Revision of the population estimates 2014 – 2019 of the Republic of Moldova in alignment with UN recommendations

Revision of the population estimates 2014 – 2019 of the Republic of Moldova is done in alignment with UN recommendations on "usually residents".

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List of abbreviations

NBS	National Bureau of Statistics
RM	Republic of Moldova
UNFPA	United Nations Population Fund
PHC	Population and Housing Census
PC	Population Census
PES	Post Enumeration Survey
GIBP	General Inspectorate of Border Police
PSA	Public Services Agency
PSR	Population State Register
TFR	Total Fertility Rate
CBR	Crude Birth Rate
CDR	Crude Death Rate

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Executive Summary

For a long time, it was clear that a revision of the current population estimates of the Republic of Moldova is imperative. In the absence of reliable estimates of the international migration balance, a particularly important component of population growth in the country, the estimates of the usually resident population in the Republic of Moldova were not possible to compute, and until July 2019 NBS disseminated population estimates that included persons that have left the country for a long period resulting in a large over-estimation of population size. The 2014 Population Census and Housing results, after being statistically corrected for undercounting, provided reliable estimates of the usually resident population[1] but still, the annual updating of these estimates following the census was not possible without parallel accurate estimates of the yearly international migratory balance.

Acknowledging the critical importance of this topic for the National Statistical System, the NBS, with the support of UNFPA and SDC, devoted significant efforts to identify proper data and adapt required methodologies to allow the calculation of reliable estimates of the international migratory balance and, afterward, the updating of the yearly population estimates. These efforts have been successful in allowing the calculation and publication of Revised Population Estimates by age and sex for the whole country (except the Transnistrian region of the Republic of Moldova) and ensuring from now on the continuous updating of these estimates. This is one of the most critical steps in improving demographic statistics that was undertaken by NBS in this regard. The revised estimates comply also with the internationally recommended population definition based on "place of usual residence" bringing the statistical system of the Republic of Moldova to full compliance with the international standards on population statistics and making its indicators and estimates fully comparable with the most of the countries of the world. These revised estimates based on the definition of usual residence, together with revised demographic indicators for the Republic of Moldova according to them are presented in this publication together with explanations about the methodology and the calculation process.

The preparation of the revised population estimates by age and sex for the Republic of Moldova was based on the results of the last census conducted in May 2014, corrected for undercount in the city of Chisinau (41%) and in the rest of the country (1.7%), and refers to the usually resident population at the date of the census. The correction of the original census counts was based on state-of-the-art methodology provided by international experts for this purpose and was based on a Post Enumeration Survey carried out in June 2014 that allowed the calculation of coverage correction weights for both Chisinau city and the rest of the country. After an exhaustive and careful evaluation, it was concluded that the corrected census counts provide the best source to calculate population estimates.

To further improve the population estimates the data on births and deaths, used for the calculation of the revised estimates of the usually resident population, are from now on (since the 2014 census date) based on the date of occurrence and not on the reporting date of the vital event. Another improvement included in the revised estimates is the addition to the counts of births to women living in the Republic of Moldova that has not reported their births directly to the civil register but as transcripts after reporting them in a Foreign Embassy/Consulate, which were not counted in calculations in the past.

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[1] **Usual resident population definition** The number of persons who, on a given reference date, are usually resident in a defined geographical area, in this case in the Republic of Moldova

The calculation of international migration estimates and the resulting net migration balance have been the main challenges which once solved allowed the calculation of the new population estimates and demographic indicators. The new calculation of migration estimates is based on individuals' border crossing data which are recorded by the GIBP for each individual entering or exiting the Republic of Moldova borders[2]. The new migration statistics have been produced based on a very large body of anonymized border-crossing data that has been provided by the General Inspectorate of Border Police (GIBP). The calculations for each year are based on about 30 million border-crossing movements of more than 1.5 million Republic of Moldova citizens and 1 million foreigners[3]

The methodology used for the calculation of migration flows is based on objective information on the effective duration of presence or absence in the country of persons crossing the border. These durations are calculated precisely *ex-post* by considering all dates of entry or exit as recorded by the border guards. Accordingly, this methodology does not consider either the intention for the duration of presence or absence or the reason for entering or leaving the country. This is a strong aspect of the respective methodology as both the intended duration of stay or absence and reason for moving are generally the weakest points in any data collection procedure on international migrations.

Based on the corrected 2014 PHC counts and the international migration estimates the usually resident population by age and sex at the beginning of 2015, 2016, 2017, and 2018 have been calculated. A similar approach (in reverse mode) has been used to calculate the population backward from census date to the beginning of 2014.

The revised population estimates show that the population size of the Republic of Moldova decreased from the beginning of 2014 until the beginning of 2018 by more than 140,000 inhabitants due to a high negative migratory balance combined with a small positive natural increase that became 0 in 2017. If international migration rates registered in 2017 remained stable in 2018, then the total population further decreased to 2,681.7 thousand inhabitants by the beginning of 2019, an additional decrease of about 48.6 thousand inhabitants, reflecting mainly the effect of a negative migratory balance (like 2017) and a slightly negative natural increase. According to this the Republic of Moldova population decreased in the last five years by 6.5% (187.5 thousand inhabitants).

The revision of the population estimates also permitted the revision and improvement of the demographic indicators. The general effect of the reduction of the population size is on increasing the fertility and mortality rates. This brought a substantive increase in the Total Fertility Rate (TFR) and a slight decline in the expectancy of life of both sexes. Consequently, and contrary to previously assessed the Republic of Moldova fertility levels rank among the highest (and not the lowest) in Europe: according to the last estimates released by the UN (World Population Prospects 2019) in the period 2015-2020 TFR estimates for Europe average 1.61 births per woman when only a few countries crossed the 1.8 level like the Republic of Moldova. The revision of population estimates brought also an increase in mortality rates by age and sex and consequently to a slight decrease of about 2-2.5 years in the expectancy of life at birth of both sexes.

The revised migration rates for the years 2014-2017 reveal high levels of international migration in the Republic of Moldova that result in a substantive and increasing negative migration balance. Both immigration and emigration rates increased over these four years but the increase in emigration rates was stronger,

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[2] Apart from the Transnistria area that has no recognized border with the rest of the Republic of Moldova, and also with the exception of entries/exits through the border between Transnistria and Ukraine that are not registered by the GIBP
[3] Some of them are in practice Moldovan's crossing the border with non-Moldovan documents. See more details in the migration chapter

bringing a sharp increase in the negative migratory balance. Emigration rates increased from 43.2 to 57.8 per thousand people when immigration rates increased from 34.6 to 39.8 per thousand and so the migratory negative balance duplicated from -8.6 in 2014 to -17.9 per thousand persons in the population in 2017.

The comparison between the age structures of the Republic of Moldova population based on the revised and previous estimates shows that the children and the older age groups have been underestimated in previous estimates while the active age group has been overestimated. These differences seem to arise from the fact that the negative net migratory balance (underestimated in previous population estimates) affected more the active population age group, combined with the underestimation of births that in previous estimates did not include transcripted births of women registered as living in the Republic of Moldova. Following the aging patterns reviewed above, combined with the births corrected with the inclusion of births from transcriptions, also dependency ratios have increased compared to the previous.

Because of the newly adopted methodologies and data, the updating and releasing process of current population estimates have been redesigned. From now on every year preliminary population estimates for the beginning of the current year will be calculated and released not later than the 1st of July of the same year together with updated/final demographic indicators for the previous year. These preliminary estimates will assume that migration rates registered in the previous year remained stable. Final population estimates for the same date will be produced a year later after new updated final migration estimates will be calculated. The constrain to produce the final data with a year delay arises from the fact that, by definition, international migration estimates cannot be produced earlier: to define if a person is to be considered an immigrant (or emigrant) in a given year requires to know if this person accumulated most of the year (in practice 275 days) in the country (or abroad) during the year following/before his/her entry or exit to/from the Republic of Moldova during the calculation year. However, unless important changes in migratory patterns will take place it is expected that final population estimates will differ only slightly from the preliminary ones, therefore users are encouraged to use the preliminary estimates without major concerns, being although aware that minor changes will be introduced on these estimates a year later.

The **revised population estimates** and **revised demographic indicators** here presented constitute an enormous contribution to the improvement of the Republic of Moldova statistical system. The revised estimates will allow from now on to get a much better picture of the demographic, economic, and social situation in the Republic of Moldova that was not possible in the past. For a long period, it was clear that the current estimates do not reflect properly the situation in the Republic of Moldova, and NBS had to invest great efforts, with the assistance of other governmental institutions and the international community to make possible the calculation of these revised estimates and indicators. In this process, NBS acquired the ability to compose reliable international migration statistics based on existing data using state of the art methodology. From now on these improved estimates will be calculated annually allowing policymakers, planners, and researchers to have much better evidence on which to base their plans, policies, and research; and the general public to receive more accurate information.

1. Introduction

The demographic situation of the Republic of Moldova is one of the most publicly debated topics. A general concern about the steady decline in the country's population for the last 30 years and unfavorable changes in its structural characteristics creates an increasing need for its careful and in-depth study.

For a long time, it was clear that a revision of the current population estimates of the Republic of Moldova is imperative. In the absence of reliable estimates of the international migration balance, an especially important component of population growth in the country, the population estimates of the usually resident population in the Republic of Moldova were inaccurate resulting in a large over-estimation of population size[4]. The Population Census of 2014 (corrected for undercount) provided accurate estimates of the usually resident population but the yearly updating of these estimates over the subsequent years was impossible without parallel accurate estimates of the yearly migratory balance.

Understanding the critical importance of this topic, the NBS, with the assistance of UNFPA and SDC that supported the operation, devoted significant efforts to identify proper data sources and adapted the methodology to allow the calculation of reliable estimates of the migratory balance and following that for updating of the current yearly population estimates.

The results of these efforts have been successful and improved reliable estimates of the migratory balance have been calculated since the last population census of 2014 that allows the calculation and publication of **revised population estimates** by age and sex for the whole country (except Transnistrian region) according to the international recommended definition of "place of usual residence", and will ensure from now on the continuous updating of these estimates. These revised estimates, together with revised demographic indicators for the Republic of Moldova according to them, are presented in this publication together with explanations about the methodology and the calculation process.

After each census, population estimates need to be revised to have reliable and up to date data on population. The results of the last population census that was conducted in May 2014 have been made available in March 2017 and since then intensive efforts have been dedicated to allowing the yearly calculation of revised population estimates based on the corrected figures provided from the census.

Such revision is dictated by the Government's necessity of the more accurate estimates available to support the development of effective and impactful policies. The proper implementation of the RM-EU Association Agreement and drafted Moldova 2030 National Development Strategy is contingent on reliable statistics that reflect the realities of the country. To ground policy-making on accurate data, Moldova needs to strengthen statistical collection and analysis at the national and sub-national level and adjust all population statistics based on the latest census data. Such a system is indispensable for a better understanding of ongoing social processes and forecasting future needs and opportunities of the society. The statistics on population, vital events, and migration are pillars of the entire statistical system, dependent on which are other statistical indicators related to gender equality, health, economy, social protection and poverty, education, and youth, including most of the SDG indicators.

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[4] See for example: Producing reliable mortality estimates in the context of distorted population statistics: the case of Moldova, Olga Penina, Dmitri Jdanov, Pavel Grigoriev, 2015; Adapted Global Assessment of the National Statistical System of Moldova, Vera Herrmann, Claudia Junker, Bronislava Kaminskiene, Günter Kopsch, Jason Schachter 2013

The new migration statistics have been produced based on a very large body of border-crossing data that has been provided by the General Inspectorate of Border Police. The calculations for each year are based on about 30 million border-crossing movements of more than 1.5 million Republic of Moldova citizens and 1 million foreigners[5] using a methodology that allows to calculate the time spent by a person in the Republic of Moldova or abroad during the year before and the year after each movement, determining accordingly if this person accumulated most of the year abroad/in the Republic of Moldova and therefore should or should not be defined as immigrant or emigrant during a specific year.

The goal has been achieved thanks to close cooperation between the NBS, the GIBP (provider of the state border crossing data on natural persons) and the Population State Register (source of rayon data of those crossing the border), with the continuous support of UNFPA and SDC, who provided the necessary means for this important achievement. A team of NBS experts, assisted by international and local experts, developed the methodology for the analysis and production of the new migration statistics[6].

The population infrastructure of the entire statistical system in the Republic of Moldova will be based from now on in improved population estimates that will be updated every year. Now, the updated population estimates include the age and gender structure for the whole country (excluding the Transnistrian region of the Republic of Moldova). The new estimates by age and sex at the level of rayons and localities represent another stage during which the NBS will accomplish and release the results as soon as they will be ready. Also, demographic indicators of fertility, mortality, migration, and age-structure and population growth by components have been revised and are presented in this report. These indicators will continue to be updated every year following the update of the current population estimates. Other economic and social indicators are in the process of being updated and are released gradually as soon as they are recalculated.

The actual revision and correction of the current population estimates from now on is a giant step in the process of bringing NBS and the whole Republic of Moldova statistical system to comply with the highest European statistical standards that will allow improving significantly the whole national statistical system and through its general planning and policymaking in many important areas.

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[5] Some of them are in practice Moldovan's crossing the border with non-Moldovan documents. See more details in the migration chapter

[6] A detailed description of the methodology will be produced in a specialized report

2. Methodological and technical aspects of the calculation of the usually resident population estimates

Calculation of population estimates: general population balancing equation

Population estimates at any given point of time start with a population base (usually the last population census or the population at the end of the previous year) to which births are added, deaths subtracted, and the migratory balance also added (the difference between the numbers of immigrants and emigrants) all of them calculated from the beginning to the end of the period (usually one year), according to the population balancing equation:

$$P_1 = P_0 + B - D + NM$$

Where:

P_0 – Population at the beginning of the period (usually beginning of year)

P_1 – Population at the end of the period (usually end of year)

B – Number of births during the period (usually one year)

D – Number of deaths during the period (usually one year)

NM – Net migration (the difference between the numbers of immigrants and emigrants) during the period (usually one year)

A similar equation is applied to each age-sex group to calculate the population by age and sex.

Base population

The preparation of the revised population estimates by age and sex for the Republic of Moldova has been based on the results of the last Population and Housing Census (PHC) conducted in May 2014, corrected for undercount in the city of Chisinau and the rest of the country, and refers to the *usually resident population* of the Republic of Moldova at the date of the census. The correction of the original counts from the census was based on the state of the art methodology provided by international experts for this purpose and was based on a *Post Enumeration Survey*, carried out in June 2014, that allowed the calculation of coverage correction weights for both Chisinau and the rest of the country. After an exhaustive and careful evaluation that was conducted by an external international consultant, it was concluded that these corrected census estimates provide the best source to calculate population estimates for the Republic of Moldova[7]. These estimates are also complying with the internationally recommended population definition based on "place of usual residence" bringing the Republic of Moldova statistical system to the highest international standards, and therefore fully comparable with the most of the countries of the world.

Based on these estimates the usually resident population by age and sex at the beginning of 2015, 2016, 2017, and 2018 has been calculated using the above-mentioned balancing population equation. A similar approach (in reverse mode) has been used to calculate the population backward from census date to the beginning of 2014 (detailed estimates by year are presented in Annex 1).

