shaw et al., 2018). Therefore, when studying older populations, the living arrangements should emerge among the key topics to be investigated.

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The scope and the seriousness of the difficulties that people may face in the later years of their life may vary depending on the economic development, social structure and level of the welfare state of the society. Convergence theory postulates that societies as they move to a higher level of development tend to become similar not only in terms of access to technologies but also in societal norms. As such, differences among societies will reduce as they experience the same path in development (Kerr et al., 1971). The second demographic transition characterised by changes in demographic behaviour, including family formation and composition, and mortality, are reflected in co-residence patterns in all ages. Considering the important changes that occurred in demographic patterns in European societies, a convergence of their demographic behaviours has been expected in these patterns (Coleman, 2011). However, such a tendency is not guaranteed, as it depends, among other things, on the variance of the socio-demographic situations in countries, including the pace of the ageing of the population (Kashnitsky et al., 2020). The hypothesis about the convergence of demographic patterns in societies could be tested by comparing trends in the living arrangements of older people in various countries. Because of the rapid and remarkable modification of the political and economic setup, it is expected that Eastern Europe will catch up with the highly developed countries in Western Europe. In this context, comparing the populations of Eastern and Western European countries is of particular interest. Estonia, similar to other countries that regained their independence after the collapse of the Soviet regime, experienced many important changes during the transition period since the last decade of the 20th century. The rapid economic growth concurring with changes in demographic processes might also cause changes in the share of older people in living arrangements inherited from the Soviet period. Comparing these with a Western European population could be helpful in supporting policies addressing the ageing population. For this study, Belgium was chosen as providing an example of Western European living arrangements. The choice of Belgium was also supported by the availability of suitable data for such a comparative exercise. In Belgium, as opposed to Estonia, the living arrangements is the result of long period of steady development in society. Even if policies addressing the older cohort of the population could not be the same in the two countries, the present contribution could indicate ways to improve such policies.

## **The state of the art: studying living arrangements**

In social science, the living arrangements of a given person are usually identified as a type of co-residence (United Nations, 2005). Therefore, the concept of living arrangements is closely related to the concept of the household, albeit with some important differences. A household is the smallest population unit, a group of people who live together in the same dwelling. In contrast, each household member has their own living arrangement determined by his or her relationships to the other household members. As such, the living arrangement is an individual characteristic that should be distinguished from type of household, of which the person is a member. In a broad sense, together with marital status, living arrangement is an expression of lifestyle (Bernard, 1975) and it should be clearly distinguished from 'living conditions', which refer to standard of living, including housing conditions.

The concept of living arrangements, the term being generally considered in plural, has been analysed repeatedly since the mid-20th century, mostly by US scholars. Nevertheless, it was only in 2005 that a United Nations report on the living arrangements of older adults opened a broader interest in the topic (Reher & Requena, 2018). Whereas the living arrangements of a person change over his or her life course, their importance increases in the later stages of life (Soldo & Lauriat, 1976). The various scientific investigations on the living arrangements of older adults highlight the reasons why living arrangements should be studied (Murphy et al., 2007), and how they influence the well-being of older people (Martikainen et al., 2019). All these contributions confirm that well-being in old age is strongly linked to the given individual's living arrangements as well-being is related to different levels of social integration and dependency (Rowland, 1982). As co-resident persons are the first potential caregivers for older persons, identifying who they live with and what determines their living arrangements helps us understand which care services are needed. Therefore, studying the living arrangements of older people and analysing related trends are

crucial topics for scientific research and policy support.

Relatively few studies have compared the trends in the living arrangements of older people at the turn of the millennium in the changing context of Europe. The geographical interest in studying these trends have focused mostly on the comparison between North-Western and Southern Europe, whereas the Eastern parts of Europe remain weakly investigated on a comparative basis (Esteve et al., 2020). Moreover, the time range used for analysing trends have been rather short and often focused on one specific living arrangement such as living alone. Comparative studies of living arrangements across countries have faced difficulties due to data limitations, but also the lack of comparability in definitions and typologies (Tomassini et al., 2004). Available data are often not comparable even at the same point in time from different sources such as censuses and Labour Force Surveys related to the same year (United Nations, 2019).

