

## LIFE EXPECTANCY DYNAMICS IN POST-SOVIET COUNTRIES FROM EUROPEAN REGION: CONVERGENCES AND DIVERGENCES

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*This article presents the results of the comparative study on the mortality and life expectancy at birth dynamics in Moldova and six other post-Soviet countries in the European region – Belarus, Russia, Ukraine, Estonia, Latvia, Lithuania. The aim of the research is to highlight the convergences and divergences, as well as the causes which lead Moldova to lag behind in this field.*

*The study is based on Human Mortality Database (HMD) and Human Causes-of-Death Database (HCD) data. For Moldova, mortality tables for the resident population were used (with the exclusion of migrants who have been absent from the country for more than 12 months).*

*Despite the similar trends in the dynamics of life expectancy at birth in the selected countries since the mid-1990s, there is an increasing divergence in this respect. The Baltic countries, especially Estonia, have succeeded in achieving significant progress in reducing mortality and increasing life expectancy at birth, while Belarus, Russia, Ukraine and Moldova remain outliers. Decomposition of mortality by causes of death demonstrates that the reduction in mortality by cardiovascular diseases has had a major impact on the development of the gap in life expectancy at birth observed between Estonia and Moldova.*

**Keywords:** mortality, life expectancy at birth, ex-Soviet countries.

*În articol sunt prezentate rezultatele studiului comparativ cu privire la dinamica mortalității și speranței de viață la naștere în Moldova și alte șase țări ex-sovietice din regiunea europeană – Belarus, Rusia, Ucraina, Estonia, Letonia, Lituania. Scopul cercetării constă în evidențierea convergențelor și divergențelor, precum și a cauzelor ce determină rămânerea în urmă a Moldovei în acest domeniu.*

*Studiul se bazează pe datele din Human Mortality Database (HMD), Human Cause-of-Death Database (HCD). Pentru Republica Moldova au fost utilizate tabelele de mortalitate pentru populația rezidentă (cu excluderea migranților care au lipsit din țară mai mult de 12 luni).*

*În pofida tendințelor similare în dinamica speranței de viață la naștere, în țările analizate, de la mijlocul anilor '90 ai secolului trecut, se observă o divergență tot mai pronunțată în acest aspect. Țările Baltice, în special Estonia, au reușit să obțină un progres important în reducerea mortalității și creșterea speranței de viață la naștere, pe când Belarus, Rusia, Ucraina și Moldova rămân outsideri la acest capitol. Decompoziția mortalității după cauze de deces demonstrează că reducerea mortalității prin bolile sistemului cardiovascular a avut un impact major în formarea decalajului în speranța de viață la naștere observat între Estonia și Moldova.*

**Cuvinte-cheie:** mortalitate, speranța de viață la naștere, țările ex-sovietice.

*В статье представлены результаты сравнительного исследования динамики смертности и ожидаемой продолжительности жизни в Республике Молдова и других экс-советских странах европейского региона – Беларуси, России, Украине, Эстонии, Латвии и Литве. Цель исследования – определение конвергенций и дивергенций, а также причин отставания Молдовы в этой области.*

*Исследование основано на данных Human Mortality Database (HMD), базы данных Human Causes-of-Death Database (HCD). Для Республики Молдова использовались таблицы смертности для постоянного населения (исключая мигрантов, отсутствующих в стране более 12 месяцев).*

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Несмотря на схожие тенденции в динамике ожидаемой продолжительности жизни в данных странах, с середины 1990-х годов различия становятся все более существенными. Странам Балтики, особенно Эстонии, удалось добиться значительного прогресса в сокращении смертности и увеличении ожидаемой продолжительности жизни, в то время как Беларусь, Россия, Украина и Республика Молдова значительно отстают в этом плане. Декомпозиция смертности по причинам смерти показывает, что снижение смертности от сердечно-сосудистых заболеваний оказало наибольшее влияние на увеличение разрыва в ожидаемой продолжительности жизни между Эстонией и Республикой Молдова.

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### Introduction

Significant reduction in mortality has led to significant changes in population distribution by life expectancy at birth in the world. Over the last 60 years, the proportion of the world's population with life expectancy at birth over 70 increased from 1% to 57% [20]. Life expectancy at birth in EU countries increases at a rapid pace. The estimation for this indicator in 2014 was 80.9 years, and the increase in the last decade accounted for 3.2 years [5].