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[7] Evaluation report of the 2014 Population and Housing Census in the Republic of Moldova, Eliahu Ben Moshe, UNFPA International Consultant on Census Evaluation, Nov 2017

As mentioned above, the 2014 PHC enumerated population has a pronounced undercount in Chisinau city and a smaller undercount in the rest of the country therefore it was necessary to correct the census figures. A Post Enumeration Survey considered of good quality by the International Technical Advisory Board on Census[8], was conducted immediately after the census to estimate population coverage during the census. This survey consisted of a re-enumeration of a representative sample of the population (spread all over the country) which allowed estimating how many persons have been missed in the sampled areas. NBS jointly with an international expert from the Italian Statistical Institute, using statistical models, and based on PES (and electricity consumption data for Chisinau city) have disaggregated by age and sex the undercounted population. The net undercount in Chisinau city was estimated to be 41.6% and in the rest of the country of 1.7%. The PES results have been used to produce correction factors of the 2014 PHC figures, as a base for population estimates (for PHC corrected estimates by age and sex for Chisinau and the rest of the country see Annex 2)[9].

Figure 1: Republic of Moldova population on Census day and in previous current population estimates, 2014
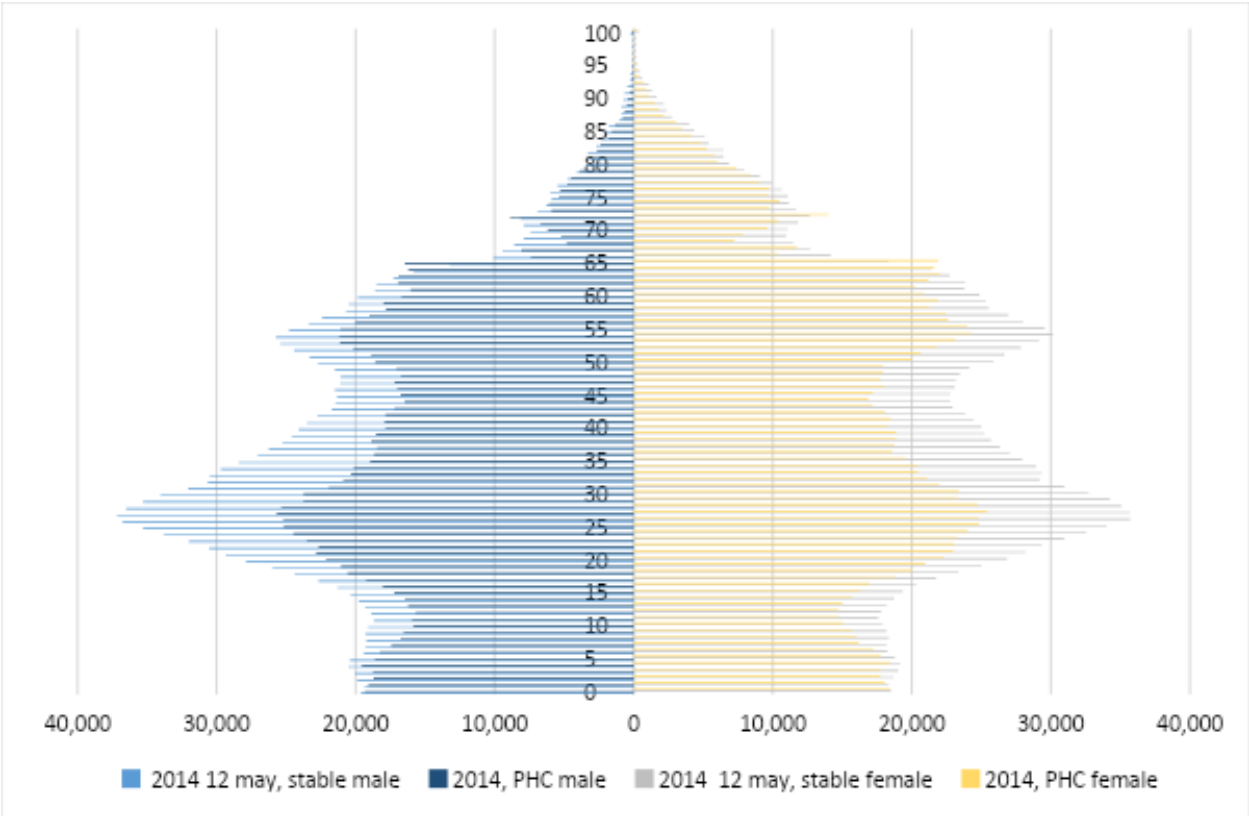
The total population according to the (corrected) 2014 PHC figures amounted to a total of 2.9 million persons usually resident in the Republic of Moldova compared to the 2014 previous population estimates of 3.6

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[8] An International Technical Advisory Board on Census was established jointly by the National Bureau of Statistics and UNFPA to provide high quality technical advice from international experts in preparation of Moldova's Population and Housing Census 2014

[9] The PES and the re-weight were done for the usual resident population in regular households (not including persons residing in collective households that were not included in the PES). See details in Mission Report: International Consultant on Census Coverage and Population Estimates, prepared by Tiziana Tuoto, April 2017.

million[10]. The difference between the census and the previous current estimates indicated that already at the time of the 2014 census the Republic of Moldova experienced a large negative migratory balance since the census conducted in 1989, much larger than the one officially registered (authorized migration that is based on residents' reports and incorporated into the yearly population estimates). Indeed, the difference amounted to almost 700 thousand inhabitants, about 20% less population than in the previous current estimates for the census date (Table 1)[11]. This difference resulted in an overestimation of the population in the previous current estimates and was mainly the result of the underestimation of migration during the years between both censuses representing the population loss that may be attributed to international migration in the period 1989-2014. From the data in Table 1, it is evident this underestimation of migration does not show significant differences by sex, but it shows differences by age group: young adults of both sexes show the highest population loss and those in the age groups 25-39 years old for which losses are above 30%. The fact that also children under 15 years of age, including those at 5-14 years of age, have population losses of the magnitude of 10% and over may be indicative that (at least during the last 15 years) the negative migration balance included a significant number of families with children.

The conclusion of the comparison of the differences between the previous (unrevised) current population estimates for 2014 and the 2014 PHC estimates is that heavy migration losses took place before the census. Since the previous (unrevised) population estimates were based on the 1989 census population, as its basis, that means that this negative migration balance has been accumulated between 1989 and 2014.

Table 1: Difference between 2014 PHC and previous current population estimates by age and sex (thousands and percentages)

	Thousands			Percentages from previous population estimates		
	Both sexes	**Male**	**Female**	**Both sexes %**	**Male %**	**Female %**
0-4	-7.2	-4.0	-3.3	-4%	-4%	-3%
5-9	-18.7	-10.0	-8.8	-10%	-10%	-10%

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[10] Until the new revised estimates presented in this publication have been calculated the NBS produced two annual population estimates. One that was denominated "the resident population" ("populatia stabila" in Romanian) was based on the Population Census conducted in 1989, updated yearly according to the number of births, deaths and the balance of reported international migrations since then. The second denominated "the present population" ("populatia prezenta" in Romanian) was based on the Population Census conducted in 2004 (with some corrections for undercount) also updated yearly according to the number of births, deaths and the balance of reported international migrations since then. Both estimates suffered from the lack of realistic estimates of the (negative) migratory balance what resulted in a sharp overestimation of the population: at times of the HPC 2014 the denominated resident population amounted to 3.6 million and the denominated present population amounted to 3.4 million, both far away from the (corrected) HPC 2014 estimate of 2.9 million. For the calculation of demographic and other indicators NBS used the *resident population* estimates and therefore it is the one we refer in the rest of this document as "previous current estimates".

[11] Compared to the *present population* that was based on the Population Census conducted in 2004 the difference was lower, of about 500,000 persons, indicating that the (corrected) 2004 census figures corrected at least for the underestimation of the negative international balance between 1989 and 2004. However, the *present population* continued to accumulate the underestimation of the negative international migration balance since 2004, and in any case it was not used for the calculation of demographic or other indicators.

10-14	-30.5	-15.6	-14.9	-16%	-16%	-17%
15-19	-35.2	-18.6	-16.7	-16%	-16%	-15%
20-24	-70.2	-37.9	-32.2	-23%	-25%	-22%
25-29	-107.5	-55.8	-51.7	-30%	-31%	-30%
30-34	-93.6	-49.9	-43.7	-30%	-32%	-29%
35-39	-75.8	-38.1	-37.7	-29%	-29%	-29%
40-44	-56.3	-26.2	-30.1	-24%	-23%	-25%
45-49	-49.6	-21.7	-27.9	-22%	-20%	-24%
50-54	-51.4	-21.6	-29.8	-20%	-18%	-21%
55-59	-38.9	-15.8	-23.1	-16%	-14%	-17%
60-64	-17.9	-7.2	-10.6	-9%	-8%	-9%
65-69	-15.7	-7.3	-8.5	-13%	-15%	-13%
70-74	-7.0	-2.9	-4.1	-7%	-8%	-7%
75-79	-6.8	-2.4	-4.4	-9%	-9%	-9%
80-84	-6.4	-2.2	-4.2	-14%	-15%	-14%
85+	-9.2	-3.3	-5.9	-29%	-34%	-27%
Total	-698.0	-340.4	-357.6	-20%	-20%	-19%

The 2014 PHC distribution of the population by sex (within age groups) is presented in Graph 1 in the form of the number of males per 100 women, together with the expected distribution in the absence of migration. The sex ratios show the known declining distribution by age increase that arises from the cumulative effect of female mortality rates being lower than male mortality at all ages, decreasing steadily from a sex ratio of about 106 at the first age group (reflecting the universal sex ratio at birth) to a sex ratio of less than 60 males per 100 women over the age of 64. The deviance of the census sex ratios from the expected sex ratios is indicative of selective migration by sex (in this case selective negative migratory balances). Over the years, men had higher negative migratory balances than women at the young adult ages and therefore the census sex ratios are lower than the expected in the absence of migration. The possibility that this deviance may relate to a reduction in the selectivity of mortality by sex can be ruled out since it was found no significant difference in the selective mortality patterns at least since the late 1950's: women expectancy of life at birth has been always 7-8 years higher than men expectancy of life at birth.

Graph 1: Sex ratio by age in 2014 PHC (corrected figures) and expected (in the absence of migration)[12]
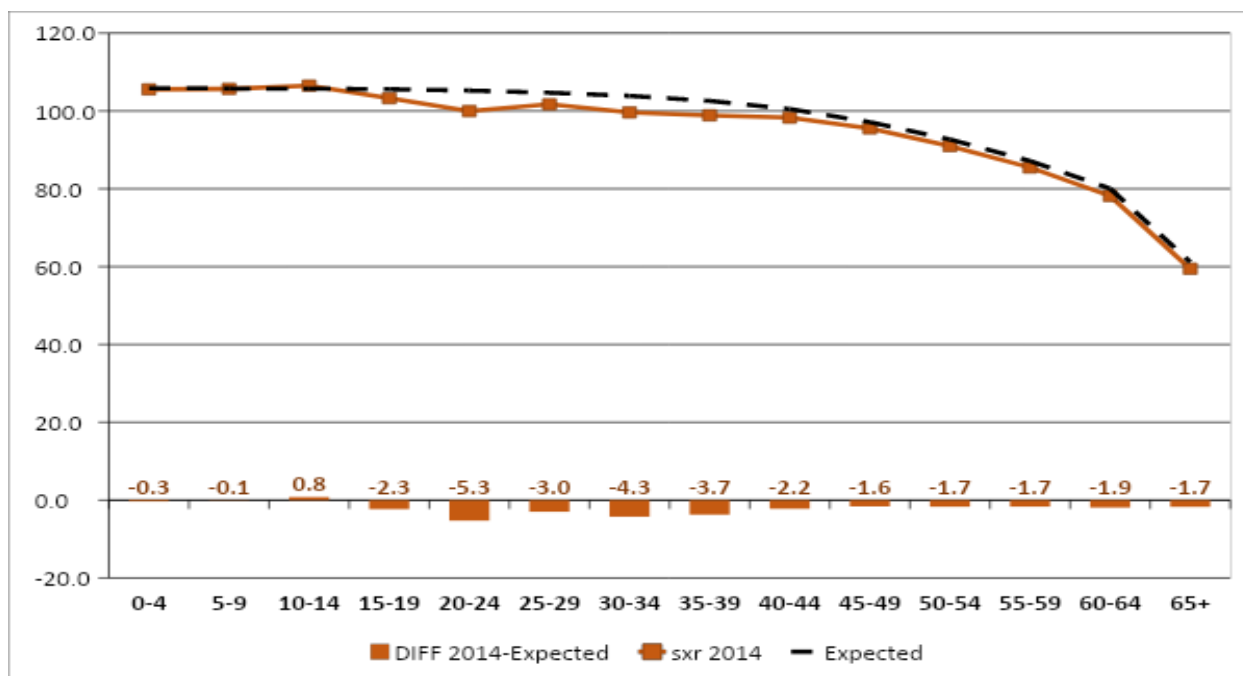
Vital statistics – Births and Deaths

Two of the main growth components of the population balancing equation, births, and deaths, are part of the vital statistics system and their difference represents the natural increase of the population. The data on vital statistics are derived from birth and death certificates that are received by NBS from the Public Services Agency. Data on the natural movement of population (birth, death, marriage, divorce) are obtained as a result of integrated management of information flow (IIF), administered jointly by the Ministry of Justice, Ministry of Health, Labour and Social Protection, Public Services Agency and the National Bureau of Statistics. These data are considered complete and of good quality.

Births

The current birth estimates are based on the counts of birth certificates and are considered accurate since full registration of births is taking place in the Republic of Moldova.

However, some births are originally registered in foreign embassies from RM or abroad and only transcripted into the Republic of Moldova civil registration and it is not clear in advance if they are from mothers that are usually residents in RM, since they may also be from mothers residing outside the Republic of Moldova. After checking these transcriptions, those that took place in the Republic of Moldova and were registered in embassies located in the Republic of Moldova have been added to the count of births assuming that it was highly probable that these births were from mothers that were usually resident in the Republic of Moldova. This addition begins since the last census of 2014, which is the basis for the calculation of the revised population estimates and relevant indicators and excludes births from mothers that are registered as residents of Transnistria (Table 2 – Added transcripted births). The rest of the transcriptions have been excluded (those that occurred abroad or registered abroad), assuming the probability they are from mothers

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[12] The expected sex ratio was calculated using the revised Life Tables for males and females (2015), assuming a sex ratio at birth of 106.2 Males to 100 females as the sex ratio registered in 2014

that are usually residents in the Republic of Moldova, is low. The transcriptions increased the yearly number of births by about 2,100 to 2,700 births each year allowing a more accurate estimate of fertility indicators (see following Revised Indicators chapter).

As mentioned above, the vital statistics data can be calculated by *date of registration* or by *date of occurrence* (birth or death). To further improve the estimates, the data used for the calculation of the revised estimates of the usually resident population is from now on (since the 2014 census date) based on the **date of occurrence** (birth cohort in the case of births)[13]. The differences are small as shown in Table 2, but the new approach improves the births and deaths statistics and therefore the population estimates.

Table 2: Births by date of registration and by date of occurrence

	Births by date of registration			Births by date of occurrence			Added transcripted births			Births revised estimates		
	Total	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**
2014	38,616	19,937	18,679	38,755	19,981	18,774	2,154	1,093	1,061	40,909	21,074	19,835
2015	38,610	19,972	18,638	38,390	19,862	18,528	2,465	1,279	1,186	40,855	21,141	19,714
2016	37,394	19,304	18,090	37,397	19,327	18,070	2,564	1,252	1,312	39,961	20,579	19,382
2017	34,060	17,547	16,513	33,968	17,491	16,477	2,672	1,373	1,299	36,640	18,864	17,776
2018	32,606	16,864	15,742	32,553	16,792	15,761	2,183	1,110	1,073	34,738	17,901	16,837

The revised estimates in Table 2 show a decrease in the number of births that accelerated in 2017 and 2018 and is consistent with the increase in the negative migratory balance in the same years, of young adults in main fertility age groups.