The shifts in household types and changes in living arrangements have occurred on the line of the Second Demographic Transition also involving the older population (Lesthaeghe, 2014). The rise in proportion of older people living alone has been observed since the mid-20th century. In the Netherlands, for example, their proportion almost doubled between 1960 and 1990 (Van Solinge, 1994). Researchers agree that living alone is associated with age, childlessness, marital status and education, but these conditions are mostly determined during an individual's earlier life (Padyab et al., 2019; Mudrazija et al., 2020). Nevertheless, since the 1990s, the relative increase in the proportion of people living alone has slowed, or even reversed. The proportion of women who stay married in old age is increasing due to improvements in male longevity and a higher proportion of married people among the generations entering old age (Tomassini et al., 2004). Even if the proportion of people living with a spouse or partner tends to increase in most countries, this trend is not uniform (Martikainen et al., 2019). In contrast to the increase in living alone and with a spouse or partner, the share of those living with children or with other persons has decreased rapidly in recent decades (Bethencourt & Ríos-Rull, 2009; López Doblas, 2018). These trends are in line with the changes in value orientations and related developments in family life that occurred throughout the half century or more experienced by the current older population (Lesthaeghe, 2014).

The distribution of the older population by household types and patterns of living arrangements vary substantially within Europe. The highest levels of living alone among older people have been observed in Nordic and Baltic countries, whereas most Western European countries occupy an intermediate position compared to the lower levels in Southern Europe according to European Union Statistics on Income and Living Conditions (EU SILC). The difference between European countries is also remarkable in the proportion of older people living with a spouse or partner (Eurostat, 2020) and in the share of older people living in institutional households. The latter can be assumed considering the huge difference between countries in the proportion of centenarians living in nursing homes (Teixeira et al., 2017). Such differences are worth investigating, and justify our intention to compare populations in Belgium and Estonia.

## **The state of the art: the case of Estonia**

Due to its historical family pattern with a relatively high proportion of never married people, Estonia is positioned on the western side of the Hajnal line (Hajnal, 1965), but closer to the Northern European family pattern with a weak connection to kinship and relatively independent social orientation (Frost, 2017). In this context, when studying demographic processes in Estonia, it is useful to know which developments are occurring in the more Western and Northern parts of Europe. In Sweden and Finland, a strong rise in the number of consensual unions was observed from the mid-20th century (Ritamies, 1997). A similar trend has been suggested for Estonia, but its timing is not possible to identify due to a lack of data. Nevertheless, under the Soviet regime, most benefits to families were available only to married couples (Kasearu, 2009), which inhibited choosing cohabitation over marriage. In parallel, the economic factors, as well as limited access to housing for young couples, strongly affected nuptiality and family formation (Vikat, 1994). This

situation may have also affected the patterns of living arrangements, including those of older people.

In Estonia, detailed analyses of living arrangement patterns among older people are missing. Some studies that used data from the beginning of the 1990s found different features in the living arrangements of the Estonian population compared to other Eastern European countries, but also those of Northern Europe (De Vos & Sandefur, 2002). For example, compared with Finland, the proportion of older people living in institutions in Estonia was two-times less, although it was higher than in other former socialist countries. The rate of institutionalisation has been rather low in Estonia, and the relatively younger institutionalised population consists mostly of permanently disabled persons (Katus et al., 2002). In addition, compared with Finland, fewer married older people lived with their spouses, and relatively more lived with their children (De Vos & Sandefur, 2002).

Earlier studies in Belgium have shown that the proportion of people living with a partner increased in the total population, and this trend is reflected in the older population (Audenaert 2003; Poulain & Herm, 2020). The trends of living alone and in collective living arrangements are less clear, however, and patterns differ between men and women. Official statistics published by Eurostat reveal that the situation in Estonia greatly differs from Belgium when considering the population at all ages or older people in age groups. Differences between Estonia and Belgium can be partly explained by the gender gap in life expectancy, which is two times higher in Estonia than in Belgium. As a consequence, there are fewer opportunities for women in Estonia to live with a spouse or partner in a consensual union when age is advancing. This naturally increases the odds of living alone, with a child's family or in a nursing home. We intend to study these differences in more detail, disaggregating the data by age and sex. While different patterns of living arrangements are expected in the two countries, we assume that ongoing changes in the composition of living arrangements could result in more similarities in the future. Therefore, by comparing the trends in each type of living arrangements by age and sex in Estonia and Belgium we expect to find some signs of convergence in the two countries that would be in line with the general changes in demographic patterns in European societies (Coleman, 2011).

