TRAMES, 1997, **1(51)**, 3, 190–220

https://doi.org/10.3176/tr.1997.3.02

GENERAL TREND OF POPULATION AGEING IN ESTONIA

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Abstract. The paper outlines general trends in population ageing in Estonia. The process is analysed in the European context, determining the most specific trends and the major time frames of the population ageing. The analysis is mainly based on general indicators of the population ageing, calculated on the basis of data from nine censuses carried out on the Estonian territory. Using the same general indicators the population ageing and its differences in two sub-population groups of Estonia, native-born and immigrant population, is followed up to the year 2030 on the basis of population prognosis.

1. Population ageing as a universal process

Population ageing has lasted more than a century in demographically developed countries and has reached the stage where it is causing increasing concern. Also rapidly becoming acute in developing societies, the population ageing is one of the common processes for all the nations worldwide (Kinsella and Taeuber 1993). It is generally acknowledged that population ageing should be regarded as the most important long-term process of the 20th and 21st centuries with the principal impact on social, economical and political organisation of society (European... 1994, Sadik 1992, UN 1994b). The urgent need to change societal organisation belongs to a range of tasks in the new century, though the cause itself, population ageing, originates from the present. In this respect the ability of policy-makers to manage the issues concerning population ageing could be an effective test of their cognitive power to guide the modern society.

The demographic studies of population ageing typically build on the concept of chronological age, defining the process by a few general and a number of special quantitative indicators (Fratczack 1993, Lindgren 1990, Rowland 1991, Stolnitz 1992, 1994, Vukovich 1991, Velkoff and Kinsella 1993, Warnes 1993 etc). Among those indicators the ratio of elderly, i.e the percentage of population aged

60 (or 65) years and over in total population, and the median age of population are holding the key position. Correspondingly, the population ageing is defined as an intensive growth of the percentage of the elderly and an increase of the median age of population up to historically unseen high levels. In qualitative context the ageing is a multi-sided process of the change in population age distribution to correspond to the new demographic balance characterising the modern type of population reproduction. The entire process of demographic transition has caused a smaller direct rather than an indirect effect on society through the population ageing corresponding to the transition. In the course of ageing all major proportions in society alter irreversibly which calls for the adaptation of social organisation to the new population situation. Myers makes a distinction between a corresponding population-responsive policies to oppose traditional population influencing policies (Myers 1994).

A wide range of literature on ageing is devoted to various social problems accompanying the population ageing (Binstock and George 1990, Matras 1990, Siegel 1993, Stolnitz 1994 etc). Those problems, either old ones which aggregate its importance or reappear as new issues, should not be treated in a long-term perspective as a source for negative evaluation of the population ageing. On the one hand, there is not much sense in labelling the objective and universal path of development. On the other hand, one should refer to Frank Notenstein who wrote already half a century ago that, "as a whole the *problem of ageing* is no problem at all. It is only the pessimistic way of looking at a great triumph of civilisation" (Notenstein 1954). In accordance with this statement, if the population ageing is being determined as a problem-making process, it actually means the society's inability to adapt to a new population situation, or even worse, the maintaining of the old political viewpoint on individuals as means, not the ultimate aim of societal development. Nevertheless, the negative evaluation of the ageing process could be partially relevant in specific cases when the population waves, i.e. large differences in numbers of successive birth cohorts cause the population over-ageing. The significant fertility decline below the replacement level or, on the contrary, a remarkable baby-boom are considered to be the classical causes for population over-ageing. Additionally, at regional level the population over-ageing could be caused by a continuous emigration of younger age-groups from the given region. The negative evaluation of population over-ageing may become also relevant at the interpretation of the largely unbalanced sex-structure caused by the gender-specific ageing as well as other similar kind of reflections of the not inevitable demographic processes.

Based upon rather capacious scientific literature concerning the process of population ageing, a noteworthy general approach has been presented by Peter Laslett (1993). He has pointed out the emergence of the Third Age as the most important feature of the population ageing. The population in the Third Age, irreversibly reaching a considerable proportion in total population, is going to play if not the decisive then at least a very important role in the formation of future

perspectives of societal development in general. The emergence of the Third Age population relies upon the demographic transition after which the majority of members of every birth cohort exceeds the limit of old age, for the first time in the history of mankind. This new situation principally contradicts the pre-transitional experience when only a small share of people from every birth cohort exceeded this limit, in other words, there had never been the Third Age population as such. Demographers have also notified another accompanying process that had decisively changed the composition of elderly, namely the remarkable alteration of socio-biological selection mechanism at the earlier years of life-cycle within the course of demographic transition (Olshansky and Carnes 1993).

According to Laslett the future development of society largely depends on the successful integration of the Third Age population to social activities. The traditional concern regarding people of old age, namely emphasising the arrangement of *earned leisure years* as well as possible, is not relevant any more. In the case of aged population the creation of developmental conditions for new functions specific to the Third Age is going to be crucial. In the contrary situation, having been retired and left out of other productive social activities, the Third Age population becomes a real burden to themselves and to the society, particularly in economic terms. In such a situation, maintaining the present standard of living is more than doubtful, and the sustainable conflict between the Second and Third Age populations could emerge in high probability. In order to properly measure the Third Age population and the emergence of the need for a new approach to elderly, Laslett (1993) makes use of two general indicators: the proportion of elderly in the adult population and the proportion of survivors at the age of 70 in the adult generation (l_{70} to l_{25}, according to the life table).

The paper deals with the population ageing in Estonia. Principal trends of ageing as well as the major time frames of the relevant processes are outlined in the European context. Those aspects of the long-term population development serving as determinants of the population ageing are presented in the next section followed by the discussion of the main features and patterns of the population ageing in Estonia.

2. Determinants of population ageing

The population ageing is determined by changes in population age structure. The latter is not an independent process as the age structure is shaped by the development of fertility and mortality; in the case of open population also by external migration. Naturally, the impact of demographic processes on the formation of the population age distribution over rather long time intervals is of importance: the slower the alternation of generations, the longer tends to be this time interval. Dealing with short time intervals, the population age structure can

be noticeably inconsistent with the intensity and pattern of demographic processes in the current period.

The population age distribution is under continuous change, so long as fertility, mortality and migration never remain completely stable within longer periods. These changes in the population age distribution are of fluctuous character, and the level of changes is determined by the fluctuation amplitude of demographic processes. Consequently, throughout centuries the fluctuations in population reproduction and in population age distribution correspondingly have been concurrent with the interchange of small-scale population ageing and rejuvenation periods. At the same time, however, the demographic development is going through a specific period in the course of which the nature and intensity of all population processes are changing radically. Corresponding changes in the population age structure are remarkable compared with the interchange of small scale ageing and rejuvenation periods of fluctuating background mentioned above. Furthermore, those principal changes in the population age structure are irreversible. Understandably this specific period is the demographic transition during which the entire type of population reproduction is changing. Caused by the same transition, the population age pyramid corresponding to the traditional type of reproduction is reshaped into the population age rectangle typical of the modern type of reproduction. Namely this historically unique and irreversible alteration process is known as population ageing.

In the course of the demographic transition, the population age distribution is shaped both by the decline in fertility and the decline in mortality. The mortality decline in older ages increases the number of persons in cohort who are likely to live over the old age limit, thus leading to the ageing from the apex of the age pyramid. The fertility decline decreases the size of birth cohorts compared to previous ones, thus reducing the share of younger population age groups and leading to the ageing from the bottom of the age pyramid. It is worth considering that mortality and fertility declines in the course of demographic transition could proceed with much less interdependence than is usually common to these demographic processes. Therefore the nature and timing both of fertility and mortality decline are playing a substantial role in the flow of population ageing in concrete cases. The decline in infant and child mortality as a part of mortality transition is an additional factor of making the population ageing into a complex process: by increasing the proportion of younger age groups it leads to the population rejuvenation in otherwise equal conditions. In the case of principal and irreversible development of demographic processes as is characteristic of the demographic transition, also the initial population age distribution acquires the status of separate factor of population ageing. In this respect the concept of population momentum should be concerned (Keyfitz 1971).

