REGIONAL PATTERNS OF POPULATION AGEING IN ESTONIA

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The paper, forming a part of the wider study on population ageing in Estonia, discusses basic regional patterns of the process in the country. The analyses covers the period of 1881-1989 with special emphasis on the regional differences at the end of the referred period. Mainly census data are used which are harmonised over the time period. The data are derived from the Estonian Population Databank.

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The regional distribution of aged population is regularly investigated in country specific studies [Lindgren 1990; Rowland 1991; Vukovic 1991 etc]. This kind of information is particularly important for several aspects of policy implementation, which have been historically rooted, and in several countries continue, at least partially, to be concentrated in the level of local administration. Community responsibilities have been particularly pronounced in the Nordic countries, and among others, in Estonia. From the point of scientific research, however, the spatial distribution of the elderly has received relatively little attention. That could be easily explained by several reasons a couple of which are addressed below.

The population ageing *per se* is not determined by spatial processes. Therefore, analysis of the population ageing could discard spatial aspects, and the territorial distribution of the elderly could be derived from the combined knowledge of the ageing process, settlement system and migration of the elderly. The elderly migration is indeed attracting growing interest among researchers but obviously forming a subject of research separate from the spatial distribution of the elderly population [Carter 1994; Newbold 1996; Serow 1996; Warnes, Ford 1995]. Secondly, numerous boundary changes are usually limiting analyses of the regional patterns of population ageing, particularly in case of focusing on longer periods. And last but not least, the region-specific analyses of ageing processes are much more data and effort consuming. If the approach does not promise to reveal any principal regularities adding to the national level analysis, there are usually no sufficient arguments left to take the trouble.

The referred arguments are also valid in case of Estonia. Nevertheless, the usual approach to present the current, i.e. at date of the last census, spatial distribution of elderly population should and could be complemented with some additional insight. Particularly, the discontinuity of the Estonian population, because of large-scale immigration, is much more pronounced on the regional level: the overwhelming majority of immigrants settled in the urban areas, with two of the 15 counties particularly influenced. Obviously it has also created discontinuity of the regional pattern of population ageing, which will gain in importance in the future when the large immigrant cohorts will enter the old age. In the paper some specific features of the regional pattern of ageing in Estonia are outlined by the study of ageing process in urban and rural settlements as well as presentation of series of county-level maps at all census points.

The analysis of regional patterns in the ageing process in Estonia is based mainly upon the census data. The data, recalculated for comparability purposes, are derived from the Estonian Population Databank*.

* Estonian Population Databank systematically assembles census, vital and survey statistics. For the purposes of comparablity in time and space the data undergo harmonisation in terms of methodology and definitions as well as regional disaggregation. Databank is developed by the Estonian Interuniversity Population Research Centre [EKDK 1992a; 1992b]. In this report the figures are based on the Databank, if not referred otherwise.

1. OUTLINE OF GENERAL TREND

The principal determinants of population ageing have quite frequently balanced each other in the Estonian population development, especially in the last half of this century. Due to that the change in population age distribution, and in proportions of the elderly has been somewhat smaller than is typical for the ageing process accompanying the demographic transition and the following period. Without those compensatory effects one could have expected much larger changes in the population age structure, comparable to those experienced by other nations with early demographic transition. Table presents the data on dynamics of the three aggregated age groups for the census years.

POPULATION NUMBER AND MEDIAN AGE OF POPULATION
census years 1881-1989

Census year	Total population	Aggregated age groups			Median age
		0-14	15-59	60+	
1881	881,455	293,639	516,319	71,002	23.52
1897	958,351	306,173	558,295	93,443	24.99
1922	1,107,059	282,215	693,180	130,540	28.64
1934	1,126,413	261,929	710,718	152,458	31.29
1941	999,552	239,615	603,900	156,037	34.37
1959	1,196,065	271,527	744,273	179,996	31.83
1970	1,351,640	298,293	825,982	226,062	33.62
1979	1,464,476	315,725	910,012	238,405	33.89
1989	1,565,662	348,738	953,525	263,399	34.08
1998	1,536,227	294,522	950,727	290,978	36,61

The major changes in population age distribution had already developed during the second half of the 19th century, and the first half of the 20th century. The proportion of children in the total population gradually declined up to the 1930s and stabilised afterwards for half a century more or less at the same level. Such a prolonged stability in the share of younger age groups could be surprising if not considering the oddity of the Estonian fertility trend, particularly the absence of the post-war baby-boom. In general the fertility component has affected the post-transitional population ageing in Estonia to a much lesser extent than is usual in European countries. However, the rapid

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It should be noted that due to the political discontinuity the publication of the original census data has been dispersed over a range of different sources. The 1881 census data were published by the Estonian and Livonian Gubernias' Statistical Committees [Jordan 1886; Jung-Stilling, Anders 1883-1885]. The data of the 1897 census of the Russian Empire were published by the Central Statistical Committee of the Ministry of the Interior [Troinitski 1905a; 1905b]. The 1922, 1934 and 1941 census data were published by the Central Statistical Bureau of the Republic of Estonia [RSKB 1923-1925; 1934-1937; 1942]. The data of the Soviet censuses were published in two parallel series, one for the public, the other for the classified use [TsSU ESSR 1962-1964; 1972-1974, TsSU SSSR 1980-1983]. The full publication of the census data of 1989 by county volumes is in progress [EKDK 1996-1999].

fertility decline in the 1990s has resulted in principal change in the situation, and currently the population is ageing from below, with the ever highest rate.