Deaths

The current data on deaths is based on the registration of deaths in civil registration and is considered complete. Possible errors are connected to the heavy migration from the Republic of Moldova like usually resident's persons that may have died abroad and not reported to the civil registration or persons that died in the Republic of Moldova but were not at that time usually residents in the Republic of Moldova. It seems it can be assumed that this kind of error cannot introduce any significant bias into the mortality statistics.

As in the case of births counts, the count of deaths will be from now on (beginning in 2014) based on the **date of occurrence** and not on the date of registration as it was in the past. It is evident that the differences are small (see Table 3), but still, they improve the calculations of both deaths indicators and the revised population estimates.

Table 3: Deaths by date of registration and by date of occurrence

	Deaths by date of registration	Deaths by date of occurrence

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[13] Until now it was based on date of registration, but because of late registrations that means that part of the births (or deaths) registered in a specific year may have been born (or have been deceased) in the previous year and not all the births/deaths in a giving year were counted since some of them were registered during the following year.

	Total	Male	Female	Total	Male	Female
2014	39,494	20,624	18,870	39,555	20,692	18,863
2015	39,906	20,961	18,945	39,848	20,941	18,907
2016	38,489	20,418	18,071	38,454	20,363	18,091
2017	36,768	19,247	17,521	36,820	19,266	17,554
2018	37,199	19,720	17,479	37,285	19,794	17,491

The data in Table 3 show a decrease in the number of deaths between 2015 and 2018. This may be more related to changes in the flow of old age cohorts than to the migratory balance since older people have low migratory balance. Indeed with the entrance of the large post Second World War baby boom cohorts into retirement ages the age structure of persons over 65 years old, where mortality rates account for most of the deaths in RM, is going through a process by which the number of younger old persons (65-69 years old, with relatively low mortality rates) is increasing when the number of older old persons (70 years and over, with the highest mortality rates) is decreasing, and therefore some decrease in the total number of deaths should be expected (see more about this process in the aging topic in the Revised Indicators chapter).

Migration

The calculation of migration estimates and the resulting net migration balance has been the main challenge that, once solved, allowed the calculation of the new revised population estimates and demographic indicators.

The new calculation of migration estimates is based on border crossing data that are registered by the GIBP for each individual entering or exiting the Republic of Moldova borders[14]. Individuals crossing the borders may be Moldovan or foreigners and they may register their movement across the border using a Moldovan or a foreigner document. Also, Moldovan citizens may cross the border using a foreign (non-Moldovan) document and not identified as being citizens of the Republic of Moldova. That represents an additional challenge that has been at least partially solved with the adopted new methodology.

The number of movements across the borders of the Republic of Moldova is high and increasing every year: the number of uniques identified Moldovan citizens (using Moldovan documents at least in one of their movements over the observed years (since 2013 until 2018)) was about 1.4 million in 2014 and increased to over 1.7 million in 2018, and the number of individuals using non-Moldovan documents to cross the border increased also from about 700 thousand in 2014 to over 1.2 million in 2018. It must be noted that some of those crossing the border with non-Moldovan documents may be Moldovan citizens themselves that have not been identified as such since they did not use a Moldovan document in any border crossing, they did over the observed years. The identification of Moldovans in the foreigners file was done by matching names and date of birth movement records of persons traveling with Moldovan documents (and, therefore, identified as Moldovan citizens) with movements of persons traveling with foreign documents[15], however, if a Moldovan citizen used in all border crosses only a non-Moldovan document, this identification was not possible.

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[14] Apart from the Transnistria area that has no recognized border with the rest of the Republic of Moldova, and with the exception of entries/exits through the border between Transnistria and Ukraine that are not registered by the GIBP

[15] It is possible that a person using a Moldovan document in one (or more) movements used for other movements a foreign document, but the matching failed. In this case this person will be in both files (the one of Moldovan citizens and

The methodology used to determine the migratory status (immigrant, emigrant, or non-migrant) of an individual crossing the border is based on the calculation of the intervals (number of days) spent by each individual abroad or in the Republic of Moldova during the year before and the year after any specific movement (border-crossing). On this basis, it was possible to calculate for each entry if the individual is returning to the Republic of Moldova after a stay of more than a year abroad and then remaining in the Republic of Moldova for a period of at least a year. In such a case this individual should be considered an immigrant. Similarly, if an individual exited the Republic of Moldova, after spending more than a year in the country and stayed abroad for a period of at least a year, such an individual should be considered an emigrant. Since also after immigration/emigration, individuals may visit the country they left, the period requested to acquire the immigrant/emigrant status was of less than a year (275 days) allowing tolerance of until 3 months for this kind of visit. The 275 days requirement was calculated cumulatively during the year before and after the movement and not as a continuous interval of at least 275 days.

The above-mentioned methodology has to deal with a series of challenges, some of them arising from missing (or wrong) border crossing data and some inherent to the calculation method used. One important challenge aroused from the fact that the data included individuals for whom there were registered 2 consecutive entries or 2 consecutive exits and that was illogical: a person cannot re-enter the country without leaving it before or re-exit the country without returning before. When the illogical interval was not too large such cases have been treated by imputing an artificial movement in the opposite direction in the middle between two movements in the same direction; in this way, less than 2.0% of the movements have been imputed, when the average imputed interval was 18 days. In cases, the distance between two movements in the same direction was too large (more than 182 days, meaning that the imputed intervals will be larger than 91 days) such individual has been excluded from the calculations. Since in most of the cases (more than 90%) the imputed intervals were small, the removed individuals represented a small proportion of the total number of individuals crossing the border in a specific year: on average less than 2% of the individuals have been removed from the calculations because of that reason. Exhaustive checks have been conducted to verify that not the imputations or the removal of individuals significantly affect the migration estimates.

A challenge inherent to the methodology is that, when allowing an individual to accumulate 275 days abroad/in the Republic of Moldova to determine its migration status, may create in a few and very peculiar cases a situation when an individual moving more than once in a specific year may be categorized as both immigrant and emigrant in the same year. There were not many cases like this (less than 0.1% of the estimated number of immigrants/emigrants) and their final migratory status was determined to be the last acquired in the specific year. Another challenge inherent to the methodology used is a situation when an individual is considered an immigrant or emigrant in two consecutive years. These cases have been removed from the calculations in the second year since, if they were immigrants/emigrants in the previous year, they have been already added/removed to/from the population the year before (only several hundred cases like this were found in each calculation year). Inherent to this methodology remains the limitation that, to calculate final migration estimates for year T, it is necessary to wait until the cross-border movements of year T+1 are ready to be processed and therefore final migration estimates for year T are available only after the end of year T+1 (during year T+2).

A challenge that remains to be solved in the future is the identification of Moldovan citizens moving over the years with (only) non-Moldovan documents that therefore were not yet identified as Moldovan citizens. In

the one of foreigners) and had a chance of being categorized twice as immigrant or emigrant. Also, it should be noted that if the same individual used different foreign documents over the years it will be considered as a different person for each document used.

the present estimates, they are part of the foreigners' group that was in any case included in the calculations together with the Moldovan citizens. We tend to assume that the negative migratory balance of foreigners is mainly due to the net migration of unidentified Moldovan citizens since it is assumed that foreigners will not have any significant net migration over the years. It is expected in the future to find the methodology that will allow identifying these Moldovan citizens as such by linking the foreigners (those moving only with non-Moldovan documents over the years) to the PSR by name and date of birth. However, such an operation requires additional time and large computer resources and therefore has been relegated to a later stage. In any case, it is not expected that this challenge to identify Moldovan citizens in the foreigners group will significantly affect the estimated migratory balance of the population. An additional challenge that remains unsolved is the movements to and from Ukraine through the Transnistria region since these movements are not registered by the GIBP. The available data does not allow estimating how many movements of Moldovan citizens (who are not Transnistria residents that are not included in the NBS population estimates) took place over the years, even though it is not assumed to be high.

Table 4: Immigration, Emigration, and Net Migration, revised and previous estimates, 2014-2017 (thousands)

	Revised estimates			Previous estimates		
	Immigration	**Emigration**	**Net Migration**	**Immigration**	**Emigration**	**Net Migration**
2014	98.7	123.4	-24.7	0.8	2.4	-1.6
2015	105.6	126.9	-21.3	1.6	2.2	-0.6
2016	107.2	153.2	-45.9	1.5	2.5	-1.0
2017	109.7	159.1	-49.4	1.7	2.1	-0.4

The figures in Table 4 show that, from 2014 to 2017[16] the previous migration estimates based on individual official reports were much lower than the revised migration estimates based on border crossing data and that the previous migration estimates failed to estimate properly the magnitude of the negative migratory balance. More details about migration since the census are presented in the chapter on Revised Indicators - Migration.

It is important to stress that the used methodology is based on objective information that is the *effective duration of presence or absence* in the country of persons crossing the border. These durations are calculated precisely *ex-post* by considering all dates of entry or exit as recorded by the border guards. Accordingly, this methodology does not consider the intention for the duration of presence or absence or the reason for entering or leaving the country. This is a strong aspect of this methodology as both the intended duration of stay or absence and reason for moving is generally the weakest points in any data collection procedure on international migrations[17].

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[16] According to the described methodology the calculation of revised migration estimates for 2018 will be possible only after the end of 2019.

[17] See: A special methodology using a border crossing database for the estimation of international migration flows, Michel Poulain, (UCL-GéDAP, Belgium), IOM Moldova, September 2010

3. Revised Population Estimates 2014-2018; provisional estimates 2019

The revised population estimates show that the population size of the Republic of Moldova decreased from the beginning of 2014 until the beginning of 2018 by more than 140,000 inhabitants due to a high negative migratory balance combined with a small positive natural increase that became 0 in 2017. If international migration rates registered in 2017 remained stable in 2018 the population of the Republic of Moldova further decreased to 2,681.7 thousand inhabitants by the beginning of 2019, an additional decrease of about 48.6 thousand inhabitants, reflecting mainly the effect of a negative migratory balance (like 2017) and a slightly negative natural increase. According to this the Republic of Moldova population decreased in the last five years by 6.5% (187.5 thousand inhabitants).

Table 5: Population growth and growth components 2014-2018 (2018* provisional)

Year	Population beginning of year, 01st of January	Natural increase	Net migration	Total population growth	Population end of year, 31st of December	Population growth rate %
2014-2018	2,869.2	2.4	-189.8	-187.5	2,681.7	-6.5%
2014	2,869.2	1.4	-25.9	-24.6	2,844.7	-0.9%
2015	2,844.7	1.0	-21.3	-20.3	2,824.4	-0.7%
2016	2,824.4	1.5	-45.9	-44.4	2,780.0	-1.6%
2017	2,780.0	-0.2	-49.4	-49.6	2,730.4	-1.8%
2018*	2,730.4	-1.3	-47.3	-48.6	2,681.7	-1.8%

Graph 2: Population at beginning of year 2014-2019 (thousands; 2019* provisional)
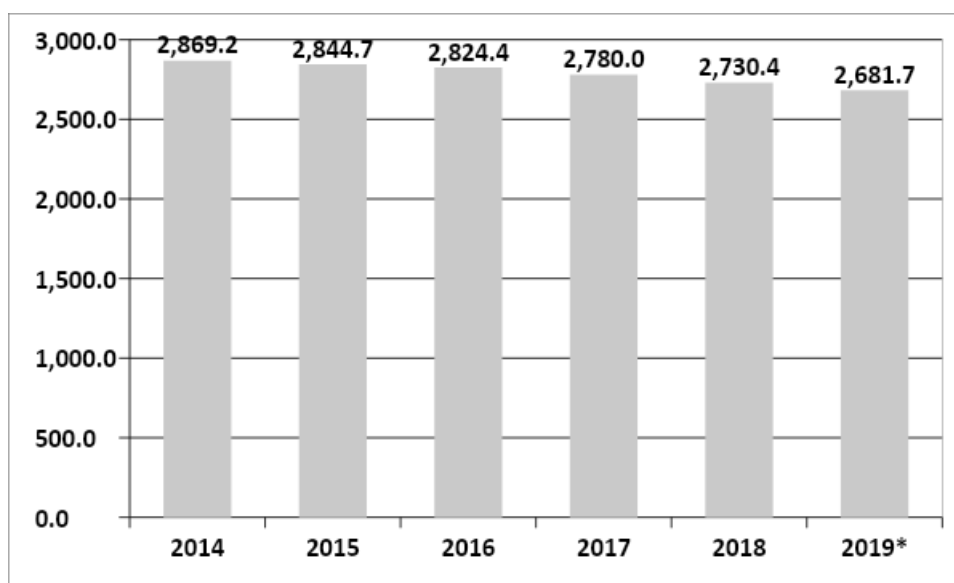
The negative migratory balance, which was responsible for the population reduction, increased lately (Table 5): if in 2014 and 2015 its magnitude was -25,900 and, respectively, -21,300 inhabitants it doubled in 2016 and 2017 (-45,900 and, respectively, -49,400 each year) and 2018 (assuming migration rates did not change in 2018). The combination of close to zero natural increase (connected itself with the high negative net migration at main fertility ages of both women and men that reduced the number of births) brought to an increasing negative population growth that amounted to about -0.9% in 2014 and -1.8% in 2017 and 2018 (idem). Such a level of population reduction represents an increase even in the already high levels that have been estimated in the Republic of Moldova in the past: between the censuses of 1989 and 2004 a population decrease was registered with the average magnitude of about -0.8% per year and between 2004 and 2014 of about -1.3% per year. Moreover, the actual population growth rate of -1.8% is the highest population decrease registered in European countries in recent decades and one of the highest ever recorded worldwide.

Graph 3: Population growth components 2014-2018 (thousands; 2018* provisional)

	Natural increase	Net migration	Total population growth

Chart values (from bars):
-25.9, -21.3, -45.9
-24.6, -20.3, -44.4
-49.6, -48.6
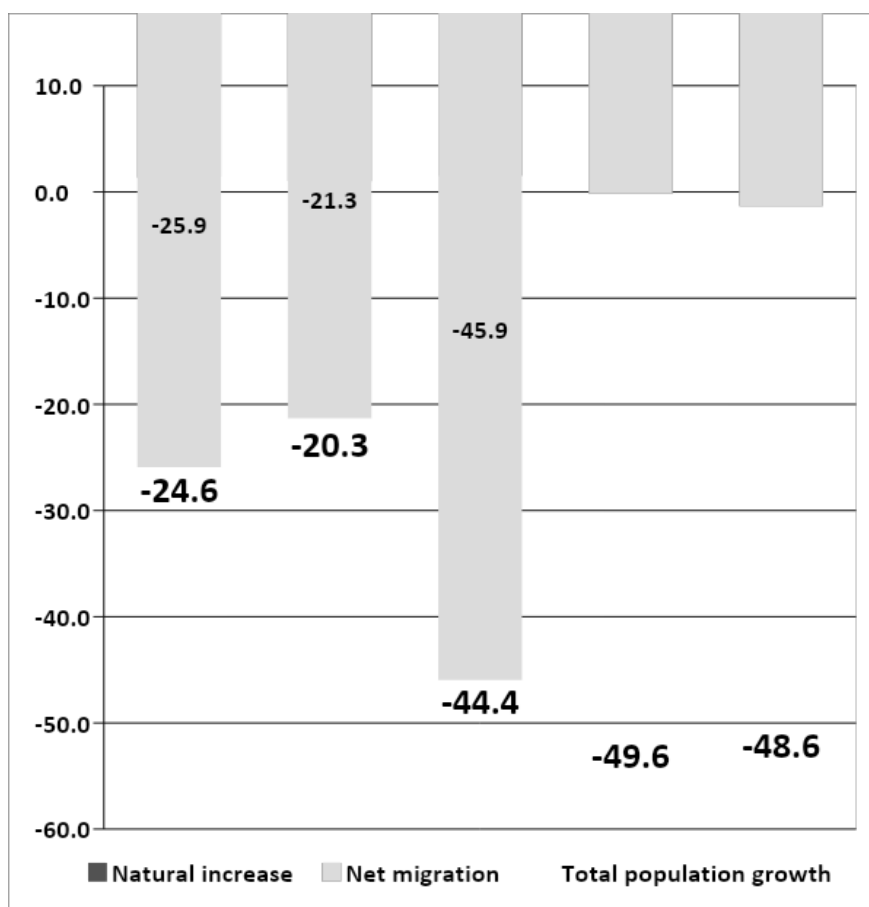
Revised population estimates compared with previous current estimates

The revised population estimates have been calculated based on the corrected figures of the 2014 PHC, according to the internationally agreed definition of the usual place of residence and using improved migration estimates (also calculated based on the same definition). The new population estimates are much smaller than the previous ones. The reason for it is that previous estimates included a significant number of inhabitants that left the Republic of Moldova territory during the years but did not report their change of residence. This surplus accumulated over the years. Already in 2004, the census provided a smaller estimate of the population size (3.3 million) compared to the current population estimates for the census date (3.6 million). The 2004 census coverage was not evaluated, and it was suspected that some part of the difference originated in net census undercount. Some limited corrections of the current population estimates based on the 2004 census have been introduced at that time, but these estimates (the denominated "present population") have not been used for the calculation of demographic and other indicators. In the last census of 2014 coverage levels were carefully assessed and the census figures were corrected to reflect the population according to the usual place of residence definition. For a variety of reasons (and lack of funding for census data capture) the final and corrected figures for the census have been made available only in March 2017. These figures confirmed that the current population estimates at the time of the HPC 2014 have accumulated a surplus of about 700 thousand inhabitants.

