ANNEX 3. Working age population and labour force development and outlook

Introduction

In the long run, economic growth potential depends on technological progress, the amount of capital and labour force development. The latter factor depends on the working age population and the share of the population deciding to participate in the labour market (labour force participation rate). The age composition of the working age population is also important: both the youngest and the oldest representatives of the working age population participate in the labour market less frequently; therefore, when these people comprise a large share of the population, the labour force is smaller.

This Annex discusses the factors that determined the working age population development and draws the death rate and net migration assumptions of the population aged up to 80 years. These assumptions are used to make the population forecast, covering the period up to 2030. These forecast and labour force participation rate assumptions are used to create three labour force development scenarios, covering the labour force aged 15–79 years and the period up to 2030.

Working age population development and outlook

The working age population in Lithuania was 2.315 million in 2001. Over 14 years, the population decreased by 15.8 per cent (367 thousand) and comprised 1.949 million in 2015. The rate of decline fluctuated noticeably: the slowest decline was observed in 2003 (0.21%), whereas the fastest decline was recorded in 2010 (3.49%). The average annual decline of the population made up 1.22 per cent, or 26.2 thousand.

Each year, the working age population is supplemented by people that reach the age of 15 and left by people that reach the age of 65. In the period from 2001 to 2014, the number of people entering this population group was higher than the number of people leaving it; however, this difference was constantly narrowing: the working age population increased by 0.9 per cent in 2001 and by just 0.1 per cent in 2014 (see Chart A). The decline in this difference is determined by birth rate changes that occurred in the last decade of the 20th century. Until 1993, the number of newborns in Lithuania was from 51.8 thousand to 63.0 thousand per year, but later this number declined by almost a half: in the period from 2002 to 2014, the number of newborns was around 30.3 thousand per year (see Chart B). Emigration also contributed to the lower number of people supplementing the working age population. Since 2001, the emigration of people aged 0 to 15 years has been higher each year than their immigration, which means that a certain share of representatives of this age group emigrates before reaching working age. If the population have not been emigrating since 2001 and the death rate would have been usual, in 2015, the number of people aged 15 would be 9.5 per cent higher than it actually is (see Chart C).

Working age population is also reduced by deaths. In the period from 2001 to 2014, the working age population declined due to deaths by 0.51–0.68 per cent each year. Even though the death rate of the working age population has been declining constantly in Lithuania, it is still the highest in the EU (see Chart D) and this is not related to the age of this population group, i.e. to the fact that a relatively large part of it consists of older people. The death rate of almost every age group covering one year (17 years, 18 years, etc.) is the highest in the EU. On average, it is 2.9 times higher than in the old EU countries and 1.7 times higher than in the new EU countries. The poorest death rate situation is among people...

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20 This Annex analyses only the quantitative aspect of the labour force, i.e. its size. The human capital, which is the factor that shows labour force quality, is not analysed.
21 Working age is the age interval of 15 to 64 years, which is usually applied in the labour market analysis. The share of people older than 64 years, participating in the labour market, is significantly lower; therefore, the effect of changes in the size of this population on the labour force is not very significant.
slightly younger than the middle age (30–44 years), i.e. their death rate is around 3.6 times higher than that of the same age group in the old EU countries. Such differences affect the working age population in Lithuania significantly: if the death rate of people in each age group covering one year would have been the same as in the old EU countries, deaths would have reduced the working age population by 0.3 per cent instead of 0.6 per cent annually in the period from 2006 to 2012.

Working age population is also affected by migration. In the period from 2001 to 2014, the number of people who emigrated was higher than that of people who immigrated, i.e. net emigration was present, and this phenomenon reduced the working age population by 1.2 per cent on average each year. Nevertheless, the effect of net emigration fluctuated significantly. In 2005, at the beginning of Lithuania’s membership in the EU, net emigration increased substantially and reduced the working age population by 1.9 per cent, whereas the effect of net emigration was even stronger at the end of the economic crisis, namely in 2010, when it comprised 3.3 per cent. However, in 2008, when the unemployment rate was very low, the effect of net emigration was weaker (0.6%). Thus, migration has the strongest effect among all the factors affecting population.

Net emigration is the highest in the age group of young persons. As shown in Chart E, net emigration of the population aged 18 to 23 is higher than that of population younger than 18 years. 18 to 23 is the age when people graduate from school or studies and start searching for a job. Net emigration of people older than 23 years declines as the age increases. This means that migration affects not only the working age population, but also the composition of this group. The migration since 2001 has made the largest impact on the decline in the number of younger population. For example, owing to migration, the population aged 25–34 years is lower by 28.4 per cent in 2015 than the potential number that would have been reached, if people have not been emigrating since 2000 and the death rate would have been usual (see Chart C).