The share of working-age population indicated the expected increase before the completion of the demographic transition. Reflecting the arrival of the most numerous birth cohorts from the end of 19th century in adult age and the completion of the transitional fertility decline, the proportion of working-age population peaked in the 1930s (63.1 per cent). Afterwards, this trend turned to decrease but was interrupted after the WW II by the emergence of a sizable immigrant population. Notably, the so far (1989) lowest proportion of the working-age population was recorded in the 1941 census. Despite some decrease, the proportion of the working-age population remained on a high level for an extended period. Inevitably, this feature is not sustainable and is expected to end when the first large immigrant cohorts reach the old age. The 1990s are witnessing this very process with the decrease affecting not only the proportion of the working-age population but also its absolute numbers.

The proportion of the elderly (population aged 60 and over) increased rapidly up to the 1940s. Later intensive immigration and mortality stagnation have kept the proportion of the elderly nearly constant. This should be probably regarded as the major peculiarity of the ageing process of the Estonian population in the European context. However, the noticeable heterogeneity between the immigrant and the native populations should be stressed as the cause of that trend. The data demonstrate the relatively sharp increase in the proportion of elderly until the census of 1941: the proportion rose from 8 per cent in 1881 to 16 per cent in 1941, i.e. doubled in sixty years. The next fifty years have added only one percentage point, while the subperiods 1941-1959 and 1970-1979 are even characterised by the decline in the proportion of the elderly. However, such a stability was temporary, and the proportion of the elderly has turned into a fast increase in the 1990s.

2. URBAN-RURAL DIFFERENCES

Preceding the demographic transition accompanied by urbanisation there were about ten historical cities in Estonia. During six hundred years after the constitution of the cities, their number remained virtually unchanged [Pullat 1997]. The start of urbanisation and the emerging growth of new towns had not been accompanied by immediate granting of the corresponding status and the 1881 census counted still only 12 cities with approximately thirteen per cent of total population. In modern Estonia the settlement system includes 47 cities and towns comprising approximately 70 per cent of the total population. Such a large scale redistribution of population has a principal effect on the regional pattern of population ageing, naturally with the certain time lag. In case of Estonia the internal migration as a universal source of urban growth was complemented by immigration after the WW II. This effect has proved extremely important on urbanisation as well as on the whole settlement system. In Estonia, urbanisation presents as a two-wave process: the first wave of urbanisation up to the WW II was generated by internal migration, in the post-war period immigration became the main impetus and gave rise to the second wave of urbanisation [Katus, Sakkeus 1986]. Thus, the urban-rural differences in population ageing are expected to be closely linked with the differences in native and foreign-born populations.

The long-term trend in population ageing by urban and rural population is presented by the general ageing indicators: proportion of elderly population and median age of total population (Figure 1). Regarding urban population, the trend of ageing has been interrupted after the WW II. The proportion of the elderly in the 1959 (first post-war) census has decreased about four percentage points and dropped below the 1934 level. The second general indicator, median age of population, has dropped even below the corresponding figure of the 1922 census, i.e. the level registered over 35 years earlier. In the rural population no such discontinuity is detected. The rural population of Estonia represents the trend of continuous ageing common to other countries. It should be underlined that the described urban discontinuity in ageing is solely responsible for the peculiar ageing process of total population discussed in the previous chapter. In reality, the stability of post-war ageing processes of the total population comprised the opposing ageing and juvenation trends in urban and rural settlements. At the national level the rural ageing and urban juvenation processes counterbalanced themselves like the developments among native- and foreign-born populations. Among other implications, the opposite development had initiated the greatest urban-rural differences in population ageing ever recorded in Estonia, particularly for the intercensal period of 1959-1970. Obviously, the discontinuity of population ageing in urban settlements is fully due to the channeling of large-scale immigration to cities.

After the sharp post-war juvenation, the urban population returned to the common trend of population ageing from the 1959 census. The development has been relatively moderate compared to the 1920-1930s, and by the 1989 census the median age of urban population had still not reached the level of 1941 census. The slow pace of urban ageing has naturally been the result of continuous immigration, however, the progression of the first-wave immigrants towards the old age together with the ageing of the native-born urban population, overran that effect and kept the ageing in progress. The ageing of urban population is currently culminating, and will be of the trend-forming importance at the national level for the next decade.

The ageing of the rural population peaked in the late 1960s and early 1970s, changing to juventation in the next two decades. Theoretically this juvenation of the rural population is well-predicted, taking place during the specific stage of demographic transition: the period when the largest transitional birth cohorts of the given nation are passing out. It is noteworthy that in case of Estonia the change to juvenation took place already in the 1970s while the majority of other Central European countries have just entered this stage in the 1990s or have not reached it yet. Such development in Estonia is easily explained by the impact of relatively early demographic transition strengthened by the absence of the post-war baby-boom. Additionally, the somewhat higher fertility in rural areas as well as the beginning of deurbanisation processes in the 1980s should be taken into account when analysing the post-war ageing process [Katus et al 1999]. Nevertheless, the juvenation of rural population has come to an end in the 1990s, and the moderate ageing trend was restored.