Despite the positive trends in the evolution of life expectancy in the post-Soviet countries, they lag far behind the economically developed European countries [3, 66, 16]. Most of the post-Soviet countries have failed to achieve a steady increase in life expectancy at birth. However, Western countries, since the 1970s have witnessed positive dynamics in life expectancy due to the shift of mortality by various pathologies, especially of cardiovascular origin, to older ages, which led to a significant gap in life expectancy at birth [1, p. 69]. These structural changes in mortality are described by the theory of epidemiological transition presented by A. Omran in 1971 [8]. Omran's proposed theory describes the evolution of mortality in three stages. The final stage is characterized by the degenerative diseases specific to the elderly. Subsequently, several authors noted that a new stage is emerging in the evolution of mortality, namely *the cardiovascular revolution* [7,10,12]. This stage is characterized by higher life expectancy due to "postponing" of deaths by cardiovascular diseases and cancers until advanced ages. It should be noted that various countries have gone through different stages of the epidemiological transition, the main differences being highlighted in the final stage. This is why the increases in the life expectancy of different countries or regions are most often analyzed in the light of their success in completing the stages of the epidemiological transition. In this respect, the analysis of the evolution of mortality in the post-Soviet countries is one of the most eloquent examples of success or failure in the epidemiological transition.

The evolution of mortality in post-Soviet countries is a subject of interest for many authors. There are a lot of researches, which analyze various aspects of the evolution of mortality in the post-Soviet countries. The evolution of mortality in the former Soviet countries has been studied both by authors originating from this region and by authors from European countries. Thus, in his work "Mortality in Eastern Europe and the Soviet Union: Long-term Trends and Recent Upturns" [3] F. Meslé presented mortality trends in several countries in the region for the period 1960-1990. E. Andreev in his article "Life Expectancy and Causes of Death in the USSR" [1] analyzes the evolution of mortality in the ex-Soviet countries in terms of the epidemiological transition. Another aspect addressed in E. Andreev's work is the comparison of mortality in the ex-Soviet countries and the European countries with lower mortality. This approach allowed the author to highlight the main causes that led to a higher mortality in the selected countries. The evolution of mortality in the Republic of Moldova was analyzed by O. Penina. Thus, in the papers published by O. Penina, not only the overall mortality is analyzed and stages of its evolution are proposed [19], but also the mortality structure is analyzed, emphasizing the main causes of death in the general population [19] and in the adult population, which is the most affected by high mortality [18].

The analysis of the literature showed that over the course of several decades, the dynamics of life expectancy at birth in the post-Soviet countries from the European region – Belarus, Russia, Ukraine, Estonia, Latvia, Lithuania, and Moldova - despite variations from one country to another, had similar trends. However, since the mid-1990s, this similarity has ended, and over the last two decades, we have noticed that divergences in the dynamics of life expectancy at birth are becoming more pronounced [15]. The Baltic countries, especially Estonia, have succeeded in achieving significant progress in reducing mortality and increasing life expectancy at birth, while Belarus, Russia, Ukraine and Moldova remain outliers in this respect. Moldova, which takes the last place in this group of countries, with the lowest

female life expectancy at birth, continues to face high mortality, especially among the working-age population [18, 19]. This leads to significant loss of human potential, which at its turn hampers the growth of life expectancy at birth.

This article presents the results of the comparative study on dynamics of mortality and life expectancy at birth in Moldova and six other post-Soviet countries in the European region - Belarus, Russia, Ukraine, Estonia, Latvia, Lithuania. The aim of the article is to highlight the convergences and divergences, as well the causes of lagging behind of Moldova in this field by estimating the contribution of different causes of death to the gap in life expectancy at birth between Moldova and Estonia.

**Data and methods.** The study was based on Human Mortality Database (HMD) life tables. Data on life expectancy at birth refers to the period 1965-2013 for the Baltic States and Ukraine, and 1965-2014 for Belarus and Russia.

For Moldova the life tables elaborated by O. Penina, D. Jdanov and P. Grigoriev [8] were used for the period 1970-2014 and were calculated based on the resident population (with the exclusion of the migrants who were absent from the country for more than 12 months).

Data on causes of death for Moldova and Estonia were selected from The Human Causes-of-Death Database (HCD), which are recoded according to the latest ICD-10 (International Classification of Diseases) classification of causes of death. The comparative analysis was based on data for the last available years: for Moldova – 2014, and for Estonia – 2012.

E. Andreev's method of components was used to estimate the contribution of different causes of death to the gap in life expectancy at birth between Moldova and Estonia [14].