Fertility decline, mortality decline and the initial population have sometimes been treated as separate factors of the ageing process. The role of the three factors and their interdependence in forming the process of population ageing has been

comprehensively overviewed by Emil Valkovic (Valkovic 1989). Dealing with the factors as separate determinants of the population ageing is reasonable only if shorter time intervals are under observation. Over short periods each of these three ageing factors can make and has historically made a different contribution to a concrete trend of the ageing process. However, from aetiological viewpoint treating the three factors as separate ones has no real meaning. Demographic transition is recognised to be the underlying process of the population ageing, which through fundamental alteration of fertility, mortality and migration processes accordingly carries out the changes also in the population age distribution, though with a certain time shift. Regarding the population ageing as a process resulting from the demographic transition could be considered to be a traditional approach in demography (Bourgeois-Pichat 1979, Warnes 1989, 1993, Myers 1990, Horiuchi 1988, Lindgren 1990 etc).

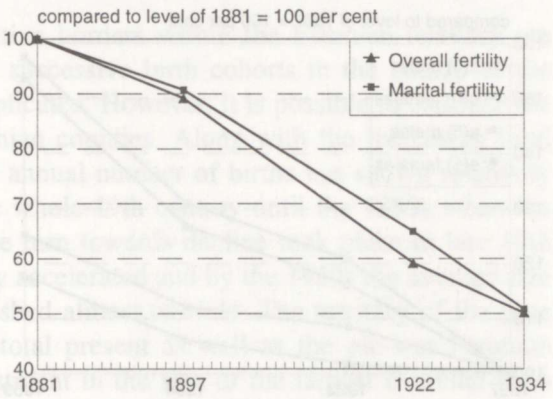
Demographic transition is a common process characteristic of all nations, yet regarding the timing, it is anything but synchronised in different nations. To the same degree the population ageing is unsynchronised when comparing the nations in the course of time. According to the aforesaid, the main time frames and stages of the demographic transition, as well as other major characteristics of the transition relevant to the given population should be of primary interest when dealing with the population ageing and its determinants. The following short review on demographic transition of the Estonian population is aiming at the very target.

2.1. Time frames of demographic transition in Estonia

Estonia belongs to the group of those West- and North-European countries which are characterised by an early beginning of the demographic transition. Already from the 17–18th centuries the European marriage pattern started to be established among the nations living west of the conditional line Petersbourg-Trieste traced by John Hajnal (Hajnal 1965). This phenomenon is considered to be causally related to the timing differences of the demographic transition a century or more later. The development of the European marriage pattern in Estonia can be traced back to the repercussions after the Nordic War, to the first half of the 18th century (Palli 1988). It is important to stress that the Estonian territory forms the eastern boundary of this historical phenomenon in Europe. The data available prove that the boundary line between Estonia and Russia denotes not only the extent of spreading of the European marriage pattern, but also marks the greatest time difference in the beginning of the demographic transition between neighbouring nations in Europe. This time gap between Estonia and the adjacent Russian regions (at *kubermang/oblast* level) is assumed to be approximately half a century (Katus 1994).

Figure 1

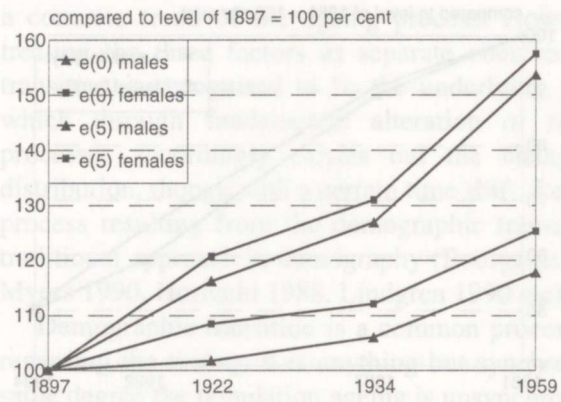
Indices of overall and marital fertility
Estonia 1881-1934



The demographic transition in Estonia began in the middle of the 19th century. Although the crude mortality and fertility rates had shown a falling trend for several decades already, a continuous and irreversible decline in mortality and fertility started in the 1850s–1860s. Since the first Estonian population census in 1881, this transitional development on the basis of fertility can be followed by the Pinceton indices (Coale and Treadway 1986). One of the advantages of these indicators is the availability of comparable data on most European nations. The Estonian overall and marital fertility indices by census years of 1881–1934 are presented in Figure 1 (Katus 1991). During this period the fertility development is showing a persistent, almost linear trend down to the point where the fertility drops below the replacement level at the end of the 1920s. The Princeton Project has defined the beginning of the fertility transition by the 10 percent fertility decline from the traditional level of uncontrolled marital fertility. Quite evidently, though without sufficient data and research it should be still regarded as a hypothesis; in Estonia the mentioned criterion was reached long before the 1880s. Most evidently, the start of the parity-specific family limitation can be dated back to the 1850–1860s. The magnitude of fertility decline during the period under observation has been approximately twofold. In the 1930s the continuous declining trend ceased and fertility stabilised at the level of 1.8–2.0 by the total fertility rate. Hence, Estonia belongs to the group of nations characterised by under-replacement fertility already before the WW II. The dropping of fertility below the replacement level could be conventionally regarded as the final phase of fertility transition.

It is somewhat more complicated to define the timing of the demographic transition by mortality development, as the essential changes characterising the process commonly appear with longer time shift in quantitative indicators. Therefore the beginning of a continuous decline in mortality occurs gradually, particularly regarding the pioneer nations of demographic transition. However, according to the existing data it can be stated that the steady decline in the intensity of mortality in Estonia began more or less simultaneously with the fertility decline, i.e. in the middle of the 19th century. This development distinguishes Estonia from other countries with an earlier beginning of mortality decline relative to the beginning of fertility decrease. Estonian mortality levels can be measured on the basis of life table indicators since the 1897 census (Katus and

Figure 2



Puur 1991). Figure 2 presents the relative dynamics of life expectancy at birth and life expectancy at the age of 5 during the period of 1897–1959. The data reveal the increasing male life expectancy at birth from 41.9 to 64.3 years and female life expectancy from 45.5 to 71.6 years up to the census year 1959. Eliminating the impact of different duration of inter-censal periods enables to show that the growth rate of life expectancy has remained approximately at the same level during the whole period of 1897–1959. The average annual growth rate of life expectancy at birth for males has been 0.27 years during 1897–1922, 0.44 years during 1922–1934 and also 0.44 years during 1934–1959. The respective figures for females were 0.38, 0.39 and 0.48 years. Obviously, the life expectancy at birth fixed at the end of the last century is reflecting such a mortality level which presupposes a declining trend in mortality during several decades prior to the 1897 census year. The demographic transition in Estonia can be conventionally inframed according to the mortality development also by the interval of 1850–1940.

Aside from the time frames of demographic transition, the size and timing of the most numerous birth cohort is also important for analysis of the population ageing. In general, during the initial stages of demographic transition, despite the declining fertility, the average annual number of births usually continues to increase for a few more decades. This can be attributed to the decline in mortality among females in reproductive age, even more to the decline in infant and child mortality. Later, the spreading family limitation and persistent downward trend in fertility levels lead to the reduction of an absolute size of birth cohorts. At the turn of the described two stages, usually the most numerous birth cohort is emerging. From the viewpoint of population ageing, the gradual movement in time of this largest cohort up to old age usually indicates the most intensive phase of population ageing, leaving later phases to be moderate in shaping the ageing pattern. However, it is useful to keep in mind that among the majority of the pioneer populations of demographic transition the effect on population ageing, caused by the largest birth cohort from the transition period, is somewhat overshadowed by a similar effect of the intensive and long-lasting baby-boom following the WW II. The baby-boom has resulted in a difference in successive birth cohort numbers as great or even greater in some cases than caused by the

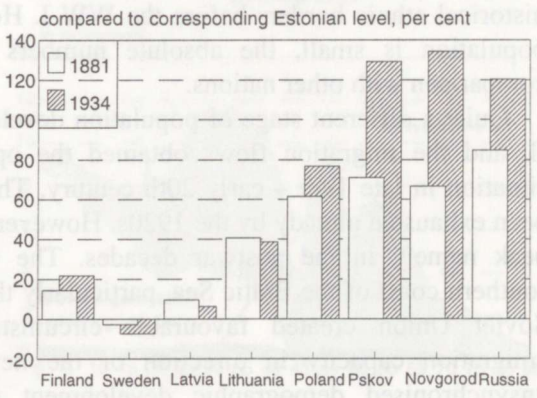
largest birth cohort from the transitional era. Estonia did not experience the post-war baby-boom, hence the most numerous birth cohort from the transition period plays the more remarkable role in shaping the general ageing trend than in many other countries.

