

MOLDOVAN LABOUR MARKET ISSUES IN CONTEXT OF DEMOGRAPHIC CHANGES

PROBLEMELE PIEȚEI MUNCII DIN MOLDOVA ÎN CONTEXTUL SCHIMBĂRILOR DEMOGRAFICE.

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Abstract

This article is the result of a macroeconomic analysis of labour market in the Republic of Moldova. The article examines demographic factors, such as population decline and demographic ageing, that can impact to the change in macro indicators of labour market in prospective.

The author's Forecast of labour force supply for the period up to 2035, including three scenarios, showed that the supply of economically active population will decline and losses can be significant. The reduction in amount of labour force, the "contraction" of labour market will have an impact on the functioning of labour market. By 2035, the labour force will decrease not only quantitatively, but its qualitative characteristics will change. The labor force structure will be characterized by a disproportionate reduction in number of workers under the age of 40. Age groups from 40 to 54 years will dominate the labour market. Accordingly, the average age of labour force will rise. The increase in the number of older age groups in labour market will lead to question of increasing the competitiveness of these age groups in labour market.

Model of demand for labour force, elaborated by author, is based on the use of the production method of calculating GDP based on the system of national accounts. On the basis of this model, the Forecast of labour demand for the period up to 2035 was elaborated. The ratio of forecasts the supply and demand for labour showed the deficit of labour force in labour market by 2035. The economic growth will require the involvement of additional number of workers in next decades.

Analysis of the reserves for maintaining the balance of supply and demand of labour force, market stability in the perspective period has shown that the inactive population cannot compensate for the need for additional workers.

The main reserve for maintaining the balance between demand and supply of labour force in conditions of the decline and ageing population is the increase in labour productivity. Sectors of economy with low labour productivity can serve as the obstacle to the growth of total labour productivity and economic growth. The growth of labour productivity is possible only on the basis of the increasing in the educational level and improvement in the quality of labour force.

Consequently, the supply and demand for labour force were calculated in the perspective, the reserves for maintaining stability in labour market in conditions of demographic changes were determined and argued. The results of research can be used in the elaboration and evaluation of state employment programs, in the practical activities of the structures responsible for labour market.

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Keywords: forecast, labour market, demand and supply of labour force, labour productivity, population decline, population ageing

JEL Classification: E24, J21.

1. Introduction

The 21st century is associated with a global demographic threat characterized by population decline and ageing. The demographic changes taking place in the Republic of Moldova have a significant impact on the change in the socio-economic development of the country, represent the threat to ensuring demographic security and sustainable socio-economic development.

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Demographic processes (fertility, mortality, migration) which caused the decline in the population, contributed to a reduction in labour force, changing not only quantitative indicators, but also qualitative ones. Demographic processes also cause the change in the structural indicators of labour market, affecting the formation and functioning of labour market.

Taking into account the role and impact of demographic factors on the labour force supply, the formation of a competitive labour market is one of the significant tasks for the sustainability of the country's long-term socio-economic development in conditions of the deficit of work age population.

2. Data and Methods

The article uses statistical data of the Population and Migration Statistics and Employment Statistics of the National Bureau of Statistics of the Republic of Moldova (NBS RM), calculated on the basis of the population with a usual residence, Population and Housing Census in the Republic of Moldova, May 12-25, 2014, calculations of the Center for Demographic Research of the National Institute for Economic Research of the Republic of Moldova (CDR NIER RM).

Demographic Forecast of Population of the Republic of Moldova for 2015-2035, was elaborated by the Center for Demographic Research [1, pp. 54-60] and is based on the adjusted population number, excluding migrants who are absent from the country for 12 months or more, i.e. population with usual place of residence, presented in the study by O. Penina, D. Jdanov, P. Grigoriev [13]. Demographic forecast of total population, including by age and sex composition, set exogenously, includes: *High scenario* - total fertility rate (TFR) will grow to 2,1, total life expectancy at birth will increase to 71 years for men, up to 80 years for women, migration will drop to 0%; *Medium scenario* - TFR will grow from 1,65 to 1,85, life expectancy will increase for men to 69,1 years and for women to 77,9 years, migration will decrease to -0,5%; *Low scenario* - TFR will remain at 1,65, life expectancy will increase for men from 64,9 to 67 years, for women from 73,7 to 75,8 years, migration will grow from -1,0% to -1,3%.