It was clear already at that time that it is imperative to correct the current population estimates and to find a way to keep them updated over the years. However, their correction depended on finding reliable data and suited methodology to compile yearly reliable migration estimates. NBS invested since then enormous efforts and finally with the assistance and support of UNFPA and SDC a project for the calculation of population and

migration estimates was established based on collaboration with the GIBP authorities that provided detailed border crossing data and the PSA that assisted with additional information from the SPR. This project culminated recently with the production of international migration estimates by age and sex for the whole Republic of Moldova population from 2014 until 2017 and with the development of the methodology that will allow producing yearly reliable current population estimates from then on.

Table 5: Revised usually resident population and previous population estimates, the beginning of the year, 2014-2019* (thousands; 2019* provisional)

	Previous population	The revised usually resident population	Absolute Difference	The difference in % from the previous population
2014	3,557.6	2,869.2	-688.4	-19%
2015	3,555.2	2,844.7	-710.5	-20%
2016	3,553.1	2,824.4	-728.7	-21%
2017	3,550.9	2,780.0	-770.9	-22%
2018	3,547.5	2,730.4	-817.2	-23%
2019	3,542.7	2,681.7	-861.0	-24%

The difference between the revised population estimates (Table 5) and the previous estimates (the denominated "resident population" estimates) accumulated until 2018 more than 817 thousand inhabitants (23% of the previous population estimate). If international migration rates in 2018 remained as in 2017, they accumulated by the beginning of 2019 a surplus of 861 thousand inhabitants (24% of the previous population estimate), that according to the revised estimates have left the country, most of them (689 thousand), before the last census.

Population age and sex structure

The age-sex structure at the beginning of 2018[18] (Figure 2) shows peculiar patterns that talk about some aspects of the demographic history of the Republic of Moldova population reflecting the demographic processes already mentioned when presenting the base population of 2014, just shifted by about 4 years and with the exacerbated effect of the negative migration of the last years. Looking at the pyramid top-down it is (still) evident the shrink in births during the years of WWII (reaching a peak at ages 73-74, cohorts born around 1945) and afterward the increasing cohorts of the post-WWII baby boom (age groups from 69 to 55, cohorts born 1949-63). From then on it looks like the pyramid has been bitten off on both sides (the cohorts of both males and females between ages 31-54) and this is attributed mainly to the (cumulative) effect of negative migration of young adults[19].

Figure 2: Population estimates in the Republic of Moldova by age and sex, 1ˢᵗ of January 2018, revised and previous
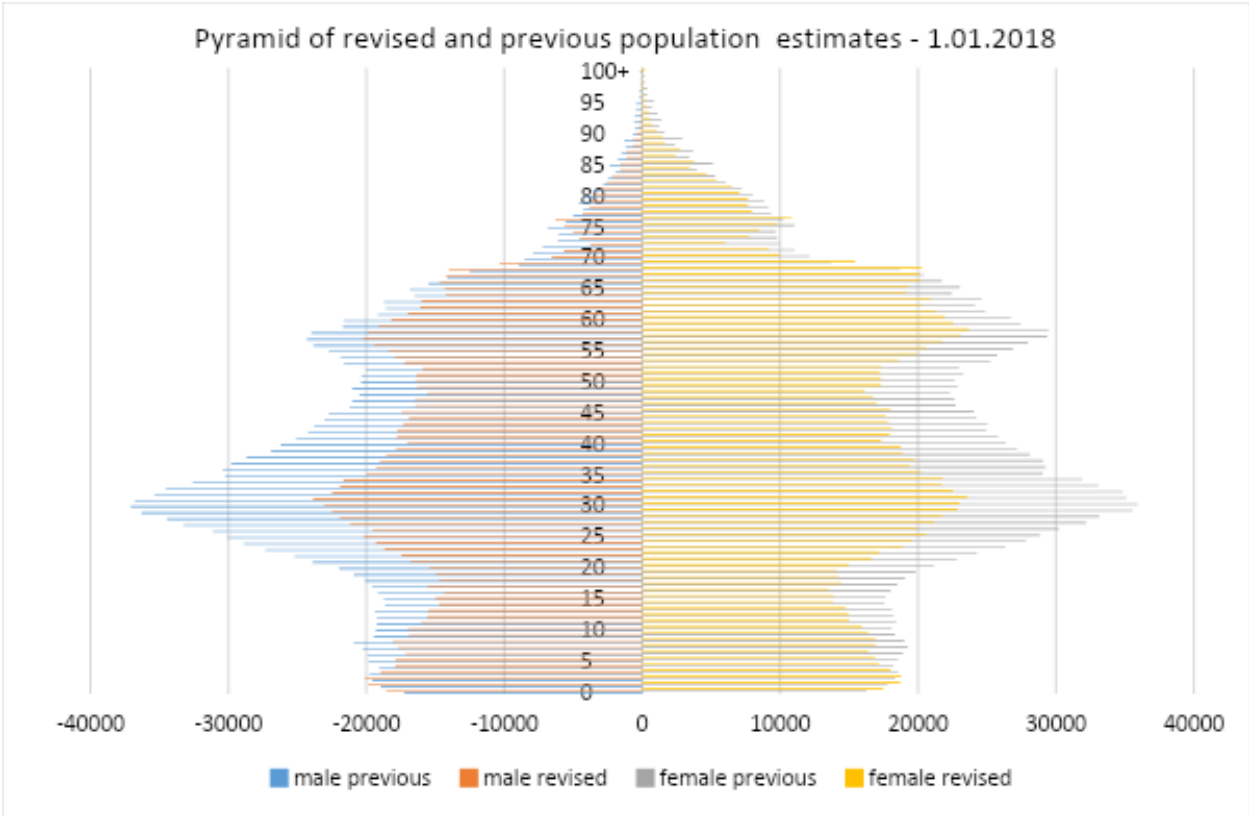
The differences between the revised and the previous estimates illustrate that effect more clearly (see also Table 6 and Graph 4). Indeed, these differences reflect the fact that the previous estimates failed to account for the real migratory balance over the years, in practice since 1989, and therefore it reflects the cumulative effect of unaccounted migration over the last 29 years. This effect sums up to more than 817 thousand inhabitants of both sexes, when the population loss for men seems slightly higher than the population loss for women in terms of the percentage from the previous estimates (-23.5% for men compared to -22.6% for women). The more salient pattern is the one by age: the differences for young adults between 20-39 years of

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[18] The estimates for the beginning of 2018 are based on calculated migration estimates when the ones for the beginning of 2019 are provisional and rely on assumptions (assume the same migration rates as in 2017), therefore it was preferred to present the analysis of the age sex structure based on 2018 estimates

[19] Some baby boost may also exist, but according to the Republic of Moldova birth statistics the reduction in the number of births following the baby boom was small and lasted for a couple of years only

age are above 30% over the whole period, telling us that the cumulative effect of unaccounted migration reduced these cohorts by about a third of their original size since 1989. However, significant migration losses of 10% and more are evident in almost all age groups. The only age group that does not show losses, even a slight increase, is the first one of children under 5, but this is the result of the addition of births transcriptions to the statistics of births since 2014 (see the chapter on Births above). It should also be emphasized that the relatively smaller negative balances under the age of 20 may reflect the fact that these cohorts accumulated unaccounted migration for a shorter period (and, in practice, also the 20-29 age cohorts) since they were born after 1989[20].

Table 6: Difference between revised and previous estimates at the beginning of 2018 (in percentages of previous estimates)

	The difference in absolute numbers (thousands)			The difference in percentages from previous estimates		
	Total	**Male**	**Female**	**Total**	**Male**	**Female**
Total	**-817.2**	**-400.0**	**-417.1**	**-23.0%**	**-23.5%**	**-22.6%**
0-4	1.8	0.8	1.0	1.0%	0.8%	1.1%
5-9	-23.1	-12.7	-10.5	-11.9%	-12.6%	-11.1%
10-14	-32.9	-17.0	-15.9	-17.6%	-17.7%	-17.6%
15-19	-46.7	-23.9	-22.8	-24.4%	-24.2%	-24.5%
20-24	-74.8	-39.6	-35.2	-30.0%	-31.1%	-28.7%
25-29	-113.5	-59.9	-53.6	-34.9%	-36.2%	-33.5%
30-34	-121.7	-63.4	-58.3	-35.0%	-35.9%	-34.1%
35-39	-96.9	-51.3	-45.6	-33.6%	-35.1%	-32.0%
40-44	-73.0	-35.5	-37.5	-29.3%	-29.0%	-29.7%
45-49	-53.7	-24.2	-29.4	-24.3%	-22.8%	-25.7%
50-54	-49.8	-20.4	-29.4	-22.2%	-19.6%	-24.5%
55-59	-48.9	-19.5	-29.5	-19.0%	-16.7%	-20.9%
60-64	-32.3	-13.1	-19.2	-14.9%	-13.8%	-15.7%
65+	-51.8	-20.5	-31.4	-12.6%	-13.0%	-12.3%

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[20] The full effect of net migration losses should include -3.6 thousand registered negative migratory balance (see Table 4 above) that are embedded in the previous population estimates.

Graph 4: Difference between revised and previous estimates, beginning of 2018 (percentages of previous estimates)
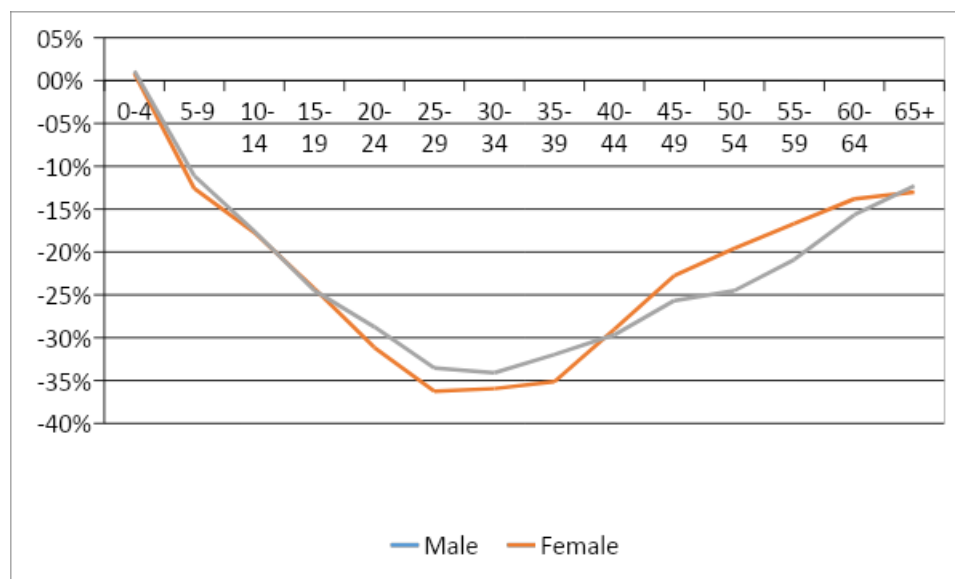
It is not possible to directly assess from these data when, during the period between 1989 and 2014, this negative migration of young adults took place, however, since this pattern is evident also in the pyramid of previous population estimates (the outer pyramid), it can be deduced that most probably negative migration of young adults may have a long history. Indeed, in an analysis done following the census of 2004, it was reported a similar pattern for the period 1989-2004[21].

The calculation of Provisional Population Estimates for 2019

The revised international migration estimates provide the picture of migratory patterns in the Republic of Moldova for the period 2014-2017, however, the methodology for their calculation on any given year requires the complete list of movements at least one additional year after the last movement is registered. That means it will be possible to calculate the estimates for 2018 one year after its end, which means they could be calculated only after the end of 2019. To provide updated indicators for the current year, from now on every year provisional estimates for the beginning of the current year will be calculated based on *population projections*. This projection will be based on the actual data of births and deaths by date of registration and an assumption about migration based on the migration rates and trends of previous years.

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[21] Addendum to the Report of the Expert Group: Evaluation of the Final Census Counts from the 2004 Census using macro-level demographic analysis, June 2006. A comparison between the censuses of 1989 and 2004 showed high population losses at all ages picking up at young adult ages (20-34) and for children under 15 (see there Table 8, pp. 42) .