Multiple changes in administrative borders within the Estonian territory are making the comparison of size of successive birth cohorts in the course of the demographic transition rather complicated. However, it is possible to estimate the figure for the nine historical Estonian counties. Along with the increasing total number of population, the average annual number of births has shown relatively rapid growth in Estonia during the whole 19th century until the 1880s when the figure reached ca 28 thousand. The turn towards decline took place in late 19th century. The decrease has gradually accelerated and by the 1930s the average size of annual birth cohorts had diminished almost twofold. The territory of the nine counties does not encompass the total present as well as the pre-war Estonian territory. Making appropriate adjustment in the size of the largest Estonian birth cohort could be estimated approximately 32-35 thousand children for the whole nation. The effect of the largest birth cohort on ageing could be described by the dynamics of population momentum. As the decline in mortality and fertility have been remarkably simultaneous processes in Estonia, the transitional growth of population remained modest, like in France. Corresponding accumulation of population momentum has been modest, which in turn had a specific effect on the ageing development during the post-transition period. In other words, the role of the initial population age structure as a separate factor of ageing process in Estonia has been to some extent smaller compared to those nations characterised by a considerable lag between the trends of mortality and fertility decrease and, respectively, by greater population momentum accumulated during the demographic transition.

Quite an important feature affecting the development of Estonian population in general and also the population ageing in particular was the great difference in timing of demographic transition processes between Estonia and the neighbouring Russia. To express this difference, it would be appropriate to apply the Princeton fertility indices once again. In Figure 3, the Estonian overall fertility index is compared to the corresponding levels in neighbouring countries. Additionally to Russia as a whole

Figure 3

Index of overall fertility
1881 and 1934



country, the adjacent Pihkva and Novgorod gubernias are included separately. In the 1880s the fertility level in Russia compared with Estonia was explicitly high. This proves to be true as regards both Russia as a whole as well as the nearby Russian regions. Among the countries neighbouring Russia namely Estonia is exhibiting the most different fertility level. Smaller difference in fertility rates appear northwards, between Finland and Russia, as well as southwards, between Lithuania, Poland and Russia. In Latvia the situation has been rather similar. It is quite remarkable that by the 1930s the differences in fertility levels between Estonia and Russia, noticed half a century earlier, have even increased. Compared with adjacent Russian territories, the fertility in Estonia was more than twice lower at that time. This gives evidence about an essential time difference in the demographic development between Estonia and Russia. With reference to earlier research, this difference in time is estimated to be half a century long (Katus 1982, Vishnevski and Volkov 1983).

2.2. Postwar migration development and growth of foreign-born population

The post-war immigration into Estonia has originated more or less from the whole territory of the Soviet Union, though mainly from the European part of Russia. In order to understand the postwar migration flows, the timing pattern of the demographic transition should be recalled. The long-term migration development between Russia and Estonia has occurred quite precisely in accordance with the classical theory introduced by Wilbur Zelinski in his concept of migration revolution (Zelinski 1971). Continuous emigration of Estonian population out of its ethnical borders can be dated since the second half of the 19th century, approximately a few decades from the beginning of demographic transition. Attributed to several circumstances of simultaneous effect, the emigration was mainly directed eastwards, i.e. into the territory of the Russian Empire. Estonia has been rather outstanding for its relatively high intensity of emigration; approximately 15–20 percent of the population settled outside its historical ethnic borders before the WW I. However, as the number of Estonian population is small, the absolute numbers of emigrants were not large in comparison with other nations.

Quite a different stage of population development was in force after the WW II, and the migration flows obtained the opposite direction compared to the situation in late 19th – early 20th century. The Estonian migration potential had been exhausted already by the 1920s. However, in Russia the potential reached its peak namely in the postwar decades. The new geopolitical situation on the southern coast of the Baltic Sea, particularly the incorporation of Estonia into the Soviet Union created favourable circumstances for realising the Russian emigration capacity in direction of the new colonies. In other words, the unsynchronised demographic development created a fertile ground for an

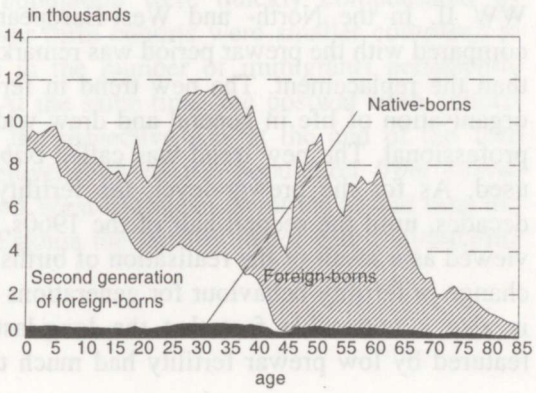
intensive immigration from Russia and other Soviet Union regions into Estonia. Massive depopulation in Estonia due to the war activites and particularly because of the postwar repressions as well as the official russification and sovietisation policies carried out in Estonia strengthened these objective immigration flows.

The immigration and emigration flows between Estonia and other regions of the Soviet Union present the extensive migration turnover (Sakkeus 1991). Approximately only one out of seven immigrants settled permanently in Estonia, the other six sooner or later left the country. For instance, during 1956–1991 (since 1956 the migration moves in rural areas were recorded similarly to moves in urban regions, for the previous decade the migration data concerning the rural population is based on estimates) the migration turnover between Estonia and other Soviet Union republics was 1.400 thousand persons, and the amount of net migrants of 200 thousand people. The migration turnover of that extent can be explained, on the one hand, by a significant military-related migration, on the other hand, by the negligible family migration against the dominating young and single immigrants who are usually highly mobile. Comparison of immigration and emigration flows and corresponding migration turnover with the number of deaths and births and with the demographic turnover, enables to disclose the role of migration processes in the postwar population development in Estonia. Unlike in any other European country, the number of migration moves in Estonia has exceeded the number of births and deaths in postwar Estonia between 1945 and 1990. In general the migration events have had at least a twofold effect on the population replacement compared to the demographic events.

Although the net migration has been relatively small compared to migration flows, quite a numerous foreign-born population was formed in Estonia as a result of the postwar migration processes. According to the 1989 census data on place of birth, the proportion of foreign-borns amounted to 26.3 percent of the Estonian total population. Such a high proportion is considered to be a record figure in the European context, being also the highest among the former Soviet Union republics (Katus and Sakkeus 1991). Additionally, the whole population of foreign origin, i.e. the foreign-borns together with their second generation, constitutes even 36.0 percent of the total population, thus closely approaching in number the non-Estonians in the country (38.5 percent). In Figure 4 the latter population group is presented in three components: foreign-borns, their second generation and native-borns. That great

Figure 4

Non-Estonians
Estonia 1989



number of immigrants has had a considerable effect on the population age structure, because the age distribution of immigrants traditionally differs from that of the settled population. In the case of Estonia, the age curve of immigration has been extremely young, maintaining this shape even during the 1980s. Summing up, it would be more proper to treat the postwar population ageing regarding the migrant and non-migrant population groups separately whenever such distinguishing is possible. It becomes evident further that the separate approach to both sub-populations could prove rather fruitful when interpreting the somewhat odd general trends and regional differences of the population ageing in Estonia.

From the population ageing perspectives Estonia has found itself, starting from the current years, in a rather complicated situation because of the particular impact of migration development. Namely, the Soviet-era migration flows have been significantly reduced after the collapse of the Soviet Union. The regained independence and withdrawal of Russian troops from Estonia can be considered as an additional factor contributing to the reduction of immigration into Estonia. Thus, the foreign-born sub-population is supported by the immigration processes to a considerably less extent compared with the previous decades, and cannot maintain the young age composition any more. At the same time the most numerous generations of immigrants, which settled in Estonia in the 1940–1950s, are reaching the old age limit namely during this decade. Due to the discontinuity of the immigrant sub-population, Estonia will experience a great, if not an explosive, ageing of non-Estonians during the coming few decades. This process will be strengthened by the sharp decrease in fertility. The described situation is an additional reason why the population ageing should be carried out separately with respect to the Estonians and non-Estonians.