### **Main results**

In the 1960's, the dynamics of life expectancy at birth in Belarus, Russia, Ukraine, Estonia, Latvia, Lithuania and Moldova had similar trends [3, 15]. The life expectancy values at birth have oscillated for males within the range of 64 and 69 years, and for females within 71 and 76 years. The highest values of life expectancy at birth were for Belarus, for both men and women, and the lowest for Russia (for men) and Moldova (for women).

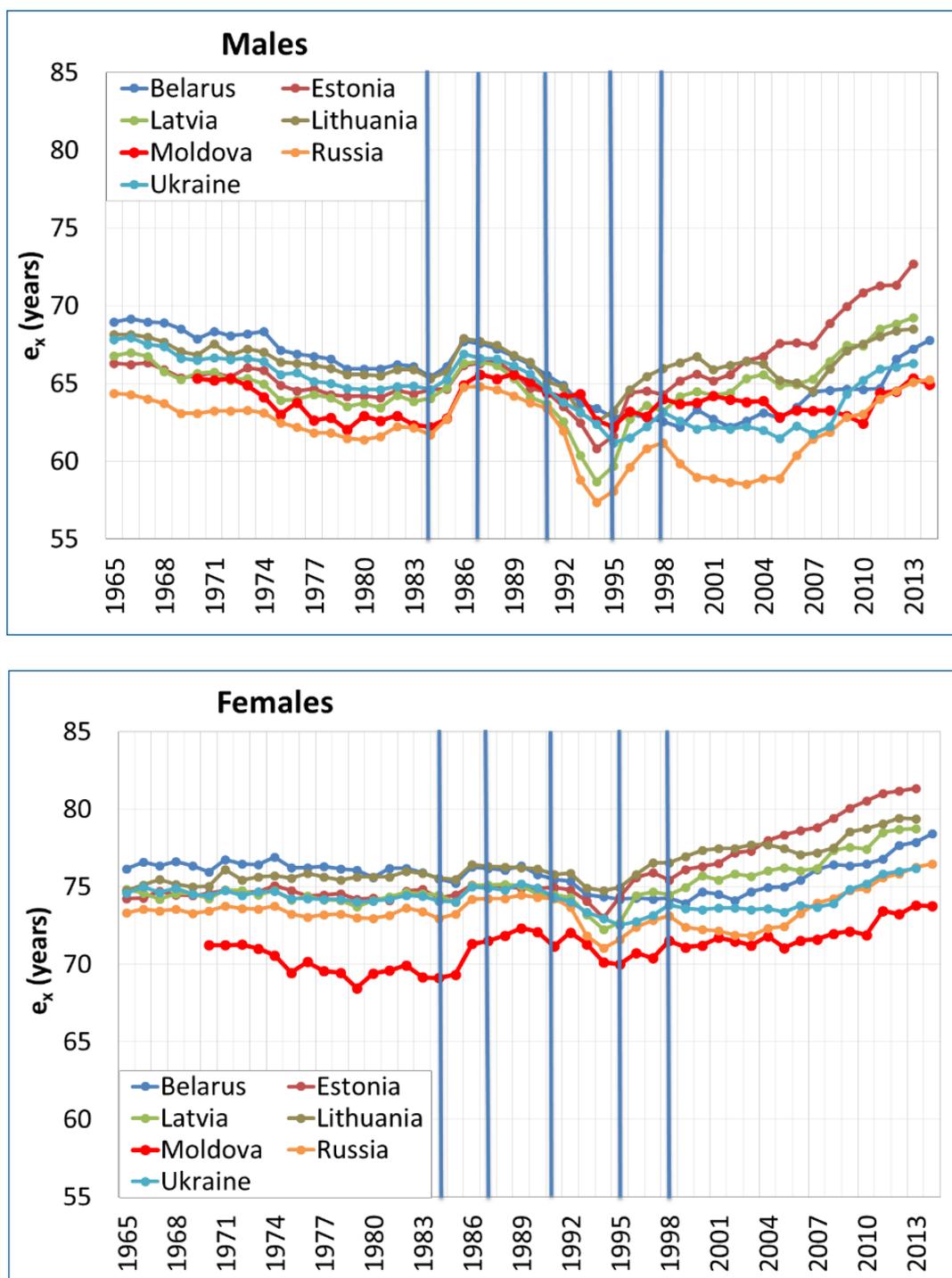
At present, the life expectancy at birth in these countries for men is 65-66 years, and for women 73-77 years. For comparison, in Belarus for both men and women, the trend is very similar, but the life expectancy at birth exceeds the life expectancy in Moldova, Russia and Ukraine, this being specific to the entire analyzed period. Thus, life expectancy at birth in Belarus for men accounts for 68 years, and for women – 78 years.