Forecast Supply of Labour Force for 2015-2035, calculated by author, is a functional forecast of the number and structure (age-sex composition) based on the *Demographic Forecast of Population* of the Republic of Moldova for 2015-2035 and hypothetical estimates of age-sex coefficients of economic activity of population (Zaharov S. [15, 19]). *Forecast Supply of Labour Force* (economically active population) for 2015-2035 includes three scenarios with using two hypotheses: the *hypothesis of invariability* (constancy) of coefficients of population participation in labour force by age and sex groups at the 2015 level (I Scenario) and the *hypothesis of changing coefficients* of population participation in labour force by 5 p.p. and 10 p.p. by 2035 (II and III Scenarios). The above forecast (3 scenarios) takes into account the subsequent increase in the retirement age in Moldova from 2017 and tendencies in the number of labour force by age groups for the previous period from 2000-2014.

Model of Demand for Labour Force, elaborated by author (Zaharov S. [15]) is based on the use of the production method of calculating GDP based on the system of national accounts. Given *Forecast of Demand for Labour Force* is based on the current level of

production of economy with a constant volume of capital, technical potential and other resources. The given values of GDP growth rate and labour productivity growth rates, specially elaborated hypotheses were used in the forecast model. Prospective estimates of labour force demand are calculated for the period - 2018-2035. The values of the growth rates of labour productivity are defined from the baseline – 1,00 to 1,08.

3. Results and Discussions

Under conditions of demographic changes, the importance of assessing the impact of the ongoing demographic processes on the state of labour market is one of the tasks necessary to ensure sustainable socio-economic development of the country.

The main demographic challenges in the Republic of Moldova are *population decline* and demographic ageing.

The main demographic challenge in the Republic of Moldova remains *population decline*. Thus, according to the prospective estimates of the *Demographic Forecast of Population* of the Republic of Moldova for 2015-2035 of Center for Demographic Research of National Institute for Economic Research of the Republic of Moldova (CDR NIER RM), the number of population with usual residence at the age of 15-64 years old will decline according to all three scenarios (*Fig. 1.*), including 654 thousands persons before 2035 (32,4%, *Low scenario*).

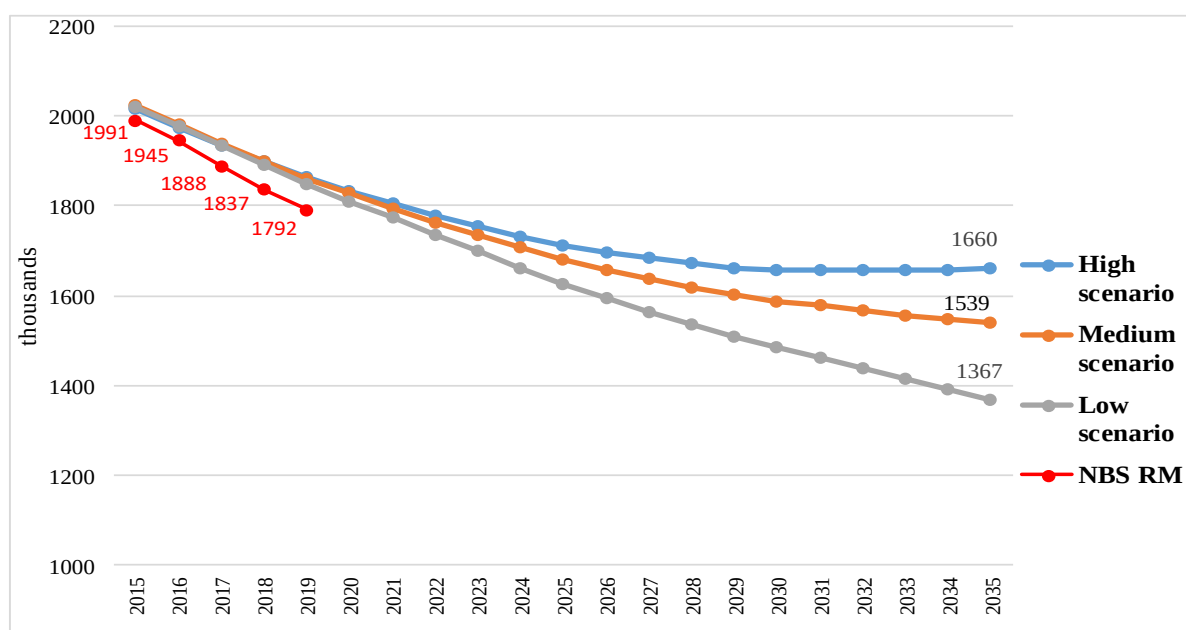


Figure 1. Prospective estimates of changes in population of the Republic of Moldova, 15-64 years old, 2015-2035, thousand persons

Source: author's calculations on the basis of CDR NIER' data [1, pp. 55-57] and NBS RM' data, www.statistica.md

The actual situation with the number of population is characterized by values lower than the values, calculated within the framework of