2.3. Postwar baby-boom in Estonia

It is widely known that the postwar increase in fertility became characteristic of the majority of these pioneering populations of the demographic transition among which fertility had fallen below the replacement level already before the WW II. In the North- and West-European countries the increase in fertility compared with the prewar period was remarkable, reaching the levels much higher than the replacement. The new trend in fertility was perceptible in the societal organisation of life in general and drew wide public attention in addition to the professional. The new trend was called *baby-boom* and the term is still widely used. As for the prewar level, the fertility remained high during almost two decades, until the second half of the 1960s. Hence, the baby-boom could not be viewed as a result of the realisation of births postponed at the war time but a real change in fertility behaviour for generations born between the two world wars. It is also a noticeable fact that the long-lasting baby-boom among populations featured by low prewar fertility had much the same character (Calot and Blayo

1982, Festy 1984, Klinger 1988). In view of population ageing, the particular importance of the baby-boom regards the situation that large generations were born at that time comparable in size to the era of demographic transition. In some countries the baby-boom period appeared even as the constitution of the most numerous birth cohorts. The image of a pig in pyhton, and its gradual movement towards the tail, might serve as an illustration to the baby-boom effect on reshaping age structure in the countries involved in the process (Samms 1992).

The Estonian postwar fertility development deviated noticeably from what was inherent to North- and West- European countries. Certain possible errors have to be taken into account because the data deficit concerning the period preceding the 1959 census, it can fully be confirmed that the phenomenon like baby-boom did not occur in Estonia (Katus 1992, 1997). The fertility slightly higher the replacement level at the beginning of the 1950s can probably be attributed to the immigrants characterised by a remarkably higher level of fertility than common to the non-migrants at that time. No signs of the postwar increase in fertility can be noticed in the 1959 census age composition either. If, regardless of the aforesaid, the short-time and insignificant increase in fertility is contributed solely to the native-born population, even then the fertility development cannot be compared with the baby-boom trends in European countries demographically at the same stage as Estonia. Actually, with the possible exception of a year or two, Estonian fertility remained constantly below the replacement level in the 1940–1960s. Only at the beginning of the 1960s the fertility of the first European country, namely Hungary, fell below the Estonian level. Up to this time the Estonian population had experienced steadily low, slightly under-replacement fertility already for 30 years. Quite evidently, Estonia had one of the lowest fertility levels, if not the lowest one in Europe and consequently in the world during the whole 1950s. Perhaps the situation in Latvia can be identified as more or less the same.

In view of the population ageing, the intensity of fertility is not the most crucial factor. However, it is important that no numerous generations were born during the 1950–1960s compared to the earlier as well as the later periods (1970–1980s). On the contrary, the birth cohorts of the Estonian population in the 1950s remained more or less on the prewar level, as the human losses in war and repressions against the permanent population were quickly compensated by intensive immigration. Yet, the postwar birth cohorts were smaller compared to the later generations as the increase in the number of immigrants persistently contributed to the number of births. At the same time, the postwar birth cohorts appeared to be smaller compared to the respective size at the end of the 19th century. In this way the postwar rejuvenation of the population *from below,* characteristic of most of the North- and West-European countries at that time did not occur in Estonia. Vice versa, in Estonia the fertility factor had a stimulating effect on population ageing.

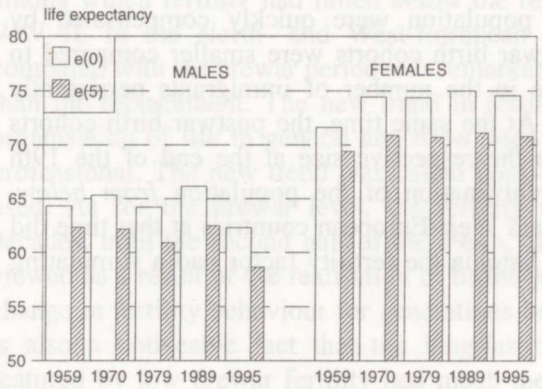
2.4. Mortality stagnation

One of the specific determinants of the population ageing in Estonia, the influence of which has become apparent at present time and will continue during the next decades, is the mortality stagnation. Namely, two stages in the long-term trend of life expectancy of the Estonian population are quite clearly distinguishable. As stated above, the life span for both males and females was lengthening until the end of the 1950s. Until that time the mortality decrease in Estonia was comparable in every respect with the similar trend in North- and West-European countries. Estonia held the leadership compared to East- and South-European regions as well as to the republics of the Soviet Union regarding the level of life expectancy (Kruminsh 1990). It is worth drawing attention to the fact that although the 1940–1950s were the gloomiest in the destiny of the Estonian nation in this century, the life expectancy increased constantly even at that time, excluding direct human losses in war and during repressions. The seeming contradiction between the mortality development and prevailing social conditions can be explained by the inertia of population processes. The vitality of the generations does not break in a short time. Regardless of the repressions and poor living conditions, the changes in the health of the Estonian population became apparent only a couple of decades later, when the hardest times were already over.

At the beginning of the 1960s the growth of life expectancy actually ceased, the following 30–35 years have not brought along extensive changes in the level of mortality (Figure 5). Although the female life expectancy at birth increased in the 1960s and a certain increase in longevity for both sexes was noticed during the second half of the 1980s, the whole period must be considered as a stagnation in mortality development. Not only the cease in the mortality decrease, but also the stabilisation of life expectancy at a very low level by contemporary standards draws attention. Admittedly, the aforestated little growth in life span, particularly during the 1960s, took place on the account of the decreasing infant mortality. By eliminating this effect, the time margin becomes even more distinct separating the stages of the mortality decline and the stagnation of the process. In other words, the cease in the increase of life expectancy is caused, without exception, by mortality stagnation of the

Figure 5

Life expectancy at age 0 and 5
Estonia 1959-1989



adult age groups. Although belonging to the countries with early mortality transition, the intensive decrease in mortality among the elderly population characteristic of the fourth stage of the epidemologic transition (Olshanski and Ault 1986) still cannot be observed in Estonia. Referring to Laslett's ageing concept, it denotes a weak and unstable formation of the Third Age population. Apparently, in this respect the Estonian ageing pattern will bring along all new problems faced in the ageing society. However, it will neither create appropriate conditions for the society to adapt to the new population situation nor take potential advantage of the slow alteration of generations.

Thus, the mortality remaining almost on the same level for 35 years has not been a significant ageing determinant in Estonia for the same period. This situation is also partly characteristic of other East-European countries, but due to the early demographic transition the mortality stagnation especially in Estonia has had a long-lasting effect. Because of the stable high mortality level since the 1960s, one must be careful with the proportion of elderly in the total population as a general indicator measuring the process of ageing. One should be particularly careful about the spatial comparisons with the countries where the life expectancy has had continuous increase also in the recent decades. In these countries the proportion of elderly has increased hand in hand with the decrease in mortality, in Estonia the impact of the given factor has been insignificant. Attention should be paid on the possible misinterpretation of the general process of population ageing and the effect of its concrete determinant, such as the mortality development. Particularly, upon the short-term treatment of the ageing process the regional comparisons may give a false picture about the general trend of the ageing process. This is especially consistent with the stages of population ageing in Estonia.

The widening gap between male and female life expectancies is another aspect of the mortality stagnation in East-European countries. Estonia is one of the leading countries in Eastern Europe when it comes to sex differences in mortality. The gap between male and female life expectancies widened constantly until the end of the 1970s, exceeding the 10 year point in the 1979 life table. During the following decade the difference in male and female life expectancy has slightly decreased, followed by the new rising trend in the 1990s up to twelve years. In respect of population ageing, the sex differences in mortality have considerable impact on the process. The 10–12 year gap in life expectancy causes the essential gender disproportions in an adult population already before the old age which are accelerating among the elderly. As the average male survival rate in old age is much shorter compared with females, the turnover of the male elderly population is much more rapid. In other words, the representation of birth cohorts among elderly is remarkably biased by gender which considerably increases the social heterogeneity. Primarily, the sex differences have an effect on the development of the oldest old where the number of females exceeds males several times.