## Typology of living arrangements and data used

The simplest typology of living arrangements distinguishes three mutually exclusive statuses: (i) living alone, (ii) living with other persons in a private household, and (iii) living in an institutional or collective household. The most frequently studied living arrangement is living alone, and it is often contrasted with living with other(s) in a private household. It is particularly important to study the older population living alone, as old age associates with a greater risk of social isolation, poverty and institutionalisation (Grundy, 2001). In fact, many typologies used in the analysis of living arrangements exclude the latter status even if it becomes increasingly important in advanced ages. The main reason is the exclusion of older people in sample surveys for operational reasons (Gierveld et al., 2012). Nevertheless, living in an institution, mostly in nursing homes, is a frequent situation for older people, and is linked to their health status and care needs, and therefore of particular interest. On the other hand, trends in people living in nursing homes have strong financial implications due to the necessity of formal care.

In the present investigation, we aim to address living arrangements as an indicator of the potential availability of caregivers. Therefore, the typology of living arrangements distinguishes living with spouse or partner, children and others as mutually exclusive categories as proposed by the United Nations Statistics Division (United Nations, 2019). In this perspective, the distinction of never-married and ever-married is useful to add in some living arrangements of older people as it refers to possible family support and potential caregivers outside of the household. More specifically, the never married status of an old person living alone may indicate that formal care, including institutionalisation, is potentially needed. Therefore, knowing trends in living arrangements distinguished by marital status is informative for policy development.

The following *ad hoc* typology of living arrangements is used in the current analysis consisting of nine mutually exclusive categories:

1. Living alone
  - a. Never married
  - b. Widowed
  - c. Divorced or separated
2. Living with a spouse
3. Living with a partner in a consensual partnership
4. Living with child(ren), not with a spouse or partner, but possibly with other persons
5. Living with others, not with a spouse or partner, and not with a child
6. Living in an institution
  - a. Never married
  - b. Ever married

The type of living arrangement was identified for each person individually based on his or her household membership and relation to the head or reference person of the household or any household member depending on the availability of these variables in each dataset. Thereafter, the distribution of the target population was identified at three points in time that mark the last decade of the 20th century and the first decade of the 21st century, around 1990, 2000 and 2010. Constructing a typology that could subsume all living arrangements of individuals comparatively in both countries appeared to be an important challenge, as the variables used to identify living arrangements differed between the countries, and even between the consecutive time points in the same country.

For Estonia, we used individual data from three censuses conducted on 11 January 1989, 31 March 2000 and 31 December 2011. Data from these censuses were harmonised for the Estonian Information Technological Mobility Observatory (IMO) (Estonian Research Council, 2019). For the analysis, men and women aged 60 years and older who had their usual place of residence in Estonia at the time of each census were selected. In fact, the typology and method for collecting data on relationships within the household has changed over the three censuses, making it a challenge to construct a comparable typology for living arrangements. In 1989 and 2000, for each individual in a private household, only the relationship to the reference person was fixed. In 2011, the relationship matrix identified all relationships of the individual to other household members. In addition, the typology of relationships used in the three censuses also included some differences, most of which were eliminated when constructing the typology of living arrangements for this study. More specifically, the 1989 census did not distinguish legally married and cohabiting partners, and cohabiting partners were counted as married regardless of whether they were divorced, widowed or never married. Nevertheless, non-registered marriage-like cohabitation was relatively rare during the Soviet period, as most benefits for families were available only for married couples (Kasearu, 2009)<sup>1</sup>. In the 2000 and 2011 censuses, legally married and unmarried partners were shown separately. For all three censuses, although only for a 25% sample in 1989, the reference number of partner and mother (or parent-child link) in the household was given. All available information referring to the relationships and co-residence were used for identifying living arrangements for each individual: These included an identification number for the household, number of household members, relationship to the household reference person for all members of the household, marital status, childbirth experience for women, age and sex. A large number of cases were solved individually in order to ensure maximum comparability between the living arrangements observed in the three censuses.