In addition to the principal difference between the urban and rural ageing processes, also some other patterns deserve attention. It is interesting to note that in the first stage of urbanisation the median age of the urban population continuously exceeds the rural median while the proportion of the elderly in both groups, being relatively close,

displays even the reverse pattern. In other words, two general indicators lead to different conclusions about the relative levels of the urban and rural ageing. That ambiguity is partly explained by the migration processes: being age-specific, migration processes have resulted in the overrepresentation of young adults in urban settlements, and the corresponding underrepresentation not only of the elderly but also of children for several decades. The latter has a parallel effect, sometimes referred as ageing from the bottom, and the median age of population in urban areas (characterised by migration inflow) has been higher compared to rural regions (characterised by migration outflow of the same persons). Additionally, the usual (but not universal) advance of fertility transition in urban compared to rural population is strengthening the described effect reducing the proportion of children. In other words, the greater the urban-rural fertility differentiation, the higher the median age of population in urban settlements, and consequently, the reverse pattern of two general ageing indices if applied to the urban and rural populations separately. This simple example indicates that one should be particularly careful when analysing the ageing process in subgroups of population.

After WW II both general indices have been much higher among rural population, however, starting to converge with urban from the 1970s. Currently the median age of population has been already higher in urban settlements for several years, and the proportion of elderly has reached the same crossover recently. In other words, the cycle of urban-rural ageing pattern initiated by the demographic transition is coming to the final stage: during the next couple of decades the urban population in Estonia will be characterised by increasing excess ageing, stabilising afterwards.

The Laslett index on ageing, namely the proportion of elderly in adult population, is also useful to examine [Laslett 1993]. The trend of the index is presented in Figure 2. Expectedly the dynamics of the proportion of elderly in adult population is indicating in broad terms the same pattern as the proportion of elderly in total population. However, the advance of ageing of the rural population is more pronounced, and clearly observed throughout the whole period 1881-1989. The converging trend with the urban population is also evident during the last two decades but the difference still remains about six percentage points (1989). The Laslett index is less dependent on ageing or juvenation from the bottom of the age pyramid, and therefore the urban-rural fertility differentiation is less influential compared to mortality differences as well as elderly migration. Mainly these two processes will define the urban-rural

PROPORTION OF THE ELDERLY AND MEDIAN AGE, census years 1881-1989

Census year	Urban population		Rural population	
	Prop. of elderly	Median age	Prop. of elderly	Median age
1881	8.1	25.7	8.0	23.0
1897	9.2	26.1	9.9	24.7
1922	10.2	30.5	12.5	27.7
1934	12.4	33.4	14.1	30.5
1941	15.0	36.2	15.9	33.3
1959	11.4	30.0	19.8	36.1
1970	13.1	32.2	23.5	37.4
1979	13.6	32.7	22.3	37.0
1989	15.8	34.2	19.4	33.8

difference in the proportion of elderly in adult population after the period of urban excess ageing is completed.

Another aspect of the ageing process is revealed by the annual growth rate of elderly population (60 years and over). In Figure 3 the rate, separately for urban and rural populations, is compared to the annual growth rate of total population respectively. Throughout the century (1881-1989) the growth of elderly population has been more rapid than the increase of total population with the exception of two periods: the 1950s for the urban population and the 1970-1980s for the rural population. While the latter is reflecting the stage of demographic transition, the first one is rather unusual. Additionally, the figure expresses the two-wave pattern of Estonian urbanisation more clearly than previous graphs. The same two-wave pattern is repeated in the elderly population but it is less pronounced. Among rural population the growth rates have remained more parallel throughout the period and there are no described waves in the dynamics.

Considering absolute numbers, it is evident that the rural regions have been losing the elderly population nearly half of century, except in one decade, the 1960s. The absolute growth has been concentrated during the last fifty years already, and will be entirely in the future, in urban settlements. Taking into account the differences in the way of life, living expenses, housing conditions, access to medical services etc. between urban and rural areas this reality is rather important from the policy viewpoint.

At first glance it could seem that the concentration of the elderly in urban settlements facilitates the implementation of the ageing policies. Health care in particular, but also securing social participation can be easier and probably less costly to arrange. On another hand, particularly in countries of economic transition this could not be the case. Given the relatively low pensions, the elderly in rural regions might have better possibilities to support themselves economically than in large cities. It is not so much because of generally higher living costs in larger settlements but mostly due to higher housing expenditure. After the housing reform the larger share of pension income of the elderly living in apartment houses has to be spent on rent and housing services. Family houses in the rural provide for larger flexibility to cover the housing costs. Additionally the elderly in Estonia are often engaged in agricultural activities even if they manage only part of work operations themselves. At least this production is supplying the food in the quantity and quality, some if not many of the urban elderly are not able to provide for themselves. Also, and it is of growing importance, loneliness has proved to be much more problematic among the elderly in the cities compared to rural areas. These examples imply that the shift of the majority of the elderly population from rural to urban areas will introduce a set of new problems even if some older ones are going to be less acute.