Assumptions concerning future migration and the death rate are required to make the working age population forecast. It is not necessary to make assumptions concerning the number of people supplementing and leaving the future working age group, since it will be known after making the above-mentioned assumptions. For example, people born in 2014 will supplement the working age population group in 2029; therefore, after adjusting the number of these people by their expected death rate and migration, we will know how many 15-year-old persons will live in Lithuania in 2029.

In contrast with the current situation, the number of persons leaving the working age population group will be higher than the number of persons supplementing this group in the future (see Charts A and F). In the coming years the number of the latter will decline; however, in 2018 this number should stabilise (the number of newborns has not been declining since 2003). Around the same time, i.e. in 2019, the number of people leaving the group will start to increase. Thus, the difference of the numbers of people supplementing and leaving the group will increasingly reduce the number of the working age population: this effect will be −0.1 per cent in 2015, whereas in 2027 it will reach as much as −0.8 per cent. It is assumed that the death rate will continue to decline in the future. In 2014, the death rate of all age groups covering one year in the population aged 0 to 64 years was lower than in 2001 by 25.0 per

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22 It is likely that net emigration was lower in 2010 than indicated by migration statistics. Legislative amendments determined the fact that the number of emigrants of that year included a part of people who emigrated earlier than in 201
cent on average. This trend of decline should be taken into account since the forecast period is quite long (15 years). If an assumption is made that the death rate will decline as fast in the future as it has declined over the last 13 years, i.e. the death rate of each one-year group will decline each year by the same percentage as it had declined on average over one year in the period from 2001 to 2014, it can be calculated that deaths will reduce the working age population by 0.51 per cent each year, whereas later this effect will decline and comprise 0.45 per cent in 2030 (see Chart F). The assumption of constant death rate would result in a 0.08 per cent larger decline of the population on average. The death rate assumption applied by the Eurostat when making population forecasts (EUROPOP2013) would reduce the population in Lithuania by 0.04 p.p. less on average than the assumption made in this Annex.

Migration is affected by various economic factors; therefore, the assumption concerning future migration is related to very high uncertainty. For example, the increase in net emigration during the economic crisis shows that it is affected by the labour market situation in Lithuania and foreign countries. It is particularly difficult to forecast the development of these markets in the long term. Nevertheless, one factor is less uncertain. Relatively large income gap between Lithuania and Western European countries will further lead to net emigration, even though, as the income level in Lithuania approaches that of Western European countries, net emigration should decline gradually. Therefore, an assumption is made that the level of net emigration in age groups covering one year will decline and comprise 50 per cent of its 2014-level in 2029. Therefore, the effect of net emigration on the working age population will gradually decline: this factor will reduce it by 0.46 per cent in 2015, whereas its effect in 2029 will be just –0.23 per cent (see Chart F).

The three discussed factors added together will determine a quite fast decline of the working age population. In the period from 2015 to 2029 it will decline by 1.36 per cent on average annually (see Chart F). This rate of decline is similar to the one observed in the period from 2001 to 2014 (1.22%). However, in that period two events that highly accelerated population decline occurred: Lithuania joined the EU and in 2008-2009 the country suffered the economic crisis. Thus, even if there are no additional factors, which could accelerate the population decline in the period from 2015 to 2029, the population should decline faster in this period than over the last 13 years. Although net emigration and deaths will reduce the population slightly less, the difference in the numbers of people supplementing the working age population group and those leaving it will increase rapidly (see Chart F). This will determine the fact that, after declining by 1.24 per cent in 2016, later the decline of the working age population will accelerate and, for example, in 2026 it will reach as much as 1.54 per cent. In later years the decline will decelerate, since the said difference in numbers will gradually narrow.

**Labour force development and outlook**

When forecasting the labour force, it is assumed that its annual growth will be determined by three factors: the change in the population aged 15–64, the change of the labour force participation rate of this population and the change of the labour force covering the age group of 65–79 years. The forecast is based on the already discussed population forecast and the assumptions concerning the labour force participation rate. The decision of residents to participate in the labour market, same as in migration, is affected by various factors; therefore, labour force participation rate assumptions are related to a high degree of uncertainty. Three assumptions are made in order to evaluate various participation rate development possibilities:

1. the participation rate of all 5-year age groups will not change during the review period and will remain the same as in 2014;
2. the participation rate of those age groups, whose participation rate increased noticeably during the economic recovery period, will continue to increase, but the rate of increase will be slower by

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23 I.e. that the death rate of each age group will remain unchanged and will be equal to the average death rate of respective group in the period from 2012 to 2014.
24 Difference in the numbers of immigrants and emigrants, divided by the population.
25 When the Eurostat presents its statistics, the labour force consisting of the population older than 74 years is not divided into 5-year groups; therefore, in this Annex that labour force is allocated to the age interval of 75 to 79 years.
half; the participation rate of those groups, whose participation rate remained broadly unchanged during that period, will not change and will remain the same as in 2014;

3) the difference of the participation rate in Lithuania and the average participation rate in the three EU countries that have the highest rate in each 5-year age group will decline in half by 2029.