Figure 3: The usually resident population of the Republic of Moldova by age and sex at the beginning of 2019 (provisional)

1.01.2019
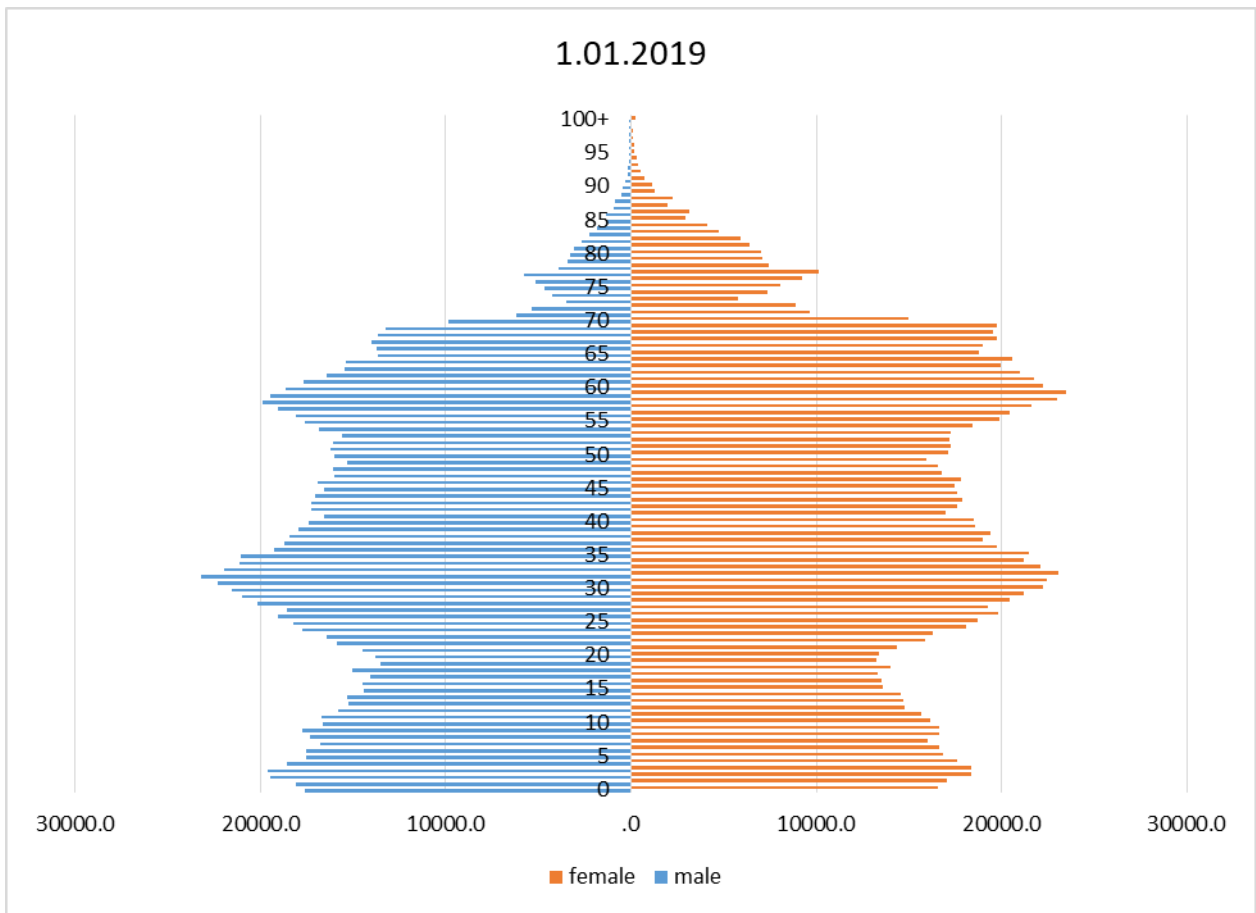
Following this approach, the population at the beginning of 2019 was provisionally calculated based on the assumption that migration rates by age and sex registered in 2017 remained the same in 2018. These provisional estimates provide a solid basis for any practical use since it is expected that the final estimates for 2019 as the main demographic indicators that will be calculated next year will not differ significantly from the provisional ones.

4. Revised demographic indicators

The revision of the population estimates also permitted the revision and improvement of the demographic indicators. Newly revised indicators present a much more accurate picture of the demographic situation in the Republic of Moldova than the previous ones. The general effect of the reduction of the population size is of increasing fertility and mortality rates. This brought to a substantive increase in the TFR and a smaller decline in the expectancy of life of both sexes. The more pronounced effect on fertility rates arises from the fact that emigration was heavily concentrated in young adult ages that are also the main fertility age groups, but less affected old age groups and therefore mortality rates at oldest ages, when most of the mortality occurs. The addition of transcripted births occurred in the Republic of Moldova brought to a further increase in fertility rates estimates.

Crude rates

In Table 7 the revised birth, mortality, and natural increase crude rates together with the crude marriage and divorce rates are presented in comparison with the previous ones based on the previous population estimates. The reduction in population size, when passing from the previous to the revised population estimates, brought to an obvious increase in all the crude rates when compared to the previous ones. In particular, the revised CBR (Crude Birth Rate) was larger in the observed years by about 3.5‰, and the revised CDR by around 3.0‰ compared to the previous rates. The revised Natural Increase rate became larger by about 0.7‰ in 2014-2017 transforming from slightly negative according to the previous estimates, to slightly positive in 2014-2016, 0 in 2017, and negative in 2018 according to the revised estimates.

Table 7: Crude rates (per 1,000 of the average population) revised and previous 2014-2018*
(* provisional)

	Rates (per 1,000 population)				
	Birth rate	Death rate	Natural Increase rate	Marriage rate	Divorce rate
2014 (previous)	10.9	11.1	-0.2	7.2	3.1
2014 (revised)	14.3	13.8	0.5	9.0	3.9
Difference	*3.4*	*2.7*	*0.7*	*1.8*	*0.8*
2015 (previous)	10.9	11.2	-0.3	7.0	3.2
2015 (revised)	14.4	14.1	0.3	8.7	4.0
Difference	*3.5*	*2.9*	*0.6*	*1.8*	*0.8*
2016 (previous)	10.5	10.8	-0.3	6.2	3.0
2016 (revised)	14.3	13.7	0.6	7.8	3.8
Difference	*3.8*	*2.9*	*0.9*	*1.7*	*0.8*
2017 (previous)	9.6	10.4	-0.8	5.9	2.6
2017 (revised)	13.3	13.4	-0.1	7.6	3.4
Difference	*3.7*	*3.0*	*0.7*	*1.7*	*0.8*
2018 (previous)	9.2	10.5	-1.3	5.8	3.0
2018* (revised)	12.8	13.9	-1.1	7.5	4.0
Difference	*3.6*	*3.4*	*0.2*	*1.7*	*1.0*

The CBR registered decrease, according to both the previous and revised rates, reflects the decrease in the number of births over the years, in 2017 and 2018 (see also Table 2 in the Births chapter above). The revised marriage rate (as the previous marriage rates) shows over the years a decreasing trend from 9.0‰ in 2014 to 7.5‰ in 2018. The revised divorce rate seems to fluctuate over the years around an average level of 3.8‰ without any clear trend.

Fertility

TFR present the more conspicuous change showing fertility was much higher than previously estimated. The revised TFRs for the years 2014-2017 show that the Republic of Moldova levels of fertility are above 1.8 births. In 2017 and 2018 it was registered a small decrease in TFR levels, but it is to be seen if this is indicative of a declining trend.

Table 8: Total Fertility Rates by year, revised and previous, 2014-2018* (* provisional)

	Previous	Revised	Difference	Difference in %
2014	1.28	1.82	0.54	42.2%
2015	1.30	1.87	0.57	43.8%
2016	1.28	1.89	0.61	47.7%
2017	1.19	1.82	0.63	52.9%
2018*	1.17	1.81	0.64	54.7%

The distribution of the revised fertility rates by women ages show that fertility rates increase sharply at age 20-24, get their pick at 25-29, to then decline slowly to nil levels over the age group of 40-44.

Graph 5: Fertility rates by age of women, revised and previous, 2017 (per thousand women in age group)
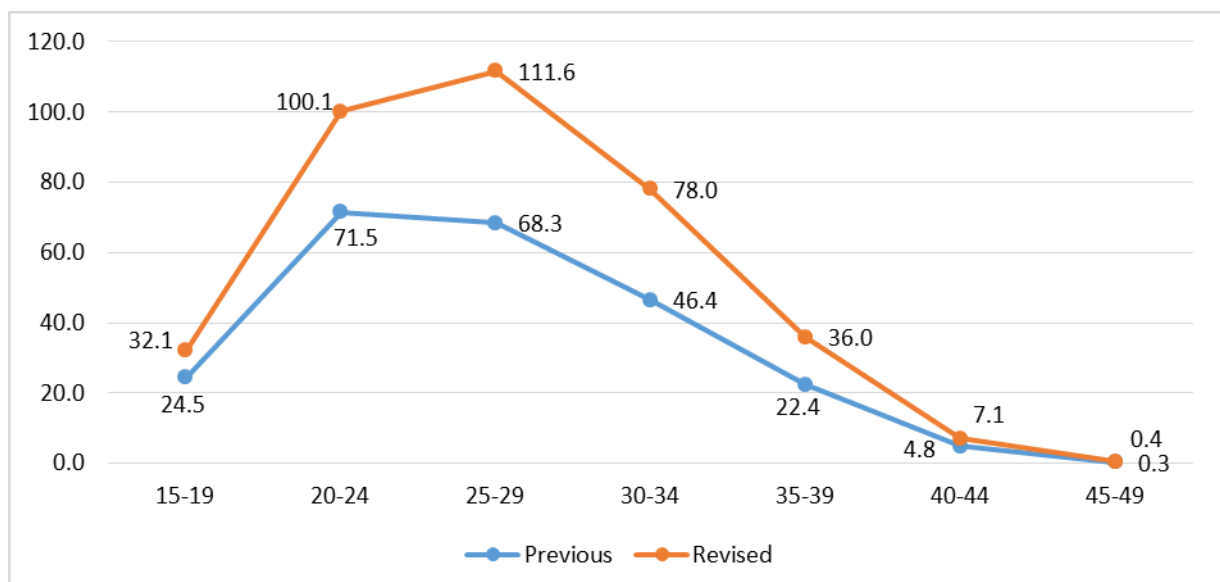
Consequently, and contrary to previously considered, Republic of Moldova fertility levels rank among the highest in Europe: according to the last estimates released by the UN (world population prospects 2019) in the period 2015-2020 TFR estimates for Europe average 1.61 births per woman when only a few countries crossed the 1.8 level like the Republic of Moldova.

Graph 6: Estimated TFR in Europe and North America, 2015-2020, UN World Population Prospects 2019[22]

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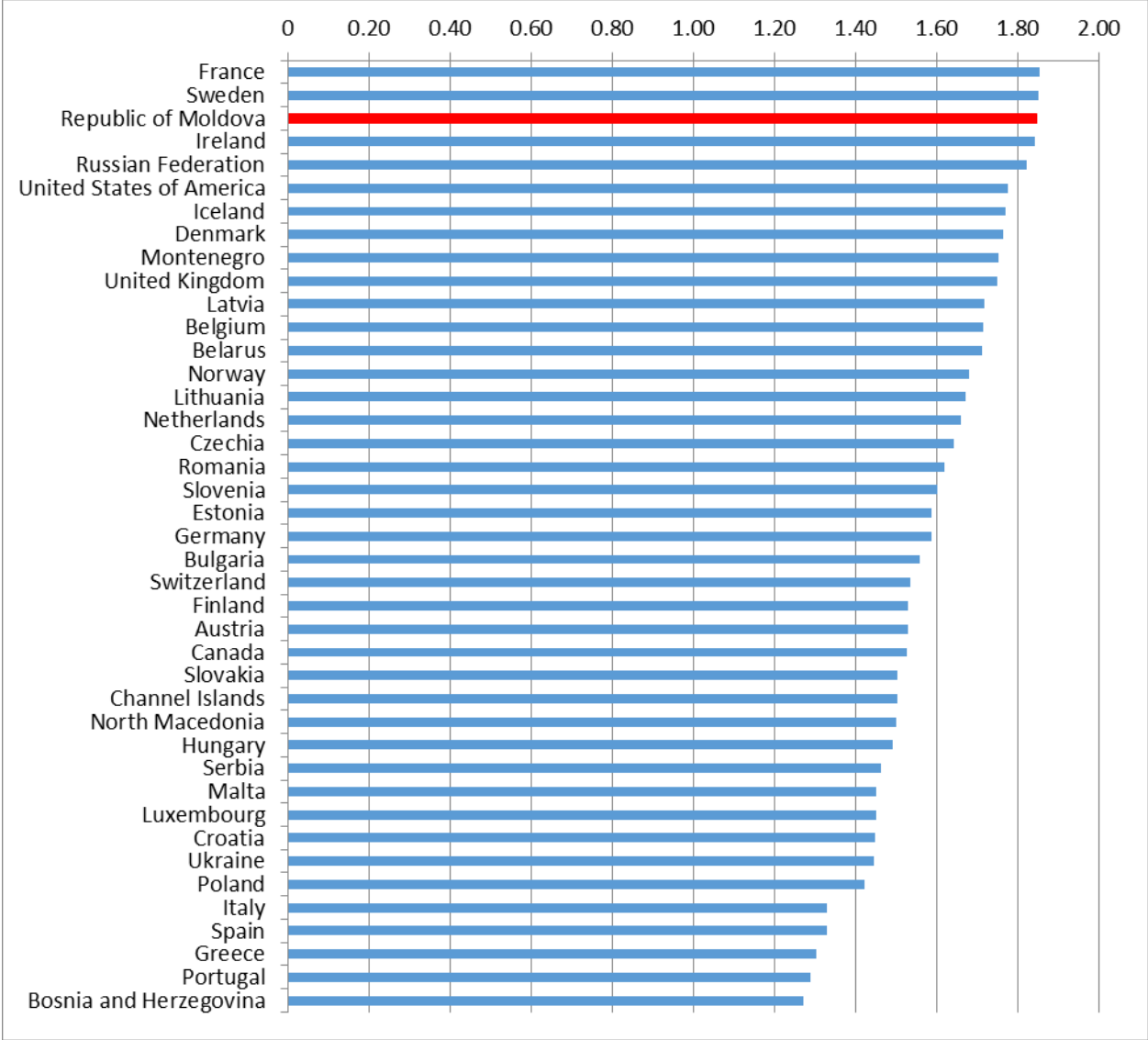
[22] For the Republic of Moldova, the TFR was calculated as the average of revised TFR levels over the years 2014-2017

Mortality

Mortality rates revision brought to an increase in mortality rates by age and sex and, consequently, to a decrease of about 2.5 years (3.7%) in the expectancy of life at birth of men and 1.9 years (2.5%) in the expectancy of life at birth of women (Table 9)[23]. At the same time, the revised Infant Mortality Rates are slightly lower than the previous calculated because of the inclusion of the transcripted births from the Republic of Moldova usually resident mothers in the number of births from vital statistics.

Expectancy of life at birth

The reduction of life expectancies being larger for men than for women increased by about half a year the difference between female and male expectancy of life (Table 9). This reduction affects the ranking of the Republic of Moldova among the countries of the rest of the world: For example, revised expectancies of life at birth estimated for 2017 in the Republic of Moldova ranked 123 (in place of 101 according to previous estimates) among 201 countries according to the UN World Population Prospects 2015, the period 2010-15, higher for women (118) and lower for men (133).

Table 9: Expectancy of life at birth, by sex, previous and revised, 2014-2018* (* provisional)

	Total	male	female	female/male difference
2014 (previous)	71.5	67.5	75.4	7.9
2014 (revised)	69.3	65.2	73.6	8.4
Difference	*-2.2*	*-2.3*	*-1.8*	*0.5*
2015 (previous)	71.5	67.5	75.5	8.0
2015 (revised)	69.3	65.1	73.7	8.6
Difference	*-2.2*	*-2.4*	*-1.8*	*0.6*
2016 (previous)	72.2	68.1	76.2	8.1
2016 (revised)	69.8	65.6	74.2	8.6
Difference	*-2.4*	*-2.5*	*-2.0*	*0.5*
2017 (previous)	73.2	69.3	77.0	7.7
2017 (revised)	70.8	66.7	75.0	8.3
Difference	*-2.4*	*-2.6*	*-2.0*	*0.6*
2018 (previous)	73.2	69.1	77.1	8.0
2018* (revised)	70.6	66.3	75.0	8.7
Difference	*-2.6*	*-2.8*	*-2.1*	*0.7*

Infant and children mortality

The revised Infant Mortality Rates (Table 10) are slightly lower than the previous calculated by about 0.6‰ because of the inclusion of the transcripted births from the Republic of Moldova usually resident mothers in the number of births from vital statistics.

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[23] The relative decrease in expectancies of life was much less pronounced than the about 50% increase in TFR mainly because the population reductions that brought to the increase in mortality rates affected mainly the youngest age groups that have the lowest mortality rates.

A similar decrease in mortality rates for the revised estimates compared to the previous has been found for children 0-4 years old because also this group increased following the addition of the above-mentioned transcripted births (Table 11).