Gender differences in the ageing process between the urban and rural populations are presented by applying the same general indices, both the proportion of the elderly and the median age of the population (Figures 4 and 5). In graphs the difference is presented relative to the level in urban population. Concerning the median age, it is apparent that the change has been more stressed among females. Up to 1941 the median age in rural areas was lower, particularly for females (except in 1941). Contrary to that, in the last half of the century the median age has been higher in rural areas, and that is also much

more characteristic of females. The dynamics of urban-rural differences in median ages among males have been much less pronounced, however interestingly, the largest shift can be found between the two successive censuses of 1941 and 1959. That again is an evidence of the principal discontinuity of all population trends initiated by the massive immigration wave after the WW II into Estonia. Concerning the proportion of the elderly, the male and female indicators display relatively more parallel dynamics. It is noteworthy that in the early stages of ageing the proportions of the elderly among males was higher in urban settlements while the reverse was true for females. Also, earlier the urban-rural differences were somewhat more pronounced in males but step by step females have taken the leading role and the 1989 census reveals twice as high difference in female than among male population.

The urban-rural differences in dynamics of the oldest olds (85 years and over) are rather dissimilar to the differences of the total elderly population discussed above. Figure 6 demonstrates surprisingly parallel as well as relatively gradual two-fold increase of the oldest olds in 1881-1989. Except in the end of the last century the proportion has continuously been about 2-3 percentage points lower in urban settlements. The gap started to widen in the 1970s, strengthening in the 1980s, and the proportion of the oldest olds has reached 35 per cent among the rural elderly. This trend differs notably from the dynamics of the proportion of the total elderly, which was decreasing in the same period. Similar correlation, which was stressed when discussing general ageing trend and nativity differences, obviously refers to successive stages in the dynamics of the elderly themselves. The ageing policies should take into consideration that despite rapid concentration of the elderly in the urban settlements, the proportion of the oldest olds, who usually need specific support, is increasingly higher in rural areas.

Urban-rural differences of population ageing are giving an example of the social heterogeneity of the process, which is particularly important for the long-term trends and corresponding ageing policies. In the countries with low population density like Estonia the spatial dimension, infrastructure networks and availability of transport and communication services will remain an important factor differentiating the various social problems of the ageing society even in case of economic development balanced between urban and rural areas. However, such pattern of economic development has not been characteristic to the countries of economic transition [Ministry of Economics 1996; 1997]. In spite of a small territory and noticeably homogeneous level of development of urban and rural areas in pre-transition Estonia, the referred differences have grown rapidly, correspondingly increasing the importance of dissynchronities in population ageing.

3. COUNTY VARIATION

The urban-rural differences reflect the regional pattern of ageing only indirectly as the urban settlement system is not covering the national territory equally, and the regions with larger cities are having growing importance in ageing processes. Nevertheless, despite the size and importance of some cities, from the regional point of view they still represent just some kind of "dots" rather than "regions". The regional pattern could therefore be much better understood by directly analysing the regional sub-units of the national territory. In Estonia the major regional unit is *maakond* or *county* which

consists of smaller urban and rural *omavalitsus* or *communities*. Although the county division could be traced back over 700 years in the history, their boundaries have not been stable. Ironically, the largest changes have taken place in the 20th century during the Soviet rule, particularly in the 1950-1960s limiting, *inter alia*, the analysis of regional pattern of ageing in Estonia.

Below, the changes in regional differences of the population ageing are analysed at county level and the recent (at the time of last census) situation is presented additionally by the community breakdown. Over the period of observation, three sets of county boundaries are used. The 1881 and 1897 census data are presented by nine Estonian counties of Estland and Livland gubernias. It should be noted that these nine counties do not cover the whole ethnic as well as present national territory but data restrictions do not allow to include the remaining parts. The Republic of Estonia was divided into eleven counties, and that breakdown is used for the data from the 1922, 1934 and 1941 censuses. Comparing with the previous regional division Petserimaa county was added, which has proved to be important also from the point of view of the population ageing. As mentioned already, the post-war period has been characterised by numerous major changes of the county boundaries which does not allow to present the 1959 census data in any comparable manner at all. Since the 1970 census the territorial division has included 15 counties and their boundaries have been relatively stable up to nowadays.

Figure 7 includes eight maps presenting the proportion of the elderly, separately by each census year 1881-1989. The county indices are compared to the national average at the corresponding census, distinguishing between the regions with lower levels (two groups: 5-15 percent and more than 15 percent lower), higher levels (the same scale) as well as regions with levels around the national average (from -5 to +5 per cent). These calculations are carried out separately for the urban and rural populations because of noticeably different ageing trends discussed earlier. In maps the area refers to the rural population and the circles refer to the urban population of the counties.