Besides the ageing trend, the gender-biased influence of mortality is of particular importance in the formation of family and household structures of the

elderly population. The far earlier death of males alongside with the additional difference in male and female marriage age have caused a lasting female widowhood period in Estonia. It has to be taken into account that the birth cohorts of the 1910–1920s, characterised by low fertility have already reached old age: approximately one out of four females in these cohorts remained childless due to the low fertility regime of the 1930s. Presently, the long female widowhood period coincides with the large share of childless old women in Estonia. The current family and household structures of elderly population have been additionally affected by war activities and repressions. In general, the Estonian family and household structures of elderly are deformed. For example, in the modern world Estonia is one of the countries with the highest number of old women without close relatives.

3. Population ageing

The aim of the following analysis is to outline the main developments of ageing in Estonia, and discuss some heterogeneity features of the process. The analysis is based on principal ageing indicators calculated at census years. The same indicators are also used for the analysis of the future perspectives in population ageing until the year 2030, relying on the respective data of population prognosis. Upon the heterogeneity of the population ageing the differences between immigrant and native-born population groups are examined. The necessary data for the analysis is mainly derived from the nine Estonian censuses. The first census on the territory of Estonia took place in 1881, followed by another before the WW I (1897) and three between the two world wars (1922, 1934, and 1941). After the WW II there have been four Soviet censuses (in 1959, 1970, 1979, and 1989). The census data, systemised and partially recalculated for comparability purposes are obtained from the Estonian Population Databank. This Databank is developed by the Estonian Interuniversity Population Research Centre for creating a central source of information for long-term demographic development in Estonia.

3.1. General trend of population ageing

In order to outline major trends of population ageing, two principal ageing indicators have been used: (1) the proportion of the elderly in total population, and (2) the median age of population. Besides those two, the Laslett indices of ageing have been used as well: (3) proportion of the elderly in adult population (population aged 60 years old and over to persons over the age of 25) and the proportion of survivors at the age of 70 in the adult generation (170 to 125). Calculating those indicators, the data requirements are relatively standard, making possible to cover the whole period of interest.

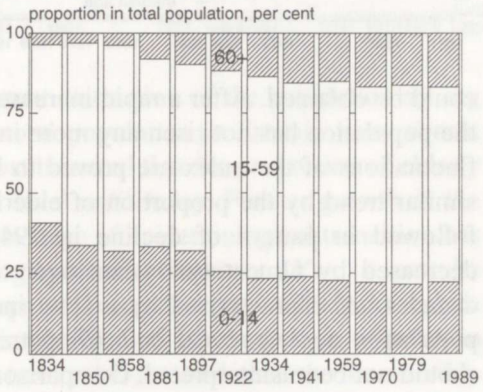
3.1.1. Aggregated population age groups

The determinants of population ageing have quite frequently had compensatory effect on the Estonian population development, especially during the last half century. Due to that the changes in population age distribution, and in proportion of elderly have been somewhat smaller than typical for the usual ageing process characterising the demographic transition and the following periods. Without these compensatory effects one could expect much larger changes in the population age structure, as experienced by many other nations. Figure 6 outlines the relative dynamics of the three aggregated age groups for the last 150 years.

The major changes in population age distribution had been already developed during the second half of the 19th century and the first half of the 20th century. The proportion of children (population aged 0–14 years old) in total population gradually declined up to the 1930s and stabilised afterwards for half a century more or less at the same level. Such a stability in the proportion of younger age groups could be surprising if not for the specificity of the Estonian fertility trend, particularly the absence of postwar baby-boom. In general the fertility component affects the population ageing in Estonia to a much lesser extent than usual in European countries. The proportion of elderly (population aged 60 years old and over) increased rapidly up to the 1940s. Later intensive immigration and mortality stagnation have kept the proportion of elderly nearly constant. This should be probably regarded as the major specificity of the ageing process of the Estonian population in European context. However, the following analysis reveals the noticeable heterogeneity in this stable trend between the immigrant and the native-born population groups as well as between regions.

Figure 6

Aggregated population age groups
Estonia 1834-1989

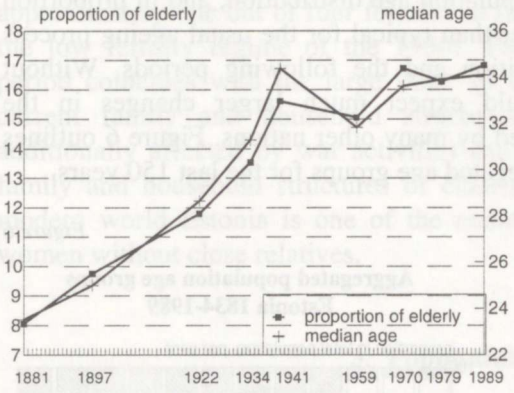


3.1.2. Proportion of elderly and median age

Additionally to the proportion of the elderly in total population, the median age of population is another principal indicator of the ageing process. In Figure 7 both indicators are presented simultaneously. Although the scales of the indices are rather different, they both describe the ageing trend in Estonia in a similar way. This figure clearly demonstrates the quite sharp increase in the proportion of elderly until the census year of 1941. The proportion rose from 8 percent in 1881

Figure 7

Proportion of the elderly and median age
Estonia 1881-1989



to 16 percent in 1941, i.e. doubled in sixty years. The next fifty years period have added only one percentage point, while the sub-periods of 1941–1959 and 1970–1979 are characterised even by the decline in the proportion of elderly. However, such a stability will not be maintained in future, the data presented below prove that the trend by the proportion of elderly is turning into a fast increase in the 1990s.

By making use of the median age, quite the same picture of general trend of population ageing could be obtained. After a rapid increase until the 1941 census, the median age of the population has not risen any more in the following fifty years. The short time fluctuations of the index are proved to be larger during that period compared to similar trend by the proportion of elderly. The most significant deviance can be followed in pattern of decline in 1941–1959: the median age of population decreased by almost two years over this period whereas the following three decades are characterised by a slow increase. Though the two main indices of population ageing reveal coinciding trends, the differences between the scales should not be misinterpreted. Comparison of the relative growth of both indicators outlines a greater dynamism of the proportion of elderly compared to the median age. During the period under observation the proportion of elderly had doubled, while the median age of population increased only by 1.5 times. In spite of differences in scope of growth, the general pattern of the trend is still remarkably similar.

3.1.3. Laslett indices of ageing

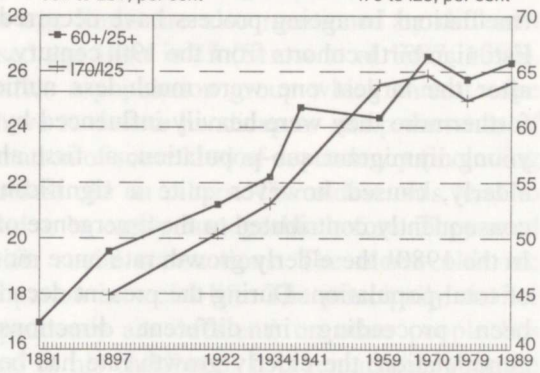
Peter Laslett has used another two general indices of the population ageing to outline the timing of the ageing process as the principal change in population age distribution and the emergence of the Third Age population, corresponding to the demographical transition. These two indicators are the proportion of elderly in the adult population (population aged 60 years old and over to persons over the age of 25) and the proportion of survivors at the age of 70 in the adult generation (l70 to l25 according to life table indices). Both indicators are presented simultaneously on the same graph using corresponding scales for each. (Figure 8). The rapid population ageing in Estonia occurs more or less precisely at the treated time-period. The previous long-term period of relative stability of both indices characteristic of the traditional population reproduction had already been passed

in Estonia by the 1880s and the ageing processes of population had started at that time.

Laslett defines the numerical criteria of the emergence of the Third Age population as the level of 0.25 by the proportion of elderly, and as the level of 0.50 by elderly survivors. The stable formation of the Third Age population could methodologically be regarded as the cessation of the ageing process. The emergence of the Third Age population along with the principal changes in social role distribution between the major population groups shapes the most important distinction of the population ageing process. Both numerical criteria for the total population in Estonia were almost met in the pre-war period. However, it must be noted that the proportion of elderly had stabilised very near the qualification level until today. Further growth in the proportion of elderly as typical of the forth stage of epidemiological transition has not yet taken place in Estonian demographic development. Yet, it can be concluded that the main changes in the population age distribution had taken place already before the WW II. Though the importance of later trends in population ageing is by no means undervalued, it has to be stressed that the irreversible trends of the ageing process had come to an end by that time.