For Belgium, data on living arrangements for people aged 60 years and above by age and sex were available as of 31 December 1991, 2001 and 2011 from the continuous population registration system.

<sup>1</sup> Cohabitation was not largely distributed among generations born before World War II in both Estonia and Belgium even among younger age groups: in both Estonia and Belgium, the proportion of cohabiting couples aged 20–29 among all in partnership was less than 10% in 1960–1969 (Lesthaeghe, 2020).

The classification of individual living arrangements following the above-mentioned typology was based on an optimal use of the variable 'relationship with the person of reference', considering in addition date of marriage in order to identify distinctly the possible different married couples in a given household.

## Method of analysis

The patterns of living arrangements in the two countries were analysed in two complementary ways and all analyses were performed separately on male and female populations. In the first part of the investigation, in order to identify differences in living arrangement compositions in the two countries, we compared the share of people by living arrangement at the central point of the observation period, in 2000, that marked the turn of the millennium. The point in time for comparing living arrangement patterns in the two countries was chosen at the middle of the observation period because in 1989 the distribution of living arrangements in Estonia could be too strongly influenced by constraints linked to Soviet housing policies that prevailed over individual choice. Therefore, comparing Estonian with Belgian data at this time would not be meaningful. In this first analysis, the relative number of people for each living arrangement were computed for four ten-year age groups from age 60 to age 90 and over. To compare the prevalence of each type of living arrangement in Estonia and Belgium, the level of significance was addressed using Z-scores for the difference in the proportion of each living arrangement in the two countries.

In the second part of the investigation, we identified the changes in the share of people by living arrangement in the two countries between the three observed points in time. The changes were observed in each of the two decades of observation: namely between 1990 and 2000 and similarly between 2000 and 2011, respectively for the terminal decade of the 20th century and the first decade of the 21st century. Absolute differences in the proportion of each living arrangement in two consecutive points in time were compared based on age-standardised data for each of the two decades. Standardisation by age group made it possible to identify an increase or decrease in the proportion of each living arrangement between two observed points in time without a bias linked to a different age structure in the two countries. By confronting the changes in the two successive decades within each country and each living arrangement separately, we will be able to identify the existence or not of a monotonic increasing or decreasing trend.

Further, all living arrangements were considered together to compute the Chi-squared distance between two distributions of proportions of living arrangements. The following conventional formula was used:

$$\sum_{i=1}^n \frac{(x_i - y_i)^2}{(x_i + y_i)}$$

where  $i$  are the different living arrangements and  $x$  and  $y$  are the values related to either two successive points in time in a given country or the three points in time between the two countries. As such, the Chi-squared distance helps identify the following for each age group:

- (i) the changes occurring in the relative distribution of the older population by living arrangement during the two decades in the period observed in each country, separately,
- (ii) the differences between the two countries at three points in time and the possible convergence in the trends during the two observed decades.

## Results

The results of the first analysis, presented in Table 1, reflect the share by living arrangement by sex and age groups in Estonia compared to Belgium as observed around 2000. To compare the two countries, Z-scores and the corresponding p-values were calculated. Positive Z-scores show living arrangements in which relatively more people were observed in Estonia and negative scores where more people were observed in Belgium. The smaller the Z-score, the smaller the difference in a given living arrangement, while the p-values indicate the probability that no difference exists between the two countries.

The results show that for both men and women, relatively older Estonians are divorced and living alone, living with a partner without being married, or living with children. Belgians are more likely to be living in collective households (nursing home) or with people other than a spouse, partner or child. The extent of these differences in proportion vary by age group; however, for most living arrangements, they are larger in younger generations and smaller in older. Among people living with children, or those who are ever married and living in nursing homes, the proportions tend to be higher in older ages in both countries, but the situation differs remarkably between the two countries. In Estonia, a higher proportion of older people are living with a child, and a lower proportion are living in nursing homes. This is more evident particularly for women.