Throughout the century the rural population has been characterised by lesser variation at county level compared to the urban population. This is a rather uncommon feature compared to other countries, particularly in the early stages of population ageing. The explanation lies in the relatively homogeneous demographic transition in Estonia as far as the territorial variation is concerned. In that aspect, Estonia clearly differs not only from comparatively large countries but also many others, neighbouring Finland and Latvia included [Katus 1994b; 1997a]. Returning to the Estonian rural population, up to the 1941 census two counties, Virumaa and Võrumaa have been continuously characterised by younger population and lower proportion of the elderly. Not surprisingly, both counties were also those with somewhat later beginning of demographic transition. In 1922 census the data on Petserimaa is added onto the map, and immediately the new county is taking the extreme position with the lowest level of proportion of the elderly. Petserimaa was a frontier county at the Russian border and partly with mixed Estonian-Russian population. Among the latter the timing of the demographic transition was much later and the county differed from other Estonian regions more or less in every aspect of demographic development.

The first post-war regional data presented in the report are related to the 1970 census which leaves the gap of 30 years. During this period the post-transitional demographic

development had become of trend-forming importance, the internal migration processes between urban and rural settlements had reached a balance, the intensive immigration flow had formed the large and unevenly distributed foreign-born population in Estonia, and last but not least, former ten counties had been divided into 15 (the eleventh county, Petserimaa, was annexed by the Russian Federation in 1944). Not surprisingly, new features can be also observed in the regional differentiation of the rural population. From the 1970s onwards the differentiation seems to increase and at the last census the regional diversity of rural population has reached the corresponding variation in urban population.

The youngest rural population in the post-war period is concentrated in Harjumaa, the county surrounding the capital city Tallinn. The obvious reason is the continuous migration increase, particularly because of rapid suburbanisation [Marksoo 1991]. In each intercensal period some other counties were joining Harjumaa being characterised by younger rural population compared to the national average. In the 1970s Lääne-Virumaa was added to the list, and the 1980s brought also Hiiumaa and Järvamaa to that group. In most cases these counties represent general population juvenation strengthened by the migration inflow from urban settlements because of emerging deurbanisation. Hiiumaa County is a good example of the rural outmigration coming to an end and the reversal migration flows taking over: the region has transferred from the group with the oldest rural population in 1970 to the group with the youngest population in 1989. On the other hand, the South-Eastern counties are demonstrating the trend towards the higher proportion of the elderly, relative to national average of the rural population. In 1989 Põlvamaa, Valgamaa and Võrumaa already form a homogeneous region of the highest proportion of the elderly. Needless to say, this is one of the most problematic regions of the current period of economic transition featuring high level of unemployment. The specific government programme for advancement of regional development (KERA) has been launched.

The regional differences in urban population are rather dissimilar compared to those among corresponding rural areas. Before the WW II only two counties had younger population and lower proportion of the elderly compared to the national average: by the 1922 census Harjumaa was joined by Petserimaa. The situation of Harjumaa is obvious as the capital city Tallinn is located in that county. Up to the 1860s the development of Tallinn was heavily restricted by the status of a stronghold of the Russian Empire and the requirements of military fortification, and the number of population in the capital remained almost the same for three centuries. When these restrictions were abolished, however, the city began to grow rapidly, the increase in population peaking at the turn of 19th and 20th centuries. At that time the growth of Tallinn was the most intensive compared to other bigger cities of Estonia. As a result, a noticeably large part of younger cohorts of urban population concentrated in the capital, and up to the 1941 census most of them had not reached the old age yet. The relatively low proportion of the elderly in urban population of Petserimaa has a different explanation: the whole county was characterised by much younger population than common to other Estonian counties at that time.

The share of Harjumaa in the total urban population was large enough to balance the somewhat more advanced ageing of the corresponding group in other counties (except Petserimaa): all of them were characterised by higher proportion of the elderly than the

national average throughout the six decades up to the census 1941. Those counties with the lower urbanisation level were also characterised by higher proportion of the elderly at that period. Läänemaa is clearly one of those cases followed by Saaremaa and Virumaa. Post-war censuses represent the different regional variation in urban population. Despite the fact that Harjumaa (and Tallinn) was receiving a large part of the international immigration flow, the ageing of the first wave of new urban population counterbalanced that effect. As a result, Harjumaa became the county with average proportion of urban elderly.

There are two reasons accounting for the variation of younger urban population between the counties after the post-war period. First, the immigration from the former Soviet Union was characterised by extremely uneven regional distribution of destinations. Those counties receiving the majority of the immigration flow underwent a rapid juvenation period, and during the following decades the population ageing was postponed in general. The very typical case is Ida-Virumaa which transferred from the county leading among the others by its proportion of oldest urban population in 1941 to the youngest one in 1970. Another group of counties having relatively young urban population were formed by those newly-established counties where the pre-war urbanisation level was low. A typical example of this type is Põlvamaa which was formed from rural parts of Tartumaa and Võrumaa in the way that it included none of urban communities. Naturally, the rate of increase of new urban settlement(s) was very high, and their population relatively young even in case of quite insignificant absolute numbers. The role of internal migration has proved to be also important in island counties, Saaremaa and Hiiumaa where the urbanisation level was low in the pre-war period.