Table 10: Infant Mortality , 2014-2018* (* provisional)

	Infant deceased, *absolute numbers*			IMR, *per thousand births*		
	Both sexes	**Boys**	**Girls**	**Both sexes**	**Boys**	**Girls**
2014 (previous)	372	226	146	9.6	11.3	7.9
2014 (revised)	371	220	151	9.1	10.4	7.6
Difference	*-1*	*-6*	*5*	*-0.5*	*-0.9*	*-0.3*
2015 (previous)	375	223	152	9.7	11.2	8.2
2015 (revised)	367	220	147	9.0	10.4	7.4
Difference	*-8*	*-3*	*-5*	*-0.7*	*-0.8*	*-0.6*
2016 (previous)	353	204	149	9.7	10.6	8.2
2016 (revised)	356	209	147	8.9	10.2	7.6
Difference	*3*	*5*	*-2*	*-0.8*	*-0.4*	*-0.6*
2017 (previous)	330	189	141	9.7	10.8	8.5
2017 (revised)	337	190	147	9.2	10.1	8.3
Difference	*7*	*1*	*6*	*-0.5*	*-0.7*	*-0.2*
2018 (previous)	326	195	131	10.0	11.6	8.3
2018* (revised)	316	189	127	9.1	10.6	7.5
Difference	*-10*	*-6*	*-4*	*-0.9*	*-1*	*-0.8*

Table 11: Children mortality aged of 0-4 year 2014-2018* (* provisional)

	Children 0-4 years old deceased, *absolute numbers*			Children 0-4 mortality rate, *per thousand births*		
	Both sexes	**Boys**	**Girls**	**Both sexes**	**Boys**	**Girls**
2014 (previous)	450	270	180	11.7	13.5	9.6
2014 (revised)	455	267	188	11.1	12.7	9.5
Difference	*5*	*-3*	*8*	*-0.6*	*-0.8*	*-0.1*
2015 (previous)	452	275	177	11.7	13.8	9.5
2015 (revised)	441	270	171	10.8	12.8	8.6
Difference	*-11*	*-5*	*-6*	*-0.9*	*-1.0*	*-0.9*
2016 (previous)	438	249	189	11.7	12.9	10.4
2016 (revised)	442	255	187	11.1	12.4	9.6
Difference	*4*	*6*	*-2*	*-0.6*	*-0.5*	*-0.8*
2017 (previous)	387	216	171	11.4	12.3	10.4
2017 (revised)	392	216	176	10.7	11.5	9.9
Difference	*5*	*0*	*5*	*-0.7*	*-0.8*	*-0.5*
2018 (previous)	385	226	159	11.8	13.4	10.1

2018* (revised)	377	222	155	10.9	12.4	9.2
Difference	*-8*	*-4*	*-4*	*-0.9*	*-1.0*	*-0.9*

Migration

The revised migration rates for the years 2014-2017 reveal high levels of international migration in the Republic of Moldova that result in a substantive and increasing negative migration balance. Both immigration and emigration rates increased over these 4 years but the increase in emigration rates was stronger, bringing to a sharp increase in the negative migratory balance: Emigration rates increased from 43.2 to 57.8 per thousand when Immigration rates increased from 34.6 to 39.8 per thousand and so the migratory negative balance duplicated from -8.6 in 2014 to -17.9 per thousand in 2017 persons in the population in 2017 (Table 12).

Table 12: Immigration, Emigration, and Net Migration, by gender, 2014-2017 (rates per thousand population)

	TOTAL			Males			Females		
	Immigration	Emigration	Net migration	Immigration	Emigration	Net migration	Immigration	Emigration	Net migration
2014	34.6	43.2	-8.6	42.0	47.9	-5.9	27.7	38.8	-11.1
2015	37.3	44.8	-7.5	44.4	50.4	-6.1	30.7	39.5	-8.8
2016	38.3	54.7	-16.4	45.5	64.4	-18.9	31.6	45.6	-14.0
2017	39.8	57.8	-17.9	47.4	68.7	-21.4	32.9	47.6	-14.8

The above-mentioned rates increase affected both sexes, but a change has been registered when men rates, which were lower in the first two years, became higher than those of females in the last two years. This reversal was mainly due to a sharper increase in emigration rates of males compared to women when men in 2017 arrived to a negative migratory balance of -21.4 per thousand and women to -14.8 per thousand.

Graph 7: Immigrants, Emigrants and net migration by gender, 2014-2017 (thousands)
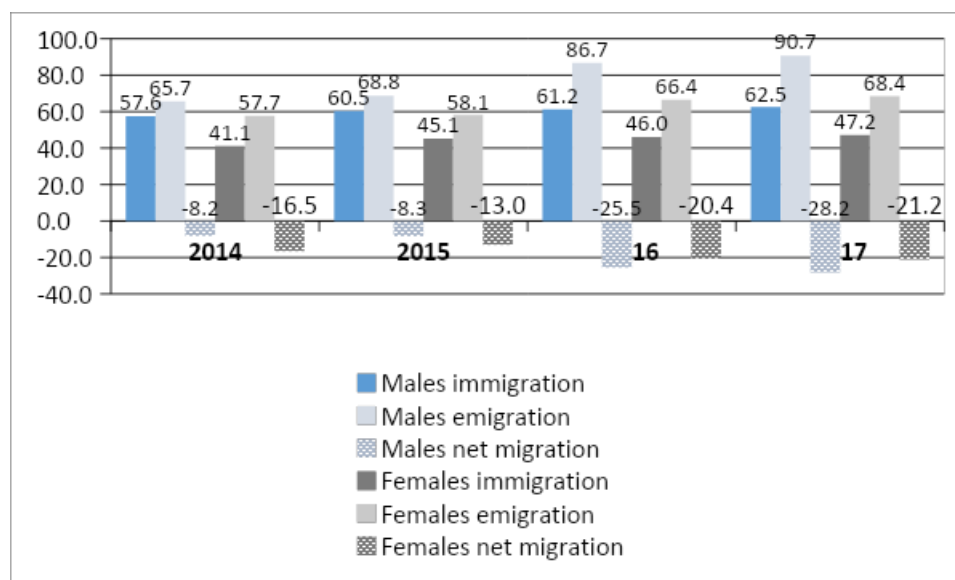
The numerical volume of these migratory flows is impressive (Graph 7). In 2014 about 124 thousand persons emigrated from the country (66 thousand men and 58 thousand women) and 99 thousand immigrated to the country (41 thousand men and 58 thousand women). In 2017 the emigrants arrived to amount 159 thousand

(91 thousand men and 68 thousand women) and the immigrants to 109 thousand (62 thousand men and 47 thousand women). These migratory flows produced a negative migratory balance of -25 thousand persons in 2014 (-8 thousand men and -17 thousand women) and of -49 thousand persons in 2017 (-28 thousand men and -21 thousand women).

Migration age and sex patterns

The age and sex pattern of migration shows the expected pattern of high rates of both immigration and emigration for both sexes all over the years (see Graphs 8 and 9 regarding 2017) and the same age pattern for net migration: high rates for young adults 20-39 decreasing with the advance of age, relatively stable rates for children under 15. Immigration and emigration rates are remarkably high, reaching at the pick male age group of 25-29 a level of 120 per thousand and almost 90 per thousand for females 20-24 years of age. Moreover, the net migration rates also reached impressive negative levels: about -60 per thousand for males 20-24 and more than -40 for females in the same age group. In 2017 the negative net migration rates for males were substantially higher than for females; however, this is a reversal of the pattern registered in 2014-2015 (See graph 6 for a comparison of the net migration rates by gender in 2014 and 2017).

Graph 8: Immigrants, Emigrants, and Net Migration, males, 2017 (rates per 1000 population)
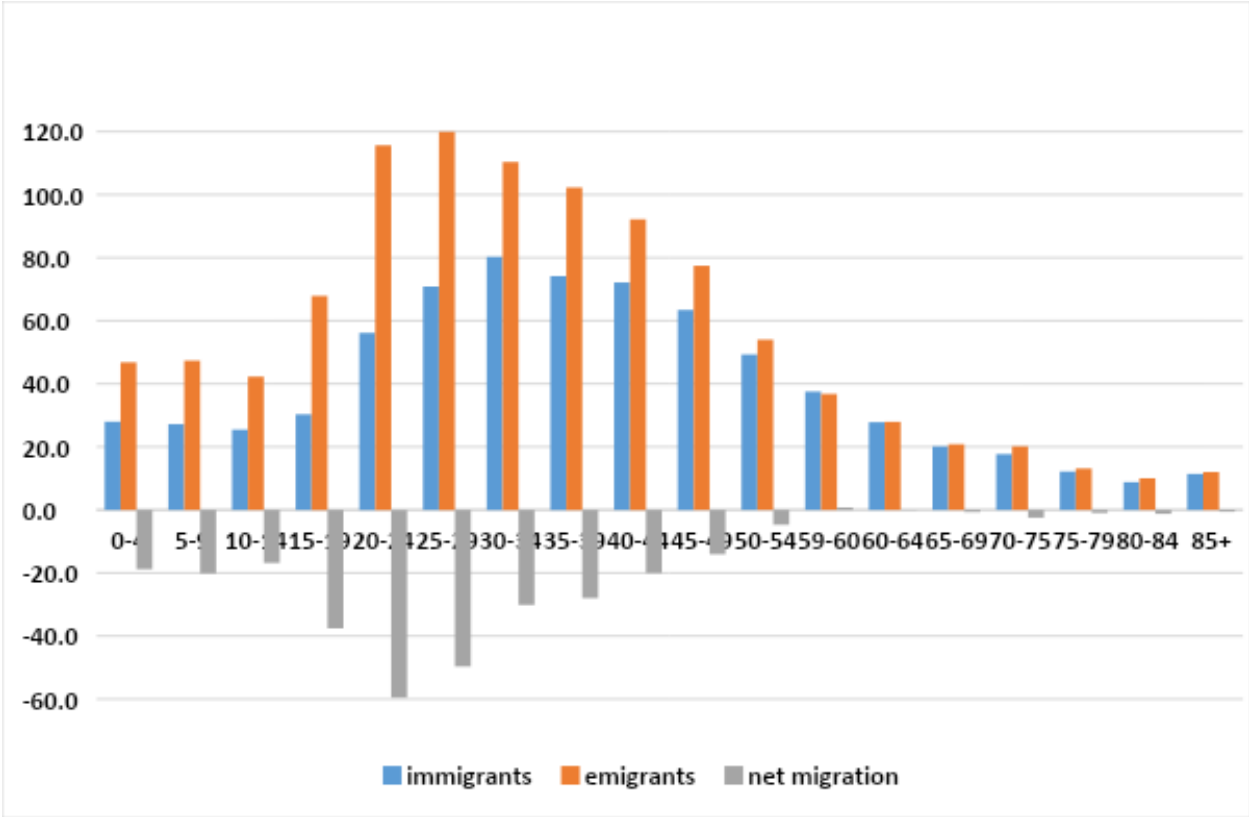
Graph 9: Immigrants, Emigrants and Net Migration, females, 2017 (rates per 1000 population)
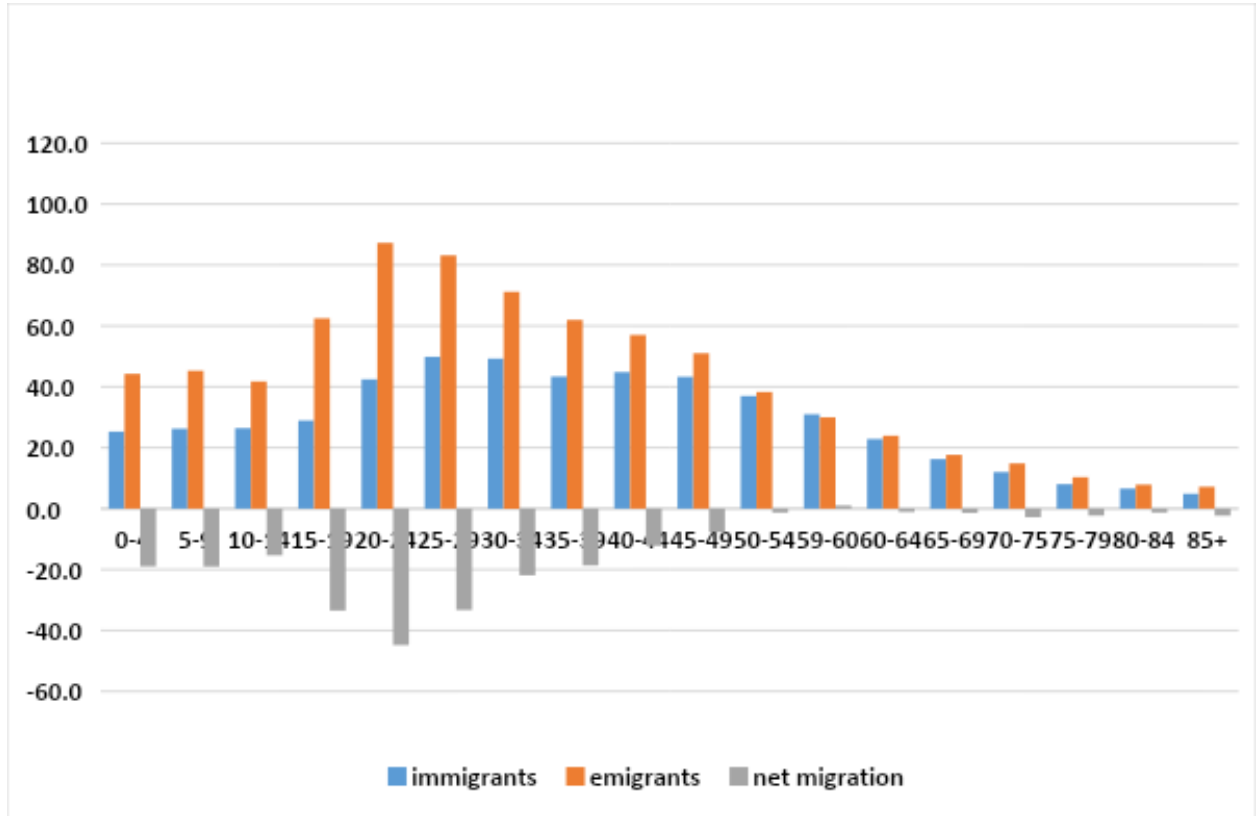
Graph 10: Net migration, females and males, 2014 and 2017 (rates per 1000 population)
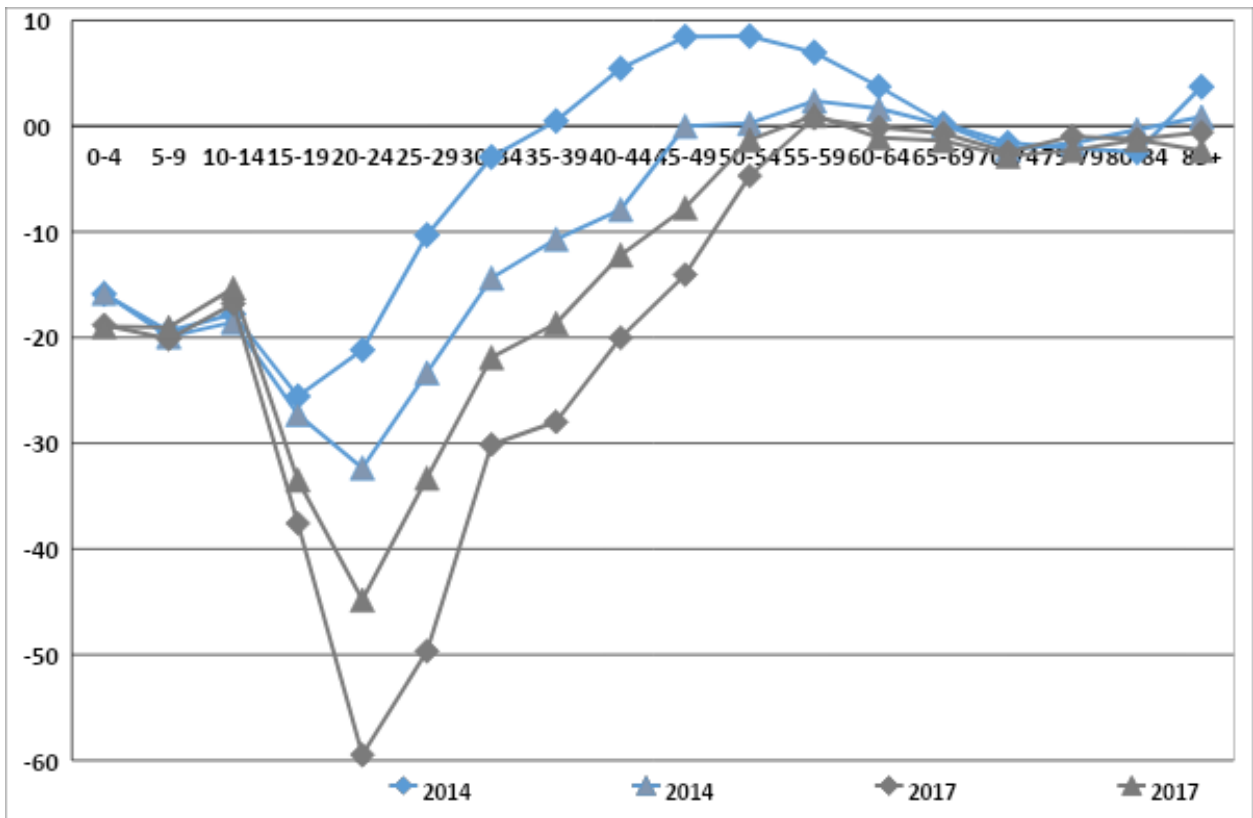
The comparison between 2014 and 2017 of net migration rates by age and gender (Graph 10) also shows that in 2014 (and 2015, data not shown here) males between the age groups of 35-39 and 60-64 had unusual positive net migration. In 2017 (already in 2016, data not shown here) this pattern disappears, and males and females show significant negative net migration rates until the age of 50-54. This change was the result of a sharper increase in male emigration rates at all ages compared to women for whom this increase was more moderate.