Figure 8

Laslett indices of ageing
Estonia 1881-1989



3.1.4. Average annual increase and growth rate of the elderly

A somewhat different picture on the ageing process in Estonia could be presented by comparing the average annual growth rate of the elderly population to the corresponding index of total population. Quite a few major deviations are being identified in the growth rates at the treated time-period. The annual elderly growth rate dropped to its lowest level in the period of 1934–1941. In fact this fluctuation was caused by ca 10 percent loss of population during the first Soviet occupation (June 1940 – September 1941). Despite the decrease of that extent in total population, the growth of the elderly continued even in this time interval. The same intercensal period marked also the biggest difference in two growth rates during the whole century. Originating from extreme external factors, it does not have much importance from the viewpoint of long-term ageing development.

The immigration to Estonia was so intensive at the first post-war decade that the growth rate of total population rose even to a higher level than that of the elderly in 1941–1959. It happened despite the reversal of the previous declining trend of the elderly growth rate into a rise. In other words, the Estonian population

rejuvenated at that period, and namely the migration development, not the fertility factor should be regarded as a principal reason. Another, even more distinctive rejuvenation period of Estonian population could be found in intercensal interval of 1970–1979, following the highest elderly growth rate during 1959–1970. These fluctuations in ageing process have occurred due to the movement of the largest Estonian birth cohorts from the 19th century. The younger native-born generations after the largest one were much less numerous due to rapid fertility decline, furthermore they were heavily influenced by the WW II activities. The relatively young immigrant sub-population, at first almost ineffective on numbers of the elderly, caused however quite a significant increase of total population, and consequently contributed to the emergence of the 1970–1979 rejuvenation period. In the 1980s the elderly growth rate once more surpassed the corresponding index of total population. During the present decade, the trends of the two indices have been proceeding in different directions. Upon quite intensive general depopulation, the elderly growth rate has been increased considerably under the influence of the native-born as well as the immigrant sub-populations development. In regard to the population ageing, both sub-population groups demonstrate the development towards principally the same direction for the first time after WW II.

That uneven dynamics of the elderly growth rate is being expressed also in considerable changes in corresponding absolute numbers. Relying on previous information, the smallest increase in number of the elderly in the last prewar period is that of expected. The most intensive ageing period of 1959–1970 is rather marked. This decade is so outstanding partly because of the fact that the annual increase in the number of the elderly has been almost three times lower in both preceding and succeeding decades. Furthermore, the annual growth rate of elderly in the 1950s and the 1970s has been even lower than in the first decades of the present century. That quite unique situation reflects the cumulative effect of early fertility decline in Estonia, and significant loss of population in the war and postwar social rearrangements. The 1980s were distinguished by an intensified increase in the number of population reaching old age, which continuing in the present decade, is turning into one of the main trends of the Estonian population development at the end of the century. According to the prognosis, a temporary over-ageing period is expected to emerge when the largest immigrant cohorts reach the limit of old age. In the case of Estonia, the period of relatively high growth in numbers of the elderly population will coincide with the depopulation period. This could be considered as another feature specific for Estonia.

3.2. Ageing of the elderly

The population ageing process does not only affect the broad age proportions of total population but also creates changes in the age distribution among the elderly population themselves. The elderly are also ageing, namely the increase in

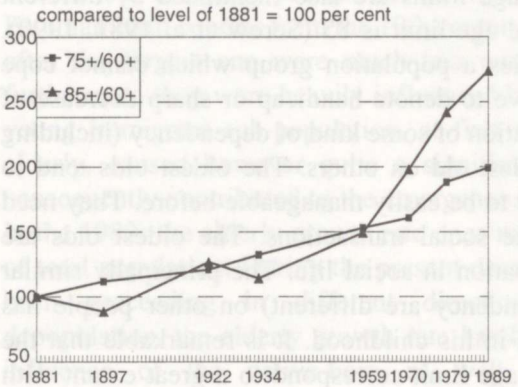
proportion of the oldest olds among elderly, and the growth of the average age of the elderly are the trends to be mentioned in this connection. In the demographic literature a special concept for the very old population – oldest old – has been introduced. Usually the population at the age of 75 and over is considered to belong to that group but the higher age limits are also mentioned by different authors. Another most frequently used age limit is 85 (Serow et al 1987, 1990). The concept of the oldest old signifies a population group which cannot cope entirely on its own. This does not have to denote handicap or sharp decrease of physical ability, but refers to the formation of some kind of dependency (including psychological dependency) of the oldest old on others. The oldest olds tend to need help with housework which used to be easily manageable before. They need support in carrying out some specific social transactions. The oldest olds are gradually retiring from active participation in social life. The principally similar dependency (although forms of dependency are different) on other people has been experienced by every individual in his childhood. It is remarkable that the definition of the oldest old and their age limit correspond to a great extent with Peter Laslett's interpretation of the Third and Fourth Age populations. The transition from the Third Age to the Fourth Age bears resemblance to the features commonly assigned to the oldest old.

Generally the level of importance of social problems accompanying the population ageing grows with the increase of the proportion of the oldest olds in elderly. The oldest olds are the agents intermediating several new social problems which the society has not recognised earlier or which have been solved entirely within the households. The treatment of the oldest old does not reveal only the interest in one specific age group of elderly, it is actually the investigation of an important co-process of the population ageing. That is why the oldest olds have been under profound analysis (Grigsby 1991, Rosenwaike and Dolinsky 1987, Serow et al. 1990, Suzman et al. 1987). The development of the oldest old population does not necessarily proceed synchronously with the general population ageing. In this quality the oldest olds gain even more importance as an independent focus of study (Myers et al. 1987).

During the century, the proportion of the oldest olds (population aged 75 years and over to persons over the age of 60) has constantly risen in Estonia, increasing from 15 percent to 30 percent by today. In contrast to fluctuating trends in proportion of the elderly the increase of the proportion of oldest olds seems to be much more stable. We can still note the acceleration of the growth in the last two decades. In that way the Estonian population development is confirming the general property of the ageing process that the increase in proportion of oldest olds accelerates when the proportion of the elderly is starting to stabilise. That is quite an obvious situation, as the intensive rise in the proportion of the elderly, *ceteris paribus*, restrains the increase in proportion of the oldest old. It is remarkable that the increase in the proportion of the oldest olds accelerates despite the relatively long-lasting period of mortality stagnation. By defining the

Figure 9

Relative proportion of oldest olds in elderly population Estonia 1881-1989



age limit to 85 years instead of 75 years, an even faster increase in numbers of the oldest olds becomes apparent (Figure 9). Up to the 1959 census the proportion of the oldest olds, defined by two different age criteria, has not increased exactly synchronously, however, the cumulative increase has been identical for the 80 year period: 50 percent by both indicators. During the last three decades the increase by both indicators has accelerated, but trends of the indicators have considerably diverged. Cumulatively, the proportion of the 75+ year olds in elderly population has doubled during the century, the analogous proportion of the 85+ year olds has almost tripled.

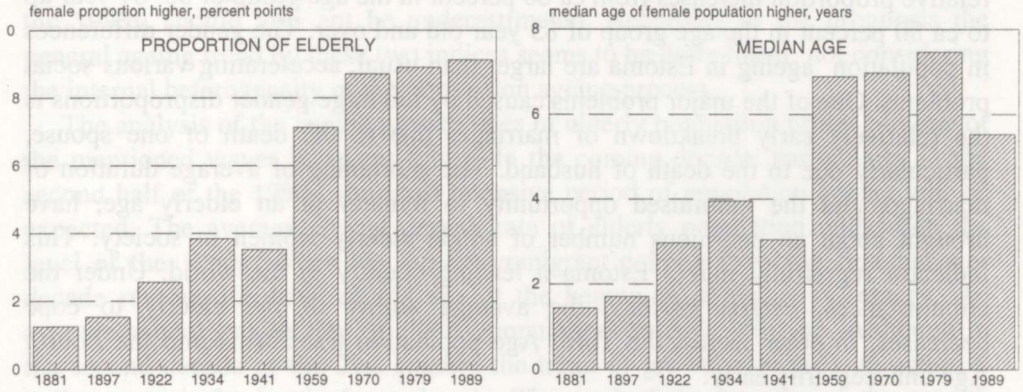
3.3. Gender differences in population ageing

The lengthening of life-span during the demographic transition is being accompanied by changes in gender distribution of population. The mortality development affects the gender structure mostly among the elderly, as the female survivorship increases much faster than that of males at older ages, enlarging the proportion of women and consequently causing continuous change in the gender structure of the elderly. Besides the mortality development, the gender distribution of Estonian generations has been seriously affected by population crises of the century: two world wars and the Soviet occupation. It could be stated that the changing proportion between males and females among elderly splits the population ageing process into two different trends specified by gender. The second important factor influencing the gender differentiation of population ageing is enfolded in migration processes noticeably uneven by gender. Besides the external migration, frequently the internal migration has also a significant effect on the formation of gender differences of ageing, being especially explicit on regional level. Both mentioned factors causing gender differences have affected the population ageing in Estonia more strongly than in many other European nations.