The highest proportion of the elderly in urban population can be observed in the counties characterised by an established settlement system and higher urbanisation level before the WW II combined with moderate inflow of immigrants from the Soviet Union in the post-war period. The typical counties of this group are Pärnumaa, Valgamaa and Viljandimaa. In all post-war census points these counties had been classified to the group marked by the highest proportion of the elderly in urban population. Considering the general ageing trend of total as well as urban population the rapid growth of urban elderly is expected in the near future. This process will be accompanied with the principal change of the regional variation as well. The leading county of urban ageing will be Ida-Virumaa and others with high proportions of foreign-born population. At the same time such counties as Pärnumaa, Valgamaa and Viljandimaa will experience moderate urban ageing and gradually move from the group of highest to the group of average level of urban ageing.

4. COMMUNITY INEQUALITIES

A county is a relatively large unit to deal when it comes to policy implementation related to population ageing. Within the framework of administrative reforms of the 1990s the role of community-level administration was re-established in Estonia. Most of the responsibilities relating to the supply of social services for the population were assigned to the local (community) governments. The community council, elected for three years, nominates the local government and approves the budget. Health services,

transportation schemes, programmes of social support are just some items important for the elderly population in the list which at least partly depend on decisions of local administration. Sharp increase in the responsibilities of local administrations have in turn stressed the importance of community variation of population ageing as well.

The community differences are presented by four indicators: (1) proportion of the elderly as the general indicator of ageing, (2) proportion of lone-living elderly among the total elderly population, (3) proportion of economically non-active elderly and thus, depending entirely on pension and/or support of kin, and (4) proportion of the elderly living in under-equipped dwellings. From these four, only the first index directly measures the ageing process as such, others are raised to draw attention to the regional differentiation of social problems resulting from the ageing. The figures by communities used to prepare the maps have been earlier published in the country-specific standard tabulations of the national ageing project [EKDK 1995].

Presented community differences of the population ageing refer to the date of last census (1989) without an attempt to outline the dynamics. However, the previous section could easily supply the general background for that kind of interest. On another hand, the principal societal transitions in the 1990s have not modified the community ageing pattern noticeably. For example, regional patterns presented by proportion of the lone-living elderly or older people living in under-equipped dwellings are rather immune to any short term changes, and therefore, have nearly maintained the level of 1989, regardless of the marked societal transformation. Economic activities, however, have been subjected to the considerable change. This change in turn has introduced the new dimension of problems connected to the standard of living among the elderly and the regional variation of the proportion of economic activity before transition proves to be an important determinant of the current scope of problems.

Figure 8 presents the map of the proportion of elderly on the community level. It is quite noticeable that there are no counties expressing the homogeneous distribution of the index by communities. Therefore the desegregation outlines the regional variation much more distinctly but also supports further understanding of the general regional pattern. It has been mentioned already that the highest proportion of rural elderly can be found in three South-Eastern counties as well as in the North-East. The community pattern suggests that in addition to somewhat later timing of demographic transition in those regions the more intensive out-migration from the border areas should be considered. Namely, all the communities at the South-Eastern border with the Russian Federation are presenting the highest proportion of elderly. This belt of the excess population ageing is extending alongside the shore of the Lake Peipsi up to the border with Russia in North-East. Actually the majority of the communities with the highest proportion of elderly are concentrated on that border belt leaving the few others quite randomly distributed over Estonia. Moreover, the census data reveal that the analogous situation is also characteristic to the Russian regions close to the South-Eastern Estonian border (communities of the former Petserimaa).

The data affirm that the youngest rural population is observed in Harjumaa, particularly in communities surrounding the county capital. The effect of suburbanisation could be also, though less apparently, followed around Tartu, Pärnu, Viljandi and Rakvere. In the contrary, the city ranking third by number of population, Narva, does not reveal the

similar picture: being predominantly populated by immigrants the city is surrounded by the communities of aged native-born population. Leaving the suburban communities aside the relatively younger rural population is concentrated in the communities of Central Estonia as well as in Hiiumaa. In the first case the long-term juvenation is responsible for the situation. It should also be noted that these regions have been historically as well as nowadays characterised by more developed agricultural activities.

Concerning the urban population, the high variation of the proportion of elderly is confirmed. At the background of cities and towns with the lowest level like Sillamäe, Paldiski, Loksa, Vasalemma etc. there are other urban settlements belonging to the highest category (Aegviidu, Järvakandi, Mõisaküla, Suure-Jaani etc.). The first group represents those urban settlements having received the highest immigration flow from the Soviet Union while the others belong to the opposite group. The actual geographical location of the settlement seems to be much less important: Paldiski and Aegviidu are the same distance from the capital for example. It should be stressed once more that the same reason - substantial immigration flow - which maintained the young population up to the end of the 1980s, has become the factor supporting the sharpest increase of the elderly in the decade of 1995-2004.