The dynamics of men's life expectancy at birth in the selected countries is synchronous until the mid-1990s, but after this period, its trajectory in each country was quite different, although, all countries followed the same upward trend. In general, most of the selected countries have reached the level of life expectancy from the mid-1960s – the early 1970s in 2013-2014. This was mainly due to the rather intense fluctuations of the life expectancy for males during this period. Life expectancy at birth for females rose with fewer fluctuations.

After 1995, in all the countries there was an increase trend in life expectancy at birth, but with a different intensity. The Baltic countries made significant progress in the dynamics of life expectancy at birth, especially during the last two decades, Estonia taking the first place with the values of this indicator of 72.7 years for men and 81.3 years for women in 2013 (*Figure 1 and 2*).

Estonia has recorded a faster growth of life expectancy at birth compared to other countries since 2004, which allowed it to differentiate itself in this respect. Estonia has not only reached the level of the life expectancy at birth similar to 1965, but also surpassed it.

The gap in life expectancy at birth between women and men has increased over time. Thus, in the second half of the 1960s the gap accounted for 6-9 years, and now the difference is 9-11 years. Between the life expectancy of men and women is recorded the most significant gap, which accounts for 11.2 years in Russia, followed by 10.9 years in Lithuania, and 10.7 years in Belarus. The smallest gap for this indicator is for Estonia - 8.6 years. In Moldova, the difference between life expectancy for men and women is about 9 years.



**Figure 1 and 2. Life expectancy at birth in the post-Soviet countries by sex, 1965-2014**

Source: For Belarus, Estonia, Latvia, Lithuania, Russia and Ukraine - [www.mortality.org](http://www.mortality.org); for Moldova [8].

The analyzed period was divided into several stages (*Table 1*) in order to clearly outline the evolution of life expectancy at birth. Other researchers [15, 19] proposed similar stages of the change in life expectancy at birth. We can highlight six distinct stages:

- 1965-1984 – period of mortality increase;
- 1985-1987 – anti-alcohol campaign promoted by M. Gorbachev;
- 1988-1991 – mitigation of effects of anti-alcohol campaign;
- 1992-1995 – economic crisis;
- 1996-1998 – exit from the economic crisis;
- 1999-2014 – period of decrease in mortality.

A reduction in life expectancy at birth, which was more obvious for males than for females (*Table 1*) characterized the period of mortality increase (1965-1984). Several researchers have mentioned that this is the first case of sustained reversal of mortality trends observed in the 20th century [11, 16]. Thus, for men at this time, life expectancy at birth decreased on average by -0.09 years per year in Estonia and by -0.22 years per year in Moldova. In the case of women, stagnation characterized this period, and only in Moldova the decrease was more evident, therefore, the life expectancy at birth decreased on average by -0.11 years per year. The increase in mortality in the USSR was registered especially at the age of 50 and over, which was explained by some researchers as the "echo of the war". In the early 70s, the generations that had survived the difficult years of the World War II entered their 50s, at the same time it should be mentioned the poor health of generations born during the war [13].

The next stage (1985-1987) or the period of M. Gorbachev's anti-alcohol campaign promoted simultaneously in all the republics of the USSR is characterized by an impressive reduction in alcohol consumption due to restrictive rules on the sale of alcohol. From the population's health perspective, a reduction in mortality triggered by the excessive consumption of alcohol characterized this period. Thus, in all the selected countries, life expectancy has registered substantial increases, the increase being higher for men than for women. On average, life expectancy increased by 1.13 years per year for men in Moldova and only by 0.56 years per year for men in Estonia. Similarly, in Russia a significant increase of 1.04 years per year was registered. Moldova registered the highest increase for women by 0.8 years per year, while for Belarus and Latvia the life expectancy of women increased on average by 0.22 years per year.

However, the major losses to the state budget due to reduction of alcohol sales abolished the positive effects of this campaign during 1987-1988.