Age structure, aging and dependency ratios

The comparison between the age structures of the Republic of Moldova population, based on the revised and previous estimates, shows that in the previous estimates the children and the older age groups have been underestimated when the active age group has been overestimated.

Table 13: Age distribution, revised and previous estimates, beginning of the year 2014-2019* (* provisional) (percentages and thousands)

Year	Revised estimates					Previous estimates					Differences: revised - previous estimates				
	0-19	20-64	65+	Total	Total (thousands)	0-19	20-64	65+	Total	Total (thousands)	0-19	20-64	65+	Total	Total (thousands)
2014	24.7	64.4	10.9	100.0	2,869.2	22.6	67.4	10.0	100.0	3,557.6	2.1	-3.0	0.9	-	-688.4
2015	24.2	64.3	11.5	100.0	2,844.7	22.1	67.5	10.3	100.0	3,555.2	2.1	-3.2	1.1	-	-710.5
2016	24.0	64.0	12.0	100.0	2,824.4	21.8	67.5	10.7	100.0	3,553.1	2.2	-3.4	1.3	-	-728.7
2017	24.0	63.4	12.6	100.0	2,780.0	21.5	67.3	11.2	100.0	3,550.9	2.4	-3.9	1.5	-	-770.9
2018	24.0	62.8	13.2	100.0	2,730.4	21.3	67.1	11.6	100.0	3,547.5	2.7	-4.3	1.6	-	-817.2
2019	24.1	62.1	13.8	100.0	2,681.7	21.1	66.9	12.0	100.0	3,542.7	3,3	-4.8	1.7	-	-861.0

These differences arise from the fact that the negative net migratory balance (underestimated in previous population estimates) affected more the active population age group, combined with the underestimation of births that in previous estimates did not include transcripted births of women registered as living in the Republic of Moldova.

The yearly revised estimates show already in this short period a clear trend of aging (see also next item) when the older age groups (ages 65 and over) that accounted in 2014 for 10.9% of the population increased its share to 13.8% in 2019, most of it at the expense of the active population age group. This ageing trend is related to the continuous entering of large baby boomers' cohorts to the 65+ age group.

Ageing

The ageing patterns of the population become clearer when looking at the older population by different cumulative age groups. Firstly, it is evident that, even in a five year period, the increase in the oldest population group is significant. The number of persons 65 years old and over increased by about 56 thousand from 313 thousand at the beginning of 2014 to 369 thousand five years later (Table 14, first panel), and their share in the population increased by 2.9 percentage points from 10.9% to 13.8% (second panel). Women have higher old ages rates and aged more than men in this period. It seems clear also that the older cumulative age groups were not affected by this ageing process: no significant change in the number of persons aged 75 years or 85 years old and over has been registered in their numbers or their share from the total population.

Table 14: Oldest age groups by sex, 2014 and 2019* (* provisional)
(Absolute numbers and percentages)

Year	Total			males			females		
	2014	2019*	change	2014	2019*	change	2014	2019*	change
Absolute numbers (in thousands)									
Total population	2,869.2	2,681.7	-187.5	1,375.7	1,277,2	-98.5	1,493.5	1,404.5	-89.0
65+	312.9	369.2	56.3	116.2	140.1	23.9	196.8	229.2	32.4
75+	130.2	128.2	-2.0	43.4	42.6	-0.8	86.8	85.6	-1.2
85+	22.4	21.7	-0.7	6.4	6.5	0.1	16.1	15.2	-0.9
Percentages from total population									
65+	10.9	13.8	2.9	8.4	11.0	2.6	13.2	16.3	3.1
75+	4.5	4.8	0.3	3.2	3.3	0.1	5.8	6.1	0.3
85+	0.8	0.8	0.0	0.5	0.5	0.0	1.1	1.1	0.0

In practice, together with the ageing of the population, a process of "rejuvenation" of the oldest population took place in the Republic of Moldova. Table 15 provides data regarding this process. From the comparison of the proportions of those 65 years old and over by 5 years age groups until 85 years and over it is evident that population ageing is driven by an increase in the share of those aged 65-69, that we may refer to as young old-persons and a decrease in the share of the older groups. For example, the number of persons 65-69 increased by 11.8 thousand between 2014 and 2019, when, at the same time, the number of persons in the older age groups 70-74, 75-79, 80-84 decreased by 7.2, 5.1 and, respectively, 1.3 thousand and only a small increase of 1.7 thousand was registered for those 85 and over. This process was similar for women and men. As it was mentioned before, this process reflects the entrance of the large baby boomers cohorts that began several years ago but is expected to slow down in a few years with the entrance of smaller cohorts in the age group 65 and over born afterward and severely affected by the strong negative migration balance of the last decades.

Table 15: Age structure of persons 65 years old and older by gender, 2014 and 2019* (* provisional)
(percentages)

Year	Total			Males			Females		
	2014	2019	change	2014	2019	change	2014	2019	change
65+	100.0	100.0		100.0	100.0		100.0	100.0	
65-69	29.6	41.4	11.8	32.9	44.4	11.5	27.7	39.5	11.8
70-74	28.8	21.6	-7.2	29.8	22.8	-7.0	28.2	20.9	-7.3
75-79	22.0	16.9	-5.1	20.7	15.6	-5.1	22.7	17.7	-5.0
80-84	12.5	11.2	-1.3	11.1	9.7	-1.4	13.3	12.2	-1.1
85+	7.2	8.9	1.7	5.5	7.6	2.1	8.2	9.8	1.6

Dependency ratios

Following the ageing patterns reviewed above, combined with the births corrected with the inclusion of births from transcriptions, also dependency ratios have increased compared to the previous estimates.

Table 16: Dependency ratios - retired and children compared to active age groups (per 100 from active age group) 2014-2019* (* provisional)

	2014			2015			2016			2017			2018			2019		
	Rev.	Prev.	Diff.	Rev.	Prev.	Diff.	Prev.	Diff.	Diff.	Rev.	Prev.	Diff.	Rev.	Prev.	Diff.	Rev.	Prev.	Diff.
Total	60.6	51.4	9.2	62.0	52.5	9.6	63.7	53.6	10.2	66.5	55.0	11.5	69.4	56.2	13.3	72.2	57.3	14.9
Under working age (0-15)	30.6	26.0	4.7	30.9	26.0	4.9	31.4	26.2	5.3	32.4	26.4	6.0	33.4	26.4	7.0	34.3	26.5	7.8
Over working age (57/62+)	30.0	25.5	4.5	31.1	26.4	4.7	32.3	27.4	4.9	34.0	28.6	5.4	36.0	29.7	6.2	37.9	30.8	7.1

Moreover, even during the short period of five years covered here (2014-2019), a significant increase has been registered in the dependency ratios of both children (under working age) and retirement (overworking age) groups. The overall dependency ratio increased from 60.6 per one hundred in the active age groups in 2014 to 72.2 in 2019. Assuming all persons in the active ages do participate in the labor force, any 100 of them will need to sustain 11 more children and retired persons in 2019 compared to 2014, or in other words, if in 2014 every 100 persons of working age had to support themselves and another 61 children and retired persons, in 2019 they will need to support 12 more. This increase arises from the combined effects of the increase in the proportion of persons at retirement ages and the attrition of persons at active working age (see revised indicators in Table 16 above) and all of it is related to the heavy negative migratory balance of young adults.

5. Conclusions and recommendations

The Revised Population Estimates and Revised Demographic indicators presented here constitute an enormous contribution to the improvement of the National Statistical System of the Republic of Moldova.

These revised estimates allow from now on getting a much accurate picture of the demographic situation in the Republic of Moldova that was possible in the past:

- The Revised Population Estimates show that the population of the Republic of Moldova amounted at the beginning of 2018 to 2,730.4 thousand inhabitants, and if international migration rates registered in 2017 remained stable in 2018 the population of the Republic of Moldova decreased to 2,681.7 thousand inhabitants by the beginning of 2019. The difference between the Revised Population Estimates and previous estimates accumulated until the beginning of 2018 more than 817 thousand inhabitants (23% of the previous population estimate) and if international migration rates in 2018 remained as in 2017, they accumulated by the beginning of 2019 a surplus of 861 thousand inhabitants (24% of the previous population estimate). This surplus reflects the effect of unregistered emigrants that have left the country since 1989, most of them (689 thousand), before the 2014 census.
- Revised Total Fertility Rates (TFR) show fertility was much higher than previously estimated. Moreover, the Republic of Moldova levels of fertility above 1.8 births rank among the highest in Europe.
- Revised Mortality rates brought to an increase in mortality rates by age and sex and, consequently, to a decrease of about 2.5 years in the expectancy of life at birth of men and about 1.9 years in the expectancy of life at birth of women.
- The revised migration rates for the years 2014-2017 reveal high levels of international migration in the Republic of Moldova that result in a substantive and increasing negative migration balance.
- The comparison between the age structures of the Republic of Moldova population, according to the revised and previous estimates, shows that in the previous estimates the children and the older age groups have been underestimated when the active age group has been overestimated. As a consequence, dependency ratios have increased compared to the previous estimates: a significant increase has been registered in the dependency ratios of both children (under working age) and retirement (overworking age) groups. This increase arises from the combined effects of an increase in the proportion of persons at retirement ages and the attrition of persons at active working age and all of it is related to the heavy negative migratory balance of young adults.

The updating and releasing process of current population estimates have been redesigned. From now on, every year, preliminary population estimates for the beginning of the current year will be calculated and released not later than the 1st of July of the same year together with updated/final demographic indicators for the previous year. These preliminary estimates will assume that migration rates registered in the previous year remained stable. Final population estimates for the same date will be produced a year later after new updated final migration estimates will be calculated. The constrain to produce the final data with a year delay arises from the fact that by definition international migration estimates cannot be produced earlier: to define if a person is to be considered an immigrant (or emigrant) in a given year requires to know if this person accumulated most of the year (in practice 275 days) in the country (or abroad) during the year following/before his/her entry or exit to/from the Republic of Moldova during the calculation year. However, unless there are serious changes in migratory patterns will take place it is expected that final population

estimates will differ only slightly from the final ones, therefore users are encouraged to use the preliminary estimates without major concerns, being although aware that minor changes may and will be introduced on these estimates a year later.

It needs to be stressed that the above-mentioned updating process depends on the timely availability of data on border crossing from the GIBP and population characteristics from the SPR. In practice from now on a continuous routine data flow process should be implemented between NBS and these two partner organizations to ensure population estimates are calculated and released on time. It is recommended that an institutional agreement is signed between NBS and GIBP to ensure the timely flow of data, similar to the one existing between NBS and PSA..

Several challenges need still to be addressed in the future regarding the calculation of migration estimates. The first is related to the further reduction of the number of illogical intervals that are now solved by imputing artificial movements and in extreme cases may lead to the removal of some individuals from the calculations. It is expected that once a full record linkage of the border crossing data with the SPR will be possible at least part of these illogical intervals will be eliminated. A second challenge that remains to be solved in the future is the identification of Moldovan citizens moving over the years with (only) non-Moldovan documents that therefore were not yet identified as Moldovan citizens. It is expected in the future the above-mentioned record linkage between border crossing data with the SPR will allow identifying these Moldovan citizens as such by linking the movements of foreigners (those moving only with non-Moldovan documents over the years) to the PSR by name and date of birth. An additional challenge that remains unsolved is the movements to and from Ukraine through the Transnistria region since these movements are not registered by the GIBP. The available data does not allow estimating how many movements of Moldovan citizens (who are not Transnistria residents that are not included in the NBS population estimates) took place over the years, even though it is not assumed to be high.

The population infrastructure of the entire statistical system in the Republic of Moldova will be based from now on the improved population estimates that will be updated every year. Now, the updated population estimates include the age and gender structure for the whole country (excluding the Transnistrian region of the Republic of Moldova). The new estimates by age and sex at the level of raions and localities represent another stage during which the NBS will accomplish and release the results as soon as they will be ready. Also, demographic indicators of fertility, mortality, migration, and age-structure and population growth by components have been revised and are presented in this report. These indicators will continue to be updated every year following the update of the current population estimates. Other economic and social indicators are in the process of being updated and are released gradually as soon as they are recalculated.

The actual revision and correction of the current population estimates from now on is a giant step in the process of bringing NBS and the whole Republic of Moldova statistical system to comply with the highest European statistical standards that will allow improving significantly the whole national statistical system and through it, general planning and policymaking in many important areas, and provide the general public with a timely and accurate picture of the demographic situation in the Republic of Moldova.