**Table 1:** Share of population aged 60 and older by living arrangement, and the range of its difference in Estonia compared with Belgium, around 2000

		Men				Women			
		60s	70s	80s	90s	60s	70s	80s	90s
Alone									
never married	Estonia (%)	3.9	3.0	2.7	2.4	5.1	6.8	6.3	4.0
	Belgium (%)	3.8	3.3	2.4	2.6	2.5	3.2	3.1	2.5
	Z score/p-value	1.50***	-2.28***	1.44***	-0.24***	42.69	48.07	24.45	5.38
widowed	Estonia (%)	4.4	10.3	19.1	24.4	17.7	32.2	37.7	26.0
	Belgium (%)	3.9	10.5	22.2	30.5	14.9	33.7	45.3	29.9
	Z score/p-value	5.59	-1.03***	-6.18	-3.74*	21.37	-7.63	-22.12	-5.09
divorced/ separated	Estonia (%)	9.2	6.1	3.5	2.3	11.0	7.1	3.4	1.8
	Belgium (%)	5.5	3.1	1.9	1.1	5.6	3.2	1.9	0.9
	Z score/p-value	37.10	28.96	9.63	3.06**	61.54	49.96	15.52	4.93
In private LA									
with spouse	Estonia (%)	67.6	65.3	52.6	33.5	42.0	24.4	7.0	1.7
	Belgium (%)	63.0	65.1	48.7	21.0	54.7	35.9	12.7	1.8
	Z score/p-value	22.45	0.63***	6.37	8.44	-70.93	-59.11	-25.22	-0.50***
with partner	Estonia (%)	6.7	4.8	3.7	3.5	4.4	2.3	1.0	0.4
	Belgium (%)	3.2	2.7	2.3	1.7	2.5	1.8	1.0	0.4
	Z score/p-value	44.52	21.50	7.14	3.64*	32.46	8.89	-0.00***	-0.12***
with child	Estonia (%)	2.6	4.5	9.8	21.5	14.3	20.4	34.4	50.4
	Belgium (%)	2.2	2.4	4.4	8.6	5.6	7.2	9.8	11.1
	Z score/p-value	6.84	22.07	20.88	12.28	95.53	113.30	106.10	64.96
with others	Estonia (%)	4.4	4.5	6.3	7.6	5.0	5.5	6.2	7.1
	Belgium (%)	17.5	10.5	8.2	8.2	12.8	10.5	4.6	10.5
	Z score/p-value	-83.39	-33.95	-5.62	-0.64***	-67.26	-41.30	10.55	-6.53

In collective									
never married	Estonia (%)	0.5	0.5	0.6	0.7	0.3	0.5	1.1	2.3
	Belgium (%)	0.1	0.4	2.1	3.7	0.1	0.3	0.9	0.5
	Z score/p-value	21.57	1.94***	-8.77	-4.62	13.00	6.52	2.65**	12.77
ever married	Estonia (%)	0.7	0.9	1.7	4.1	0.3	0.9	2.9	6.3
	Belgium (%)	0.9	1.8	7.8	22.7	1.3	4.2	20.6	42.3
	Z score/p-value	-5.67	-11.79	-19.31	-12.79	-25.25	-42.33	-65.28	-43.67

Note: \*P > 0.90, \*\* p > 0.95, \*\*\* p > 0.99

Source: Authors' calculations based on data from Population and Housing Census, 2000 (Estonia) and continuous population registration system, 2001 (Belgium)

The second investigation compared the changes in the distribution of the older population by living arrangement during the observed period. Table 2 shows, for both countries, the trends in the share of each living arrangement for the two successive decades before and after the millennium. A continuous increasing trend is observed in both Estonia and Belgium in divorced or separated older people of both gender living alone and people living with an unmarried partner. Living with a spouse became more frequent only among women. Both countries also show a monotonic but decreasing trend for both men and women living with children but without spouses or partners, for widowed men living alone, and for women living with others. In other living arrangements, a turn in direction appears at the midpoint of our observation, but the same turns occur in both countries in only two living arrangements. Concretely, an increase was replaced by a decrease for never married men living alone and, for never married women in collective living arrangements. In other living arrangements, the directions and continuity of the trends were not the same in Estonia and Belgium. Continuous but opposite directions in trends between Estonia and Belgium were observed for men living with a spouse – their proportions are continuously increasing in Belgium and decreasing in Estonia. The sharpest and most diverging trends characterise ever married people in collective living arrangements, where Estonia shows a remarkable increase during the entire observed period, whereas in Belgium, the increase has shifted to a decrease, with both these directions being particularly strong among women.