Table 1

## Average change in life expectancy at birth in selected countries by sex, 1965-2014

Years	Belarus	Estonia**	Latvia**	Lithuania**	Moldova*	Russia	Ukraine**
<b>Males (years per year)</b>							
1965-1984	-0.19	-0.09	-0.14	-0.15	-0.22	-0.14	-0.17
1985-1987	0.73	0.56	0.77	0.80	1.13	1.04	0.68
1988-1991	-0.44	-0.34	-0.52	-0.56	-0.09	-0.27	-0.45
1992-1995	-0.68	-0.71	-0.99	-0.47	-0.55	-1.33	-0.85
1996-1998	-0.08	0.89	1.16	0.91	0.61	1.03	0.65
1999-2014	0.33	0.56	0.40	0.17	0.06	0.25	0.21
<b>Females (years per year)</b>							
1965-1984	-0.04	0.00	-0.02	0.04	-0.11	-0.02	-0.03
1985-1987	0.22	0.26	0.22	0.26	0.80	0.43	0.27
1988-1991	-0.17	-0.03	-0.12	-0.12	-0.03	0.00	-0.14
1992-1995	-0.31	-0.15	-0.45	-0.21	-0.29	-0.66	-0.45
1996-1998	0.03	0.36	0.59	0.53	0.51	0.51	0.44
1999-2014	0.26	0.39	0.28	0.19	0.15	0.21	0.16

Source: Author's calculations based on HMD data.

Note: \*Data for Moldova is available since 1970. \*\* Data is only available until 2013.

During 1988-1991, the reduction of the restrictive rules on the sale and consumption of alcohol mitigated the effects of the anti-alcohol campaign. Due to the very drastic measures of the previous period, such as the clearing of large areas of vineyards (which, after all, also continued later), the consumption of counterfeit alcohol and surrogate alcohols increased. Several authors who analyzed the evolution of mortality during this period [16, 17] highlighted this fact. During this period, the increase in mortality for both sexes was less significant, especially for women. Lithuania and Latvia registered the highest mortality for men, this causing a reduction in life expectancy by -0.56 and -0.52 years respectively. The level of male mortality in Moldova during this period is stagnating.

The next stage in the evolution of mortality (1992-1995) is dominated by the economic crisis caused by the collapse of the USSR that in fact caused a much more significant decrease in life expectancy at birth, a situation that is equally valid for both men and women [4]. During this period, life expectancy at birth had decreased by -1.33 years per year for males in Russia and by -0.47 years per year in Lithuania. For females,

the largest average decrease was registered in Russia (-0.66 years per year), and the lowest in Estonia (-0.15 years per year).

A general decrease in mortality and increased life expectancy at birth characterized the last two stages (1996-1998, 1999-2014). In 1996-1998, there was a more intense increase in life expectancy at birth, largely due to the exit from the socio-economic crisis and the improvement of the economic situation. However, the selected countries registered different dynamics. Thus, men's life expectancy at birth in Latvia increased by 1.16 years per year, in Lithuania by 0.91, in Estonia by 0.89, in Russia by 1.03, in Ukraine by 0.65, and in the Republic Moldova by 0.6. Only Belarus recorded a decrease in men's life expectancy by -0.08 years per year.

The increase in women's life expectancy during this period was lower and oscillated within 0.03 (in Belarus) and 0.59 in Latvia.

During 1999-2014, we observed a trend of increasing life expectancy in all the selected countries. Compared with other countries, the increase in life expectancy in Moldova was very slow for both males (0.06 years per year), and females (0.15 years per year). Estonia and Latvia recorded the highest growth of life expectancy for both sexes (*Table 1*). Thus for men the increase accounted for 0.56 and 0.4 years per year respectively, and for women - 0.39 and 0.28, which led to an increase in the gap in life expectancy between the Baltic countries, especially Estonia and other ex-Soviet countries – Belarus, Russia, Ukraine and Moldova.

The analysis of the absolute differences in life expectancy at birth recorded during the observed periods showed an eloquent picture of life expectancy at birth both for each period and as a total value. The increase in life expectancy at birth for men during 1999-2014 was 7.56 years for Estonia, and only 1.25 years for Moldova, and for women - 5.22 years for Estonia and 2.43 years and 2.65 years, respectively, for Lithuania and Moldova (*Table 2*).