6. Annexes

Revised population estimates 2014-2019, usually resident population by age and sex

	2014			2015			2016			2017			2018		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	2869226	1375745	1493481	2844673	1367311	1477362	2824387	1359212	1465175	2779952	1333921	1446031	2730364	1305304	1425060
0	37977	19483	18494	39228	20168	19060	40456	20887	19569	39480	20312	19168	36029	18563	17466
1	37652	19351	18301	37327	19125	18202	38646	19850	18796	39598	20453	19145	38571	19851	18720
2	36307	18592	17715	36894	18981	17913	36728	18770	17958	37851	19451	18400	38886	20110	18776
3	37741	19347	18394	35586	18198	17388	36231	18599	17632	35913	18346	17567	36979	18969	18010
4	37863	19588	18275	36906	18923	17983	35009	17912	17097	35498	18234	17264	35100	17914	17186
5	35845	18258	17587	37053	19155	17898	36151	18498	17653	34262	17537	16725	34778	17870	16908
6	35178	18150	17028	35085	17902	17183	36273	18776	17497	35410	18077	17333	33586	17179	16407
7	33258	17203	16055	34510	17790	16720	34484	17571	16913	35594	18404	17190	34610	17692	16918
8	32668	16699	15969	32662	16915	15747	33947	17466	16481	33965	17289	16676	35007	18075	16932
9	32406	16622	15784	32116	16415	15701	32073	16559	15514	33430	17245	16185	33333	16925	16408
10	30503	15725	14778	31790	16306	15484	31561	16134	15427	31579	16315	15264	32894	16968	15926
11	30961	16055	14906	29918	15406	14512	31209	16066	15143	30999	15831	15168	31045	16036	15009
12	30095	15517	14578	30368	15773	14595	29351	15120	14231	30811	15836	14975	30533	15580	14953
13	32500	16781	15719	29583	15234	14349	29864	15516	14348	28978	14933	14045	30262	15512	14750

	2014			2015			2016			2017			2018		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
14	32069	16365	15704	31941	16530	15411	29150	15003	14147	29422	15287	14135	28567	14721	13846
15	34141	17628	16513	31557	16111	15446	31410	16292	15118	28766	14832	13934	28870	14967	13903
16	36188	18536	17652	33139	17113	16026	30563	15580	14983	30447	15811	14636	27891	14343	13548
17	39504	19969	19535	35513	18172	17341	32526	16829	15697	30061	15312	14749	29999	15574	14425
18	41140	20878	20262	38575	19541	19034	34825	17859	16966	31491	16262	15229	28986	14712	14274
19	44341	22281	22060	39226	19931	19295	36893	18797	18096	32548	16743	15805	29061	14970	14091
20	44870	22297	22573	42616	21412	21204	38165	19400	18765	35099	17819	17280	30381	15426	14955
21	46861	23216	23645	43817	21867	21950	41592	20900	20692	36540	18498	18042	33408	16770	16638
22	45845	22884	22961	45623	22760	22863	42684	21362	21322	39668	19836	19832	34650	17460	17190
23	48134	24166	23968	44650	22463	22187	44633	22371	22262	40768	20370	20398	37579	18691	18888
24	49569	25051	24518	47016	23768	23248	43638	22009	21629	42673	21299	21374	38828	19289	19539
25	50790	25419	25371	48486	24673	23813	45957	23327	22630	41565	20864	20701	40743	20185	20558
26	50861	25706	25155	49713	25009	24704	47452	24137	23315	44148	22257	21891	39467	19556	19911
27	51778	26092	25686	49904	25301	24603	48762	24545	24217	45587	23036	22551	42350	21167	21183
28	48974	24649	24325	50998	25909	25089	49129	24976	24153	46968	23508	23460	43701	21923	21778
29	47055	23842	23213	48403	24497	23906	50197	25573	24624	47705	24076	23629	45350	22498	22852
30	47082	23624	23458	46419	23585	22834	47706	24167	23539	48676	24590	24086	46063	23058	23005
31	42920	21437	21483	46437	23379	23058	45829	23305	22524	46168	23165	23003	47435	23867	23568
32	41514	20701	20813	42564	21369	21195	45795	23113	22682	44622	22458	22164	45010	22486	22524
33	41282	20402	20880	41250	20670	20580	42173	21222	20951	44660	22387	22273	43619	21909	21710

| | 2014 | | | 2015 | | | 2016 | | | 2017 | | | 2018 | | |
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
34	39802	19890	19912	40890	20362	20528	40799	20515	20284	41135	20591	20544	43448	21652	21796
35	38785	19095	19690	39415	19737	19678	40539	20136	20403	39871	19959	19912	40196	19987	20209
36	36587	18249	18338	38532	19052	19480	39145	19616	19529	39722	19588	20134	38701	19286	19415
37	38025	19049	18976	36237	18148	18089	38382	19031	19351	38450	19169	19281	38784	19033	19751
38	37867	18832	19035	37600	18878	18722	35931	17999	17932	37535	18453	19082	37458	18560	18898
39	37121	18433	18688	37658	18852	18806	37379	18781	18598	35090	17516	17574	36586	17844	18742
40	36420	17900	18520	36884	18415	18469	37466	18792	18674	36556	18281	18275	34369	17035	17334
41	37096	18378	18718	36122	17846	18276	36718	18390	18328	36684	18273	18411	35713	17784	17929
42	35046	17417	17629	36834	18298	18536	35919	17765	18154	35890	17858	18032	35873	17762	18111
43	34408	17161	17247	34857	17383	17474	36602	18174	18428	35166	17263	17903	35158	17340	17818
44	33148	16468	16680	34237	17164	17073	34749	17324	17425	36012	17793	18219	34572	16904	17668
45	34814	17035	17779	33042	16437	16605	34160	17117	17043	34107	16920	17187	35408	17412	17996
46	34861	17081	17780	34708	17047	17661	32838	16325	16513	33801	16861	16940	33436	16434	17002
47	34662	16967	17695	34720	16994	17726	34642	16993	17649	32298	15989	16309	33209	16468	16741
48	34312	16671	17641	34506	16915	17591	34740	17046	17694	34098	16617	17481	31716	15592	16124
49	37116	18094	19022	34139	16548	17591	34351	16860	17491	34253	16766	17487	33621	16324	17297
50	39382	18864	20518	36917	18011	18906	33993	16450	17543	33962	16627	17335	33755	16429	17326
51	40378	19322	21056	39127	18703	20424	36698	17830	18868	33574	16145	17429	33628	16393	17235
52	42916	20606	22310	40106	19191	20915	38928	18597	20331	36286	17582	18704	33248	15900	17348
53	45163	21453	23710	42573	20388	22185	39944	19068	20876	38471	18338	20133	35799	17212	18587

	2014			2015			2016			2017			2018		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
54	45577	21273	24304	44751	21210	23541	42365	20251	22114	39446	18737	20709	37901	17916	19985
55	44077	20755	23322	45216	21058	24158	44341	20959	23382	41720	19811	21909	38998	18406	20592
56	42599	19846	22753	43574	20398	23176	44830	20790	24040	43844	20612	23232	41167	19433	21734
57	40907	18660	22247	42198	19533	22665	43098	20047	23051	44166	20315	23851	43339	20252	23087
58	39142	17875	21267	40242	18286	21956	41627	19154	22473	42334	19578	22756	43555	19872	23683
59	40093	18064	22029	38528	17465	21063	39632	17864	21768	40894	18669	22225	41686	19124	22562
60	36675	16342	20333	39449	17633	21816	37914	17098	20816	38946	17392	21554	40116	18174	21942
61	37049	16441	20608	35994	15889	20105	38723	17169	21554	37116	16602	20514	38319	16997	21322
62	38921	17306	21615	36353	16031	20322	35315	15455	19860	37880	16617	21263	36306	16083	20223
63	38476	16714	21762	38003	16668	21335	35566	15525	20041	34378	14874	19504	36942	15998	20944
64	39005	16816	22189	37516	16116	21400	36943	15998	20945	34576	14884	19692	33411	14260	19151
65	29639	12598	17041	37890	16106	21784	36457	15485	20972	35824	15315	20509	33626	14311	19315
66	19178	8006	11172	28678	12019	16659	36753	15431	21322	35394	14886	20508	34851	14670	20181
67	17330	7027	10303	18547	7642	10905	27680	11445	16235	35468	14693	20775	34324	14236	20088
68	11500	4611	6889	16787	6723	10064	17879	7286	10593	26714	10887	15827	34263	14013	20250
69	14958	5943	9015	11059	4389	6670	16192	6408	9784	17190	6893	10297	25792	10357	15435
70	16821	6668	10153	14361	5615	8746	10663	4205	6458	15517	6031	9486	16547	6561	9986
71	19535	7571	11964	16019	6245	9774	13680	5251	8429	10210	3976	6234	14841	5669	9172
72	21972	8598	13374	18538	7109	11429	15243	5853	9390	12963	4876	8087	9791	3757	6034
73	16168	6064	10104	20752	8010	12742	17430	6556	10874	14322	5403	8919	12278	4549	7729

	2014			2015			2016			2017			2018		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
74	15615	5680	9935	15088	5561	9527	19568	7424	12144	16463	6117	10346	13481	5012	8469
75	15815	5597	10218	14540	5182	9358	14194	5140	9054	18353	6857	11496	15450	5640	9810
76	15087	5377	9710	14676	5094	9582	13503	4713	8790	13217	4709	8508	17126	6285	10841
77	14042	4840	9202	13944	4898	9046	13562	4595	8967	12465	4245	8220	12284	4323	7961
78	12551	4412	8139	12882	4367	8515	12781	4409	8372	12446	4136	8310	11478	3813	7665
79	11194	3872	7322	11341	3913	7428	11755	3897	7858	11630	3930	7700	11366	3698	7668
80	8764	2999	5765	10074	3413	6661	10184	3457	6727	10700	3494	7206	10543	3496	7047
81	9699	3165	6534	7751	2593	5158	8915	2980	5935	9081	3043	6038	9558	3042	6516
82	7182	2465	4717	8564	2728	5836	6747	2209	4538	7876	2562	5314	7996	2612	5384
83	7801	2495	5306	6174	2085	4089	7423	2334	5089	5859	1875	3984	6851	2183	4668
84	5634	1812	3822	6681	2094	4587	5228	1738	3490	6390	1956	4434	5056	1597	3459
85 si peste	22439	6374	16065	22526	6518	16008	23211	6786	16425	22659	6684	15975	22873	6798	16075

PHC corrected estimates by age and sex for Chisinau city and the rest of the country *(the sum of the numbers in the table does not necessarily coincide with the totals, due to the coefficients applied to the adjustment of the 2014 RPL results based on the APR results*

Age	Chisinau city			Rest of the country		
	Total	Male	Female	Total	Male	Female
Total	675,662	316,520	359,142	2,182,401	1,053,758	1,128,643
0	8,474	4,332	4,142	29,333	15,012	14,322
1	8,491	4,428	4,063	28,652	14,658	13,994
2	8,443	4,265	4,179	27,988	14,444	13,544
3	8,537	4,393	4,144	28,010	14,367	13,643
4	8,746	4,479	4,267	29,219	15,081	14,139
5	8,711	4,473	4,238	27,671	14,146	13,525
6	8,233	4,274	3,959	27,280	13,997	13,283
7	7,498	3,838	3,659	26,127	13,596	12,531
8	6,818	3,464	3,354	25,965	13,303	12,662
9	6,485	3,377	3,107	25,780	13,171	12,609
10	5,494	2,845	2,649	25,407	12,992	12,415
11	5,398	2,808	2,590	25,308	13,136	12,172
12	5,068	2,638	2,430	25,347	13,045	12,302
13	4,880	2,538	2,342	26,351	13,689	12,662
14	4,969	2,492	2,477	27,160	13,960	13,199
15	5,385	2,688	2,697	28,172	14,535	13,637
16	6,501	3,328	3,173	28,490	14,719	13,771
17	7,208	3,637	3,571	30,836	15,608	15,228
18	9,020	4,881	4,139	31,591	15,687	15,904
19	10,034	5,042	4,991	31,979	16,012	15,967
20	11,549	5,569	5,980	32,901	16,555	16,346
21	12,069	5,676	6,393	33,729	17,162	16,567

	Chisinau city			Rest of the country		
Age	Total	Male	Female	Total	Male	Female
22	12,936	6,205	6,731	32,762	16,462	16,299
23	12,985	6,288	6,696	33,804	17,221	16,583
24	13,924	6,640	7,284	34,586	17,831	16,755
25	14,511	7,041	7,469	35,515	18,142	17,373
26	14,752	7,182	7,570	35,248	18,031	17,217
27	15,123	7,275	7,849	35,942	18,405	17,538
28	15,124	7,475	7,649	34,942	17,872	17,070
29	14,463	7,086	7,377	32,630	16,663	15,967
30	14,738	7,218	7,520	32,419	16,525	15,894
31	13,452	6,632	6,820	30,482	15,317	15,164
32	12,811	6,331	6,480	29,205	14,547	14,658
33	12,748	6,296	6,452	28,014	14,037	13,978
34	12,177	5,870	6,306	28,430	14,260	14,170
35	11,154	5,267	5,887	27,311	13,685	13,627
36	10,260	5,087	5,173	26,998	13,580	13,418
37	10,281	5,026	5,255	26,908	13,429	13,479
38	10,319	5,077	5,242	27,361	13,789	13,573
39	10,250	4,869	5,381	27,161	13,661	13,500
40	9,375	4,527	4,848	26,713	13,331	13,382
41	9,344	4,427	4,918	27,044	13,478	13,567
42	9,260	4,461	4,800	26,676	13,395	13,281
43	8,858	4,296	4,562	25,500	12,904	12,595
44	8,074	3,706	4,368	25,274	12,770	12,504
45	8,442	3,937	4,505	25,482	12,816	12,665
46	8,690	3,906	4,784	26,308	13,102	13,206
47	8,346	3,867	4,480	26,569	13,317	13,253
48	7,923	3,590	4,332	26,737	13,152	13,584

	Chisinau city			Rest of the country		
Age	Total	Male	Female	Total	Male	Female
49	7,928	3,657	4,271	27,079	13,425	13,653
50	8,543	3,817	4,725	30,027	14,773	15,254
51	8,434	3,706	4,728	31,093	15,189	15,904
52	8,472	3,813	4,659	33,486	16,350	17,136
53	9,471	4,163	5,308	34,779	16,961	17,818
54	9,390	3,952	5,438	36,089	17,223	18,867
55	9,380	4,050	5,330	35,706	17,048	18,658
56	8,966	3,885	5,081	33,679	16,135	17,544
57	8,488	3,566	4,923	32,978	15,443	17,535
58	8,520	3,586	4,934	30,598	14,238	16,360
59	8,433	3,533	4,900	31,438	14,461	16,977
60	7,901	3,257	4,645	29,663	13,445	16,218
61	7,724	3,141	4,582	28,560	12,901	15,659
62	7,973	3,439	4,534	30,161	13,506	16,655
63	7,777	3,344	4,433	31,163	13,568	17,594
64	7,557	3,127	4,430	30,258	13,080	17,178
65	7,828	3,312	4,516	30,524	13,150	17,374
66	4,044	1,670	2,374	13,734	5,729	8,005
67	4,352	1,704	2,648	15,461	6,370	9,090
68	2,941	1,158	1,783	9,122	3,673	5,449
69	2,618	1,091	1,527	10,479	4,129	6,350
70	2,684	1,139	1,545	13,092	5,042	8,050
71	3,029	1,231	1,798	14,084	5,466	8,618
72	4,443	1,764	2,679	18,479	7,128	11,351
73	3,091	1,226	1,865	12,605	4,692	7,913
74	3,372	1,204	2,168	13,202	4,876	8,326
75	3,162	1,137	2,024	11,923	4,244	7,679

	Chisinau city			Rest of the country		
Age	Total	Male	Female	Total	Male	Female
76	2,979	1,048	1,931	12,047	4,241	7,806
77	2,803	961	1,842	11,086	3,829	7,256
78	2,489	883	1,606	10,377	3,615	6,762
79	1,893	681	1,212	9,357	3,185	6,173
80	1,447	523	924	7,708	2,587	5,120
81	1,394	442	952	7,220	2,391	4,829
82	1,152	371	780	6,751	2,278	4,473
83	1,126	367	759	6,098	2,021	4,077
84	1,047	329	718	4,917	1,516	3,401
85	837	256	580	4,250	1,330	2,919
86	794	251	543	3,591	1,098	2,493
87	591	151	440	2,412	666	1,746
88	457	133	323	1,998	526	1,472
89	499	109	390	1,525	394	1,132
90	382	79	304	1,147	350	797
91	285	41	243	932	253	679
92	180	35	146	739	185	553
93	141	47	94	445	118	327
94	76	24	52	280	73	207
95	61	20	41	196	49	147
96	18	5	13	108	32	77
97	27	4	23	70	21	49
98	26	6	20	43	10	34
99	18	5	13	42	11	32
100	91	29	62	282	133	150