Figures 10 and 11 present gender differences of the population ageing by two general indices: proportion of the elderly and median age of population. In case of the first indicator the difference in gender is stated in percentage points,

Figure 10

Gender difference in ageing indicators
Estonia 1881-1989

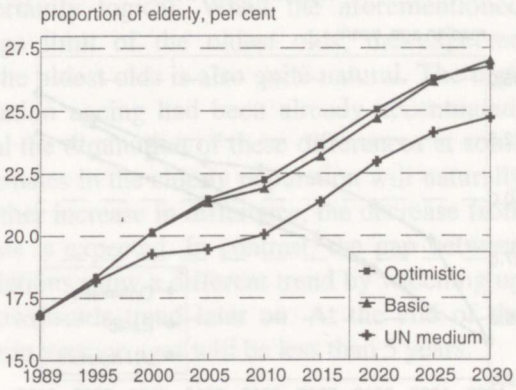


and in case of the median age in years. The dynamics of gender differences outlines the two notable trends. First, the general trends of gender differences by both indicators are similar to the trend of population ageing measured by the same indices (Figure 7). In other words, the formation of gender differences has been almost parallel to the development of the ageing process. That emphasises the inevitability of an increase in differences between male and female sub-population in the course of ageing. In this quality it is a distinctive source for social problems. The other noteworthy trend is the sharp growth in gender differences occurring in two decades after the war. That intensive growth period is accentuated by the decrease of gender differences in the last prewar decade and by the stabilisation of these differences during the last decades. As expected, the gender differences have increased particularly fast among the oldest olds: at the beginning of the population ageing the male and female proportions of the oldest olds have been almost equivalent to each other, followed by much more rapid growth of the female index, and stabilised then at the level of ca 40 percent difference compared to the male index.

To complement the trend examination of gender differences

Figure 11

Proportion of elderly
Estonia 1989-2030



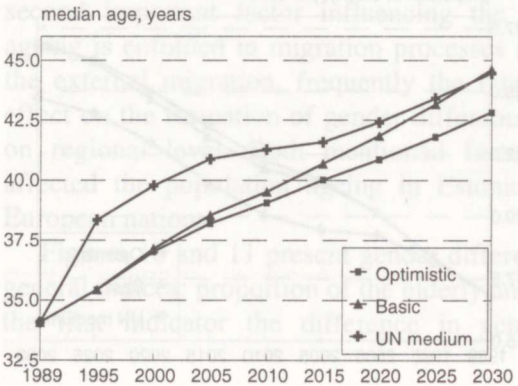
in population ageing, the proportion of males and females by age groups is being studied. The latter can conventionally be defined as a curve for gender differences. The predominance of women grows with every age group: their relative proportion increases from ca 60 percent in the age group of 60–64 year up to ca 80 percent in the age group of 85 year old and over. The gender differences in population ageing in Estonia are larger than usual, accelerating various social problems. One of the major problems caused by too large gender disproportions is the relatively early breakdown of marriages due to the death of one spouse, particularly due to the death of husband. The shortening of average duration of marriage, and the minimised opportunity to remarry at an elderly age, have brought about an enormous number of single elderly women in society. This indicator regretfully makes Estonia a leading country in the world. Under the circumstances, *ceteris paribus*, the average ability of the elderly to cope decreases. In other words, the Third Age population transforms into the Fourth Age unnecessarily early.

3.4. Future developments of population ageing

Inertness of population ageing allows to follow its future development on the basis of population prognosis without major difficulties. General future trends of population ageing in Estonia are presented until the year 2030. The analysis makes use of two population prognosis. The first concerns the medium variant of the UN population prognosis of the 1994 revision (United Nations 1994a). The second has been produced at the Estonian Interuniversity Population Research Centre from which two versions, the so-called basic and optimistic, are introduced. The basic variant presumes the stability of age intensities of the present demographic processes (demographic situation in 1993–1995), while the optimistic version presumes the substitution of decrease in fertility by a moderate increase, and the gradual decline in mortality levels.

Figure 12

Median age of population
Estonia 1989-2030



In Figure 12 the dynamics of one of the principal indicators of population ageing is presented. As the three variants of prognosis do not differ from one another notably, the general trend is clearly identified: the proportion of the elderly will rise from the present level of 18 percent up to 25–27 percent in 2030, and the median age of population will be around 43–44 years at the end of the observed period. As is shown in the next paragraph, the main part of these changes is caused by the

sub-population of immigrant origin. Until recently the latter has been characterised by an artificially young age structure, and in this quality has hindered the normal course of the ageing process. However, the renewed wave of more intensive ageing processes of the native-born population, having started in the 1990s, should also not be underestimated. According to the prognosis the general ageing trend by these two indices seems to be quite linear, not considering the internal heterogeneity of the population ageing process.

The analysis of the annual growth rates of elderly population brings out one of the mentioned waves in recent future. In the coming decade, particularly in the second half of the 1990s, the most intensive period of population ageing will be expected. The average annual growth rate of elderly population will reach the level of the 1960s. When the largest immigrant cohorts from the first postwar decade reaches the limit of old age at the beginning of the next century, the average annual growth rate of elderly population starts to decrease. Although in the second decade of the 21st century the trend of growth rate goes up again, it will not reach the level of our decade. The gradual deceleration of the growth rates will start from around the year 2020, and at the end of the treated period the number of elderly will stabilise. It must be noted that the future ageing process, particularly intensive during the next decade, is occurring in the context of remarkable depopulation for the whole upcoming period. During the most intensive 5-year interval of ageing, ca 6000 elderly persons will annually be added. That average annual increase will surpass the hitherto existing maximum from the 1960s with 1500 persons. The absolute figures help to understand that the prognosticated increase of the elderly population will be actually the largest as experienced in Estonia up to now.

Some specific developments against the background of more or less uniform general trend, such as the wave of fluctuating character connected with the dynamics of the oldest olds also deserve attention. At first sight the presumed decrease in the proportion of oldest olds in the 1990s may seem surprising. By recalling the emergence of a large generation into the elderly population over that decade, which inevitably brings about temporary changes in the age distribution of the elderly in favour of the younger sub-groups among them, the decreasing proportion of the oldest olds is certainly logical. When the aforementioned numerous generation reaches the age limit of the oldest olds, the expected accelerating growth in proportion of the oldest olds is also quite natural. The high level of gender differences in population ageing had been already accentuated. However, during the prognosis interval the diminution of these differences at some extent are expected. The position of females in the elderly population will naturally remain predominant but instead of further increase in difference, the decrease from 9.5 percentage points to 8.5–9.0 points is expected. In contrast, the gap between median ages of male and female populations show a different trend by widening up to the year 2005 and turning to a downwards trend later on. At the end of the prognosis period, the gender difference in average ages will be less than 5 years.

3.5. Ethnic differences in population ageing

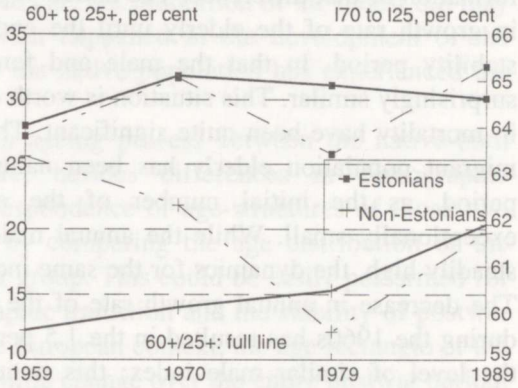
The Estonian population of migrant origin forms a considerable proportion, almost two fifths of the total population. Due to its size, this population group affects all the demographic processes in Estonia, particularly those characterised by different or opposite behavioural patterns (EKDK 1995). As the intensive immigration to Estonia and the formation of the migrant sub-population took place at the postwar period, the comparative analysis between the native-born and migrant sub-populations is relevant for the post-WW II. Accordingly, the following study is limited to the intercensal period of 1959–1989.