Table 2

**Absolute differences in the life expectancy at birth in the selected countries, by sex, years 1965-2014**

Years	Belarus	Estonia**	Latvia**	Lithuania**	Moldova*	Russia	Ukraine**
<b>Males (years)</b>							
1965-1984	-3.55	-1.69	-2.73	-2.83	-3.11	-2.66	-3.22
1985-1987	1.49	1.63	1.64	1.98	2.85	2.11	1.38
1988-1991	-1.72	-1.97	-2.52	-2.32	-0.89	-1.20	-1.96
1992-1995	-2.10	-1.90	-2.86	-1.55	-1.92	-3.85	-2.60
1996-1998	-0.47	-0.14	0.47	1.36	0.82	1.58	1.65
1999-2014	5.63	7.56	5.08	2.19	1.25	5.40	3.69
1965-2014	-1.15	6.43	2.47	0.36	-0.39	0.89	-1.51
<b>Females (years)</b>							
1965-1984	-0.62	0.04	-0.39	0.81	-2.13	-0.37	-0.51
1985-1987	0.93	0.57	1.12	0.86	2.17	1.02	0.88
1988-1991	-0.63	-0.04	-0.65	-0.45	-0.71	-0.03	-0.46
1992-1995	-1.14	-0.42	-1.62	-0.91	-2.06	-2.10	-1.52
1996-1998	0.00	-0.15	0.04	0.78	0.78	0.71	1.05
1999-2014	4.51	5.22	3.78	2.43	2.65	4.06	2.60
1965-2014	2.29	7.09	3.88	4.62	2.50	3.15	1.61

Source: Author's calculations based on HMD data, for Moldova based on data [8].

Note: \*Data for Moldova is available since 1970. \*\*Data is only available until 2013.

The analysis of absolute data points out much more clearly, the periods of convergence and divergence of mortality especially for men. Thus, a general increase in mortality, observed in all the selected countries characterized the period 1965-1984. This stage is followed by three other stages – 1985-1987, 1988-1991 and 1992-1995, which being generalized define a long period of mortality fluctuations. Within them, there are periods of mortality reduction followed by new increases, but all these changes had a synchronous aspect. Since 1996, however, we observed a new stage in the evolution of the overall mortality, prompting the emergence of the first discrepancies between the selected countries. Thus, in the period 1996-1998 a reduction in overall mortality was recorded in Belarus, a stagnation in Estonia, while in other countries the decrease in mortality was observed. After 1999, in all countries a reduction in mortality was

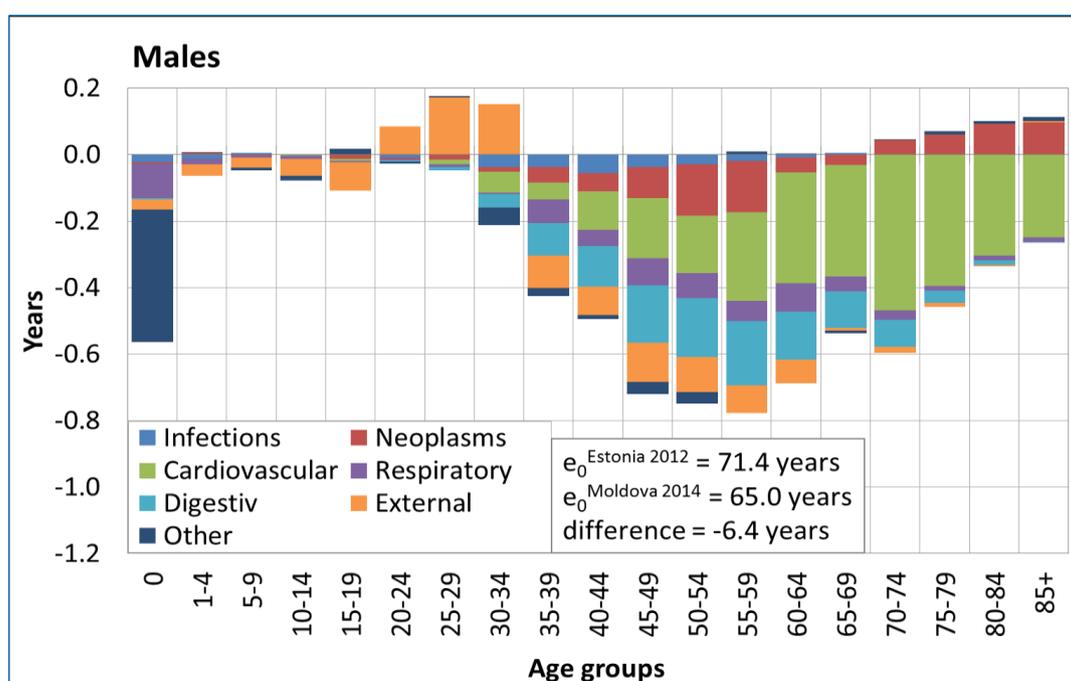
observed, but despite a common trend, the intensity of changes was different in the selected countries. If compared to Estonia, we can say that mortality in Moldova was stagnating rather than significantly decreasing.