**Table 2:** Variation in the age-standardised relative distribution of people by living arrangement and sex for two successive decades (differences in percentage between the proportions observed at the end and the beginning of each decade)

Living arrangements V	Decades >	1989 - 2000	2000 - 2011	1991 - 2001	2001 - 2011
	MEN	Estonia		Belgium	
Alone	never married	0.335	-0.217	0.101	-0.045
	widowed	-0.451	-0.910	-1.915	-0.867
	divorced/ separated	1.110	2.546	0.527	1.472
In private LA	with spouse	-2.869	-0.048	3.488	2.776
	with partner	4.638	0.367	0.145	0.796
	with child	-4.965	-0.722	-2.085	-1.066
	with others	1.264	-2.682	-2.715	-0.982
In collective	never married	0.133	-0.024	0.518	0.001
	ever married	0.804	1.691	1.892	-1.520
	WOMEN	Estonia		Belgium	
Alone	never married	0.404	-0.260	-0.729	-0.158
	widowed	0.953	-0.164	-2.823	-0.818
	divorced/ separated	2.553	3.977	0.681	2.001
In private LA	with spouse	0.399	2.117	3.138	3.725
	with partner	1.976	0.323	0.083	0.586
	with child	-3.595	-6.911	-1.399	-2.925
	with others	-3.364	-0.600	-3.555	-0.001
In collective	never married	0.118	-0.249	0.125	-0.070
	ever married	0.556	1.767	4.479	-2.341

Source: Authors' calculations based on data from Population and Housing Census, 1989, 2000 and 2011 (Estonia) and extract from continuous population registration system, 1991, 2001 and 2011 (Belgium)

To complement the results presented above, Table 3 presents evidence of changes that occurred for different age groups in the relative distribution of people by living arrangement in Estonia and Belgium distinctly during the two decades. In both countries, the larger changes occurred in the 1990s. During this decade, cumulative changes were greater for men in Estonia, and for women in Belgium (with a sum of Chi-squared of 28.03 and 21.06). During the second decade, the changes were not as large as previously, similarly in both countries, and the changes were more largely reduced for men compared to women.

**Table 3:** The Chi-squared distances in change of the relative distribution of people by living arrangement in age groups and decades

Age group > Country/ Period V	60-69	70-79	80-89	90 and older	Total
Estonia					
Men 1989-2000	8.64	5.79	4.79	8.80	28.03
Men 2000-2011	1.75	2.60	2.96	3.18	10.48
Women 1989-2000	5.62	4.96	3.52	3.45	17.55
Women 2000-2011	1.94	2.88	4.24	4.59	13.64
Belgium					
Men 1991-2001	0.64	0.45	1.23	14.70	17.03
Men 2001-2011	1.32	0.88	0.99	2.44	5.63
Women 1991-2001	1.52	1.16	5.20	13.18	21.06
Women 2001-2011	8.39	2.75	3.00	1.86	15.99

Source: Authors' calculations based on data from Population and Housing Census, 1989, 2000 and 2011 (Estonia) and extract from continuous population registration system, 1991, 2001 and 2011 (Belgium)

In Table 4, the difference between relative distributions of older people by living arrangement in Estonia compared to Belgium is presented for three points in time for each age group. The decrease in Chi-squared values from one time point to the next indicates that the distributions by living arrangement became more similar. The sum of the Chi-squared age groups over all presented in the last column of the table confirms that the relative distribution of older people by living arrangement in the two countries presents some signs of convergence over the two decades. It appears more clearly for men during the last decade of the 20th century, and for women somewhat later, in the first decade of the 21st century. Nevertheless, by age group, the trends vary and more specifically an increase in dissimilarity is observed in 2011 for younger aged men and even more for the youngest women.