By applying these assumptions, the participation rate of the population was calculated (see Chart G) and labour force development scenarios were created (see Chart H). When creating these scenarios, the same population forecast is used; therefore, the effect of the population on the labour force is the same in all cases. It reflects the extent of the labour force increase or decrease due to population changes, if the labour force participation rate remains unchanged. These changes increase or reduce the labour force by the same percentage as the percentage of the population change. Thus, the negative effect of the population (its annual average will be 1.36%) on the labour force will be stronger in the period from 2015 to 2029 than over the last 13 years (see Charts I–K). Moreover, this effect will increase: the labour force will decline due to the population by 1.24 per cent in 2016, whereas in 2026 this decline will reach as much as 1.54 per cent. According to all scenarios, the effect of the population will be stronger than that of the labour force participation rate.

The influence of the participation rate on the labour force shows the extent that the rate change increases or reduces the labour force, when the population remains unchanged. According to the first scenario, the participation rate does not have a direct impact on the size of the labour force, since the participation rate of all 5-year age groups remains unchanged. However, the participation rate of the whole group, for example, covering the population aged 15–64, may change even if rates of subgroups do not change. This happens when the composition of the working age population group changes, for example, the share of groups with a high participation rate grows. This is shown by the participation rate of the population group aged 15–64 calculated on the basis of the first assumption (see Chart G). The participation rate of this group should increase in the coming 5 years due to the changing population age composition in this group — in 2020 it should be 1.0 p.p. higher than in 2014, whereas later it should decline by a similar percentage. Such participation rate development in the period from 2015 to 2020 will increase the labour force by 0.2 per cent on average annually (see Chart I). This effect is not high — the rising participation rate during the economic recovery period had increased the labour force by 1.2 per cent on average annually.

Chart I. First labour force development scenario

Chart J. Second labour force development scenario

Chart K. Third labour force development scenario

The effect of the participation rate on the growth of the labour force is more favourable according to the second and third scenarios. According to the second scenario, the participation rate of the population aged 15–64 will increase quite noticeably in the coming 5 years — by 2.1 p.p. (see Chart G). It will also be positively affected by the changes in the population age composition. The labour force increases due to these factors by 0.5 per cent on average annually (see Chart J). In later years, the changes of the population age composition will become unfavourable; the participation rate will grow slower and will stop growing in 2025. Thus, in the period from 2020 to 2029, the labour force will grow much slower due to participation rate changes — by 0.1 per cent on average annually. According to the third scenario, the participation rate will rise faster in the coming 5 years and then the growth will slow down. In 2025, the the participation rate growth will stabilise and rise by 0.2 p.p. annually. The effect of the participation rate on the labour force in the coming 5 years should be 0.6 per cent on average annually, whereas in the period from 2020 to 2029 it will be noticeably smaller — 0.2 per cent (see Chart K).

26 It is assumed that the annual increase (in percentage points) in the activity of young (aged 20–24) and older (aged 55–79) people will be lower by half than the average increase in the period from 2011 to 2014. When calculating the average, a particularly fast activity increase in 2014 is reduced in half, since it could be determined by one-off factors, such as reforms implemented at that time (decentralisation of social support, legalisation of receipts when providing agricultural services, etc.).

27 If the population grew by 10 per cent and its activity level remained unchanged, the labour force would also increase by 10 per cent.
Conclusions

The analysis shows that the labour force will decline at an accelerating pace. In 2016, the labour force might contract by up to 0.8 per cent, while in 2026 it could decline by 1.1–1.6 per cent. Accelerating decrease of the working age population will be the main drive for the decline in the labour force. Other factors — the population age structure and their participation rate — will have relatively minor impact. Due to changes in the population age structure, the labour force will increase slightly over the next 5 years, but later it will decline a little. The positive impact of the rising participation rate will only partly offset the negative impact of population decline. The risk that the labour force will be different than projected is quite high. It is mainly related to the migration and labour force participation developments.