The analysis of changes in life expectancy at birth offers a general view. For a clearer picture, it is necessary to analyze in more detail the changes in mortality, especially the causes of death. The comparative analysis of the causes of death for Moldova was performed by using the Estonian standard, which achieved the greatest success in reducing mortality and increasing life expectancy at birth for both men and women compared to other countries included in the analysis. Moldova in this respect represented the other extreme with the lowest values of life expectancy at birth towards the end of the analyzed period (Figures 1 and 2).

In order to perform this comparative analysis, decomposition method of components proposed by Andreev [14] was applied, and the last available years were selected: 2014 for Moldova and 2012 for Estonia.

The life expectancy at birth gap for males between Moldova and Estonia was -6.4 years (Figure 3). This difference was mostly due to the higher mortality rate of the adult and elderly population. Higher mortality among men in Moldova by cardiovascular diseases, digestive system diseases and neoplasms significantly determined the gap in mortality of working-age males. These were the main three causes of death, which determined the highest mortality in the 15-64 age group (over 70% of the cumulative value of -3.8 years). The mortality due to respiratory system diseases had a lower impact, causing just over 10% of the difference from the overall mortality difference in this age group.

Elderly mortality analysis revealed that the highest mortality for elderly people in Moldova, as compared to Estonia, was mostly due to the cardiovascular diseases. Thus, it accounted for more than 90% of the observed difference in mortality for this age group. Moreover, for the first age groups in the 65+ age category, higher mortality was also observed due to digestive system diseases. This, however, was only representative up to the age group 75-79 years, for the other age groups this being insignificant. At the same time, in Estonia starting with the age group of 70-74 years, there was a higher mortality due to neoplasms compared to Moldova. However, the lower mortality among men was not due to neoplasms, but rather Estonia and Moldova have different structure of causes of death, being at different stages of the epidemiological transition. Estonia has successfully completed the final phase of the epidemiological transition and successfully passed to the cardiovascular revolution stage. For this stage, a higher mortality due to degenerative diseases (diseases of the cardiovascular system, neoplasms) was specific, and their postponement to the most advanced ages [3, 12]. However, Moldova is lagging behind, and not yet completing the transition process [148, 19]. For Moldova, deaths due to cardiovascular diseases and cancers are characteristic for earlier ages. This is the reason why mortality due to cancers is higher in older ages in Estonia.



**Figure 3. Contribution of the main causes of death to differences in life expectancy at birth, by age groups, between Moldova and Estonia**

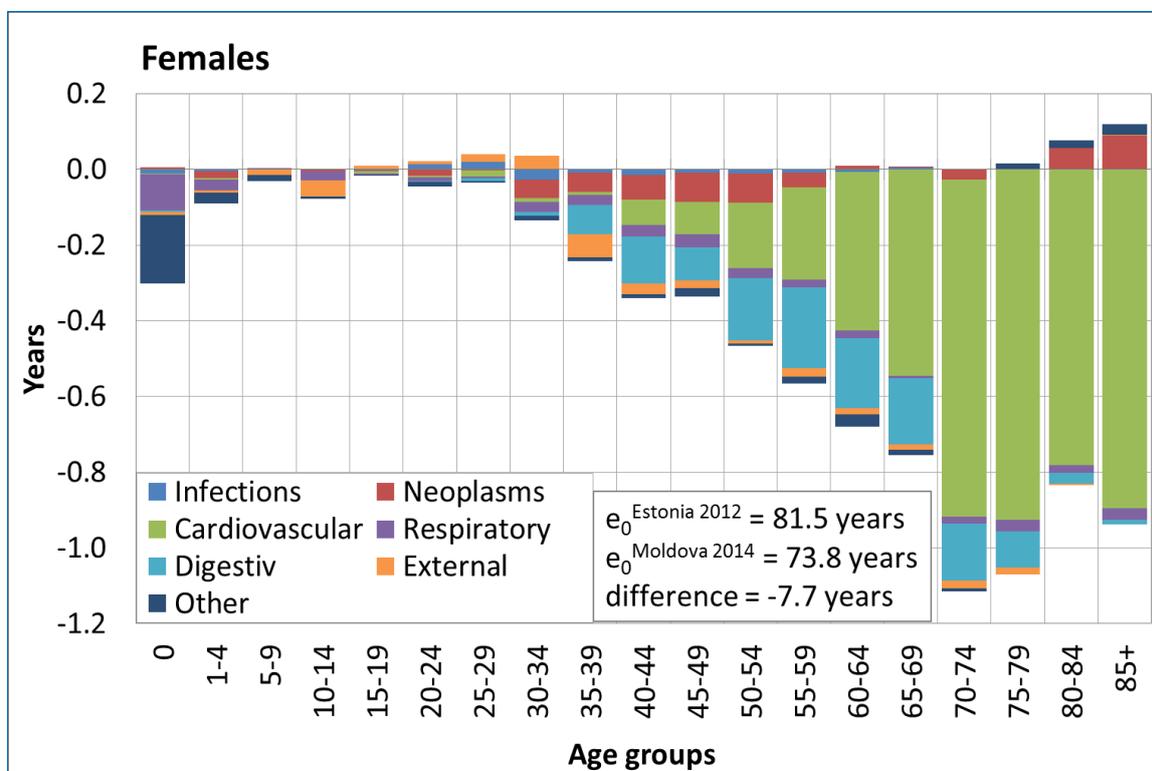
Source: Author's calculations based on HCD data.