**Table 4:** The Chi-squared distances between the relative distribution of older people by living arrangement, sex and age in Estonia and Belgium at the three points in time

Age group > Sex / Time point V	60-69	70-79	80-89	90 and older	Total
Men					
1990	20.30	11.63	14.44	37.90	84.27
2000	10.51	4.96	8.35	25.02	48.44
2011	12.29	8.39	8.78	16.93	46.39
Women					
1990	15.92	18.01	30.23	46.36	110.52
2000	12.90	15.11	30.95	54.25	113.21
2011	17.85	14.46	19.93	37.96	90.20

Source: Authors' calculations based on data from Population and Housing Census, 1989, 2000 and 2011 (Estonia) and extract from continuous population registration system, 1991, 2001 and 2011 (Belgium)

## Discussion

Despite the differences in patterns of living arrangements in Estonia compared to Belgium, the analysis of the situation in living arrangements at the dawn of the new millennium and the changes in their composition among the older population over the decades before and after 2000 reveals that a tendency towards more similar living arrangement patterns exist between the two countries. In Estonia, the freedom from the various restrictions of the Soviet period that affected personal choices allowed more individualistic family patterns to emerge. The higher proportion of people in consensual unions among the younger generations of older people in independent Estonia compared to Belgium is therefore not surprising. In fact, the shift from marriage to cohabitation was assumed to begin in Estonia already before the fall of the Soviet regime (Katus et al., 2008). As an alternative to traditional family living arrangements, cohabitation without marriage is becoming more common everywhere and not only among younger generations (Brown et al., 2018). In Northern Europe, the increase in cohabitation has been observed for half a century already - in Sweden since the 1960s, and in Finland since the 1970s (Ritamies, 1997), while in Belgium these processes emerged somewhat later (Boulanger, 1997; Deboosere, 2009). In our results, we show that cohorts born during and after the Second World War in Estonia have a higher proportion of those living in a consensual partnership compared to Belgium. The high prevalence of consensual partnerships in the population might also explain the important share of never married or divorced people living alone in Estonia at older ages. These trends are also in line with increased divorce rates during the transition period after the collapse of the Soviet regime, which affected the generations that currently form the younger age groups of the older population more (Statistics Estonia, 2022). Opposite situations were found in this study between the two countries for people living with their children and living in nursing homes. This was valid in all age groups and contrasting particularly for women. These differences could be explained mostly by the differences in the availability of places in nursing homes and the socio-economic situation in the two countries.

The investigation of the differences in the distribution of older people by living arrangement between the two countries measured at three points in time demonstrates clearly that living arrangement patterns in the two countries became more similar during the two decades either side of the turn of the millennium. The convergence between Belgium and Estonia was already visible before 2000 for men in all age groups, whereas for women, it appeared mostly during the second period and were weaker compared to men. The results of the study reveal that in both countries more women are continuing to live with their spouses in old age as well as are both men and women living more frequently in consensual partnerships. An increase was also observed in the proportion of never married older people who were living alone in both countries during the last decade of the 20th century but that trend slowed at the beginning of the new millennium. These trends apply to several other European countries as well (Tomassini et al., 2004; Martikainen et al., 2019). Padyab et al. (2019), having observed such trends in Sweden, suggested that mortality and family patterns of generations reaching old age at the beginning of the century are responsible for these changes. There are also fewer childless older people, and having children is predictive of lower odds of living alone, especially for women (Mudrazija et al., 2020). At the same time, increased diversity in living arrangements is expected in the future, which may reduce the availability of family resources for older people.

In parallel with a monotonic increase in the share of older men and women living with a partner in a consensual union in both Estonia and Belgium, a decrease is observed in living with a child in a household without a spouse or partner. In both Estonia and Belgium, older people are increasingly less likely to live in complex households. This tendency is observed in Western societies generally and among all generations (Ruggles & Heggeness, 2008). While this can be attributed to the desire among older people to live more independently, a decline in intergenerational households may also reflect the declining influence of the parents on the choices of their children (Furstenberg, 2019). The smallest proportion of older people in multi-generational households is observed at around age 70 (Coward et al., 1989). At this age of parents, considering their relative good health, for both children and their parents more freedom in choices of living arrangement could be available. In

our study, the complex households may be captured through living with child or with people other than a spouse or partner. The share of these living arrangements is strongly decreasing in both countries and particularly decreased in Estonia for people living with a child during the 1990s. While these trends have also been found in other countries, in Estonia they may be explained, on the one hand, by improved health status reflected in the increasing life expectancy and, on the other hand, better availability of housing facilities that together enables more people of an older age to live independently.

At all ages and for both genders, the proportion of ever married older Estonians and Belgians living in collective households increased strongly between 1991 and 2001. The same trend is observed but in a reduced manner for the non-married. In Belgium, these proportions decreased significantly between 2001 and 2011, and that can be explained by the limitation on the number of beds available, and a policy change aimed at keeping older people at home as long as possible. On the contrary, the trend observed in Estonia for the ever married shows an important increase between 2001 and 2011, which can be explained by the increasing availability and quality of nursing home beds linked to rapid economic growth after Estonia's release from its Soviet economic ties. This trend is expected to continue, as the increase in never married and divorced living alone would result in more need for older people to enter nursing homes.

In conclusion, our study confirms that the relative distribution of older populations by living arrangement remains different between Estonia and Belgium, although some trends appeared to be similar during the two decades under study and some signs of convergence emerged. In both countries, the changes are more remarkable among men compared to women. Comparing the share of living arrangements in the two countries at three points in time reveals a convergence that is in line with the general changes in demographic patterns in European societies suggested by Coleman (2011). We witnessed a narrowing gap in the relative distribution of older people by types of living arrangement between Estonia and Belgium, thus confirming the hypothesis that Estonia is moving closer to Western patterns of living arrangements observed in Belgium and this convergence is quicker and more evident for men compared to women. By evidence, as the changes observed over two decades show partly similar patterns, it is possible that both countries follow a universal trend observed in most developed societies. Temporary divergences in trends and differences in time points can be explained by country-specific conditions. For Estonia, the starting point of our investigation was characterised by low economic and social functioning that inhibited the choice of living arrangements for people in all ages. The post-independence release from political barriers brought vital changes in geographical movements and rapid socio-economic development that seems to be the main driving force behind the changes in living arrangement patterns, including those of older people. However, as similar trends are also observed in Belgium, we can assume that more general and more comprehensive causes of these trends exist in Estonia. It is obvious that a narrowing mortality gender gap influences the prevalence of the most traditional living arrangements across all adult ages; that is, living as a couple. With changing attitudes and the decreasing importance of legal marriage in family life, it can be assumed that unmarried partnerships will be more frequent among older people as well. It seems that single-generation living arrangements, alone or with a partner, are most preferable; this is clearly illustrated by the decrease in the probability of living with a child if a partner also lives in the same household in both Estonia and Belgium. Despite the similarity in recent trends, the historically-imposed economic and social conditions that distinguished Estonia and Belgium in the 1990s will continue to affect older people today, including their choice of living arrangement.

Comparing the ageing process and its impact on living arrangements for older people across countries is a challenge (De Vos & Holden, 1988). In order to ensure the comparability of living arrangement patterns, we constructed a harmonised detailed typology of living arrangements for both countries by considering the specificity of each data source. Our study differs from most other studies on living arrangements by covering the entire population aged 60 years and older in both countries, including older people in institutional households. Including the entire population allowed us to identify developments in living arrangements that are less frequent among older people, such as living with a partner in a consensual partnership and distinguishing ever- and

never-married among alone-living and nursing home populations. Individual anonymous records of persons were used in this study to identify the type of living arrangement for each person considering his or her position in the household. Studying transitions in the living arrangements of individuals was not the topic of this study. Therefore, the two countries' situations were observed at three fixed points in time defined by the timing of the census and were not observed continuously between these points. We considered that comparing data over ten-year periods was reasonable for such a study, as the changes in both population composition and living arrangements are not rapid. Finally, yet importantly, at the time of our investigation, the 2020 round of census data was not yet available in the two studied countries. Therefore, this study could not capture the changes that have occurred in the two countries after 2010. Nevertheless, the findings would be a good basis for further study to confirm whether the convergence in living arrangement patterns has continued or not.

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