The map presenting the proportion of the lone-living elderly is coinciding with the previous figure to a lesser extent than could be expected (Figure 9). Firstly, there is a clear distinction between urban and rural population. Moreover, the differentiation is not similar to that usually found in other Central European countries: with only a couple of exceptions all the urban settlements are belonging to the two first categories of the lowest proportion of lone-living elderly (lower than 30 per cent). The proportion as such is not very low of course but differs from most of rural communities which represent much higher average level. Partly the situation can be explained by the Soviet housing policies and the resulting shortage of dwellings. For urban population it was relatively difficult in previous decades to obtain a new (for example, more suited for different stages of the family life cycle) flat, and the elderly had to join the household of their children or other relatives in many cases regardless of their actual preferences. Now the opportunities of the elderly are limited by loss of savings during the hyperinflation of rouble.

Additionally to the housing limitations there seems to be another factor for explaining the lower proportion of lone-living elderly in urban settlements which is related to the migration pattern of the elderly population. Previously, when reaching the oldest old age or developing a chronic activity limitation, the person had limited choice among which the best was joining the household of her/his kin. Taking into consideration the redistribution of population between the urban and rural areas during the last 50-70 years that change of household usually involved the move from rural settlement to the urban one. In other words, a noticeable part of lone-living rural elderly in need of support have changed their status into two or three generational urban households. No similar migration moves have occurred to form the lone-living households in cities.

Concerning the rural communities the proportion of lone-living elderly is higher in average which, partly, is representing the better opportunities to meet the personal choices. The concentration of lone-living elderly by regions, however, does not coincide with the regional pattern of high proportion of elderly in total population.

Thus, the communities with the highest proportion (45 per cent and over) are more represented in the central part of Estonia forming the belt from the Finnish Gulf down to the Latvian border. Not necessarily the same communities but the region as such is characterised by relatively low proportion of elderly as discussed before. Moreover, there is no concentration of lone-living elderly close to the Russian border and Peipsi Lake shore. Nevertheless, several communities with the highest proportion of lone-living elderly are located in the South-Eastern region. Võrumaa and Põlvamaa counties are presenting very high local variation between the communities which pre-requisites the quite clear differentiation of regional policies in these counties.

The map of housing amenities of elderly is representing a relatively close pattern to that of proportion of elderly unlike the indicator of solitaire living arrangements (Figure 10). Whatever the community variation, the extremely high level of under-equipped dwellings among the elderly causes most serious concern. Hereby the under-equipped dwellings refer to absence not only of such amenities like hot water and central heating but also piped water and sewer system. Because of the combined effect of family life-cycle and former housing policies elderly are heavily overrepresented in such dwellings in Estonia: the category with the highest proportion of elderly living in under-equipped dwellings goes as high as 90 per cent and over. It is particularly important to notice the high range of variation between communities, referring to the need for differentiated measures.

The regional variation of the rates of economic activity among elderly is demonstrating the different pattern of heterogeneity compared to the previously discussed indices (Figure 11). While analysing the data, number of unexpected correlations could be revealed. Just to point out one of them: the city of Narva with the lowest proportion of elderly is also characterised by the lowest elderly activity rate (below 25 per cent) while the situation is the opposite in many South-Eastern communities. This example and many similar ones remind us of the centrally-planned employment policies which had usually not considered the local population development. As a cumulative effect of several decades the high regional imbalance of employment opportunities have been developed in Estonia. Up to the end of the centrally-planned economy the social implications of these disproportions were hidden but emerged to the surface during the transition to market economy in the 1990s. It should be noted that during transition economically active elderly and pre-retirement population groups were hit mostly. The pattern of economic activity represented in the map do not reflect the current situation, however, it is very useful in explaining the existing regional heterogeneity of unemployment as well as other forms of labour market slack in Estonia.

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Figure 1. PROPORTION OF ELDERLY AND MEDIAN AGE
Estonia 1881-1989