Male infant mortality in Moldova was as high as that observed in Estonia. This brings a contribution of approximately -0.6 years out of the total -6.4 years in the gap of life expectancy among the selected countries. The analysis of causes of death of infant mortality showed that 70% of this increase was due to other causes of death, and about 20% due to respiratory system diseases. Such a high proportion of *other causes of death* revealed the existence of multiple causes of death with less impact, but which all together might have a more substantial impact than the major causes of death.

The gap in life expectancy at birth among women was higher than that observed for males and accounted for -7.7 years (Fig. 4). Discrepancies between men and women were not only about the value of the range, but also about the causes of death. Thus, in the case of women, the elderly population is more prominent, the contribution made by the working-age population being much lower compared to elderly.

Female infant mortality in Moldova was higher than that observed in Estonia. The structure of causes of death in this case was similar to that observed for males. Other causes of death and diseases of respiratory system were the two major causes of death that contributed substantially to the child mortality in Moldova. Similarly, the proportion of other causes of death was higher than that of diseases of the respiratory system, which accounted for 60% of the total infant mortality discrepancy, while respiratory diseases accounted for 30%.

As mentioned, the contribution of female mortality on the differences between Moldova and Estonia was shifted to the older ages, including the last age groups within the working population (55-59 years). Two major causes of death: cardiovascular system diseases and digestive system diseases characterized the specific of the structure of causes of death. The cumulative contribution of this age group (55+ years) was -5.7 years, mortality due to circulatory system diseases caused over 80% of all deaths, and the deaths from diseases of the digestive system accounted for 15% of all deaths. The contribution of mortality due to cardiovascular system diseases had an important influence on the overall gap in life expectancy of women in Moldova and Estonia, determining 60% of it. For the most advanced age groups (80+ years), the mortality due to cancers for women in Moldova was lower than in Estonia. This has the same explanation as for men. Thus, we cannot talk about a real low level of mortality due to cancers in these age groups, but only that deaths caused by neoplasms were specific to the younger population.



**Figure 4. Contribution of the main causes of death to differences in life expectancy at birth, by age groups, between Moldova and Estonia**

Source: Author's calculations based on HCD data.

Cancer mortality was one of the three major causes of death for the 30-54 years old population. This cause of death determined just over 20% of the total contribution to the differences between Moldova and Estonia in this age group (-1.5 years). For this age group, mortality due to diseases of the digestive system and of the cardiovascular system were noteworthy. The diseases of the digestive system held the highest proportion in the mortality of causes of death - just over 30%, and those of the cardiovascular system were at the same level with cancer mortality, determining just over 20% from the total contribution of this age group in the mortality differences between Moldova and Estonia.

### Conclusions

Of all the selected countries, only the Baltic States have managed to make impressive progress and to move beyond the level of life expectancy at birth registered in the mid-1960s. Estonia has achieved tremendous successes compared to other post-Soviet countries in the cardiovascular revolution and the postponement of amenable causes of death, which is a determining factor in reducing mortality and increasing life expectancy.

In Moldova, the situation is opposite – the epidemic transition has just started and is not completed yet. The structure of causes of death confirms this. Reducing mortality due to cardiovascular diseases has had a major impact on the gap in life expectancy observed between Estonia and Moldova.

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