Both levels and trends of population ageing, measured by the proportion of the elderly and median age of population, are extremely different in both sub-populations. Above all, the large gap between the levels of indicators at the beginning of the observed period, 1959, demands attention. The proportion of the native population elderly (18 percent) surpasses the level of that for migrant population (8.5 percent) more than twice; the difference in median age is almost eight years. The proportion of migrant population elderly is more or less comparable with that level of the native population approximately 80 years earlier, in the 1880s (see Figure 7). The differences noted at the beginning of the period have been remarkably reduced during the observed period. In 1989 census the proportion of elderly in native population differs from that of the migrant population "only" by 5–6 percentage points, and the difference in median age had levelled even more. These differences had been decreasing mainly due to the rapid ageing of migrant population. The differences between the trends characteristic of the two sub-populations are accentuated by the fact that the main indicators of population ageing for the native population were already declining after being at top level: the proportion of elderly has been decreasing already during two decades, and the median age during the last decade. These trends of decrease by both indicators were not significantly large but the lack of growth in main indicators of population ageing during the last 20 years is in itself an important feature, not mentioning a completely opposite trend compared to migrant population.

In general, it would not be an exaggeration to refer to an actual splitting of Estonian population in the ageing process. The native-born population has rejuvenated after the largest birth cohorts had reached the old age in the 1960s, which was supported independently by the stagnation of mortality and a noticeable fertility rise at the end of the 1960s. Accordingly, the native population have been rejuvenated from the apex of the age pyramid as well as from the bottom of it. The migrant population, on the contrary, including their second generation, has been ageing fast during the observed period. In shaping the general population trend, due to the described great differences between the two sub-populations, the continuously changing balance of the native-borns and foreign-borns in total population at every certain period is undoubtedly important.

Figure 13

Laslett indices
Estonians and Non-Estonians
Estonia 1959-1989



The large differences in the main indicators of ageing between two sub-populations stress the need to apply Laslett indicators as well. The dynamic of those indices is presented in Figure 13. The proportion of the elderly in adult population points out the range of origin differences in ageing process quite similarly to the above-described indicators. Additionally, it is notable that the level of the index for the migrant population has not reached the 25 percent limit yet, which was defined by Laslett as the criterion for an advanced stage of ageing process. The given index for native population has during the whole period constantly been above the level of that criterion. Therefore, the differences between the native-borns and foreign-borns do not only illustrate the quantitative side of the ageing process, but also as to the essence, namely in view of the formation of the Third Age population, these groups are principally different. The Laslett second index of population ageing, the proportion of survivors in adult population, shows greater closeness between the two sub-populations. Also the time trend of that indicator is nearly similar for both groups. The migrant sub-population has, similarly to native population, passed the demographic transition and furthermore, the stagnation of mortality is characteristic of both groups. Most remarkable is the similar decreasing trend in proportion of survivors during the 1970s, and the increase during the last decade. The current gap of 3 percentage points between two population groups was formed in the 1960s–1970s and has not yet shown any tendency to decrease.

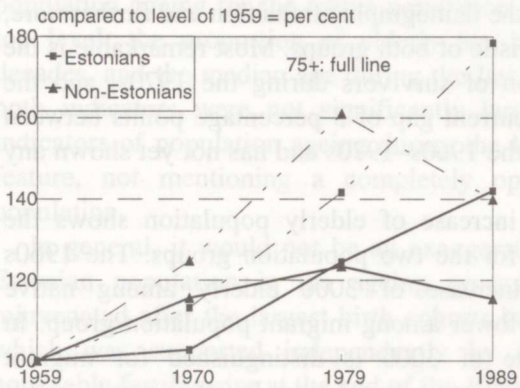
The trend of an average annual increase of elderly population shows the splitting, even opposite development for the two population groups. The 1960s were characterised by an annual increase of 3000 elderly among native population, and by the number twice lower among migrant population group. In the 1980s the same annual increase of 3000 is distinguished for migrant population compared to the decrease in native population. In other words, when the increase in one group was at its maximum, the increase in the other group was at its minimum, and vice versa. The described development of the two sub-populations of a compensatory nature has been a significant factor for the relative stability of the ageing process in Estonia during the whole postwar period which in most other countries has been much more dynamic. This also helps to understand the expected situation when these demographic waves no longer

compensate each other but exaggerate the development of population ageing in near future.

Referring to large gender differences in population ageing in Estonia, it is reasonable to elucidate the possible influence of the migrant sub-population on formation of that difference. The native population is characterised by a decrease in growth rate of the elderly until the end of the 1970s and by the following stability period. In that the male and female annual growth rates have been surprisingly similar. This situation is worth emphasising as the gender differences in mortality have been quite significant. The average annual growth rate for the migrant population elderly has been naturally very high during the observed period, as the initial number of the elderly in that sub-population was exceptionally small. While the annual male growth rate has been more or less steadily high, the dynamics for the same indicator for females has been different. The decrease in annual growth rate of the female elderly in migrant population during the 1960s has resulted in the 1.5 percentage point difference compared to the level of similar male index; this noticeable difference has prevailed until recently. This specific development of the migrant population has decreased the gender differences in population ageing in Estonia. One should not forget, however, that the initial increase in gender differences was namely caused by the gender disproportion of the migrant sub-population.

Figure 14

Proportion of oldest olds
Estonians and Non-Estonians
Estonia 1959-1989



The dynamics of origin differences in the population ageing takes completely another pattern when the development of the oldest old is considered (Figure 14). Compared to the census year 1959, the proportion of the oldest olds in native population has increased to much higher level than that of the migrant group. This outcome is principally similar regardless of the indicator concerned (the age limit of 75 or 85 years old for defining the oldest old population). Compared to initial levels, the increase of both indicators has been respectively 20 and 40 percentage points higher for the native population. However, the difference in the proportion of the oldest old between two sub-populations has been formed only during the last decade; in previous two decades the growth rate of the proportion of the oldest old among migrant population has been even higher compared to that of the native-borns. This development proves a simple fact that the increase in proportion of the oldest

old is the next step in ageing process, following the rapid increase in the whole group of elderly population. The increase in proportion of the oldest old in elderly population speeds up when the proportion of the elderly in the total population is going to stabilise. The opposite relationship of these two indices is also true: when the most numerous generations reach old age, the proportion of the oldest old may even decrease for a while. That is what happened in the development of the migrant population in the 1980s. Also the native population has experienced the same development, but in the 1950s.

The great differences in population ageing process between the native-born and the migrant sub-populations are, besides differences in demographic behaviour, mostly caused by non-correspondence of age-structures of those two groups. One could easily verify this by comparing the age distribution of the native population to that of the migrant group. This could be easily performed for all census years. Due to early demographic transition and the stability of postwar fertility and mortality, noticeable in the European context, the age-rectangle of the native population shows unexpectedly little change over the entire postwar period. Even the implications of war and repressions are not significantly expressed in age structure, as the human losses occurred in all age groups. There were more male victims in war activities, but in the course of repressions women, children and the elderly may have suffered even more severely. At the same time the age pyramid of the foreign-borns has been significantly different, though in itself it is quite natural as it corresponds to the migrant population. At the first postwar census the age structure of the migrant population was extremely young: the younger adult age groups had surpassed their counterparts in native population by almost two times in relative numbers. In the course of time the age structure of the migrant population has developed remarkably, acquiring a more normal shape at every following census. By the year 1989, only the over-representation of the age group of 20–39 year olds has partly persisted.

The differences between the native-born and migrant sub-populations in Estonian population ageing process have been significant, even opposite in many cases. As to demographic development and age distribution, these two groups are more or less different, and the joint analysis of both of them together may confuse the understanding of the population ageing. At the same time, learning the differences between the two demographic groups serves as a key to explaining the peculiarities of Estonian population ageing. The ageing process, influenced by co-development of these two completely different population groups, is obviously quite outstanding in European context.

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