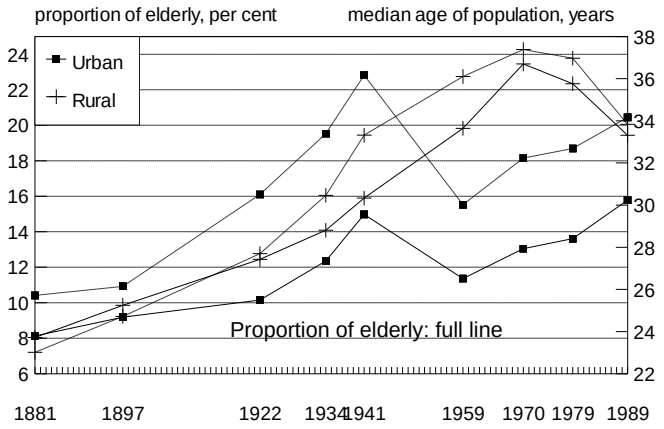


Figure 2. PROPORTION OF ELDERLY
IN ADULT POPULATION
Estonia 1881-1989

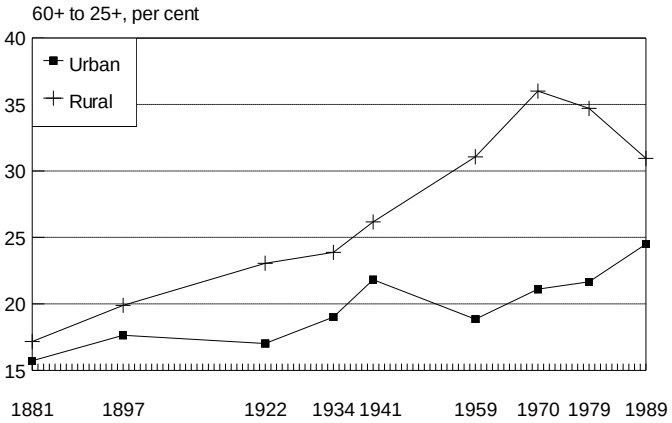


Figure 3. AVERAGE ANNUAL GROWTH RATE OF
TOTAL AND ELDERLY POPULATION
Estonia 1881-1989

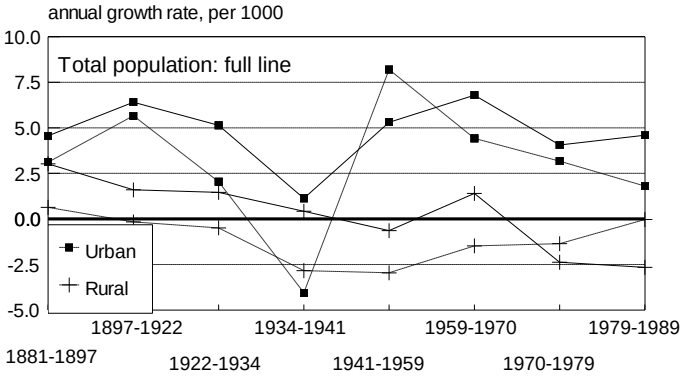

annual growth rate, per 1000
10.0
7.5
5.0
2.5
0.0
-2.5
-5.0
Total population: full line
Urban
Rural
1881-1897
1897-1922
1922-1934
1934-1941
1941-1959
1959-1970
1970-1979
1979-1989

Figure 4. URBAN-RURAL DIFFERENCE IN MEDIAN AGE
Estonia 1881-1989

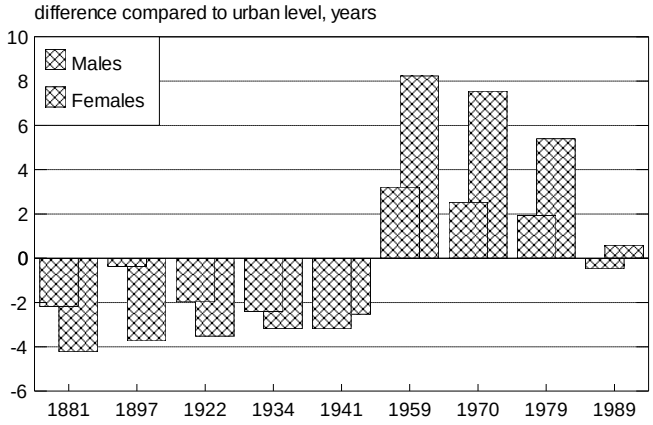


Figure 5. URBAN-RURAL DIFFERENCE IN PROPORTION OF ELDERLY
Estonia 1881-1989

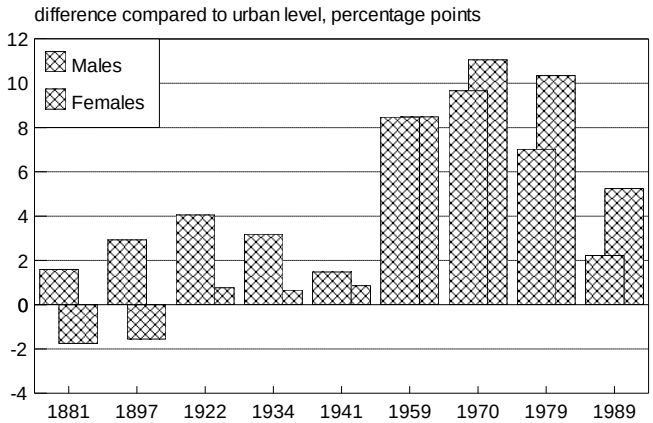
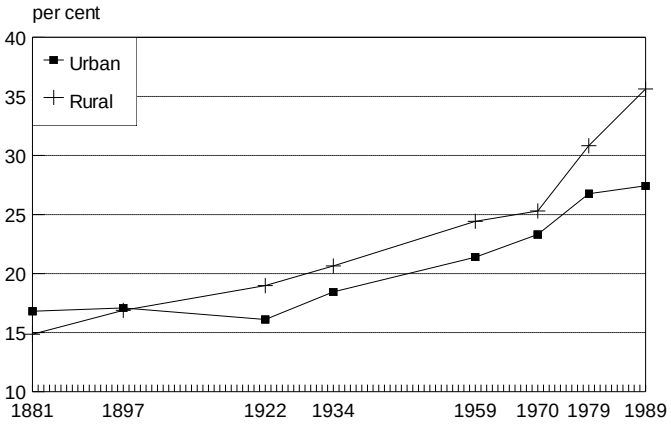


Figure 6. PROPORTION OF OLDEST OLDS
Estonia 1881-1989


per cent
40
35
30
25
20
15
10
Urban
Rural
1881
1897
1922
1934
1959
1970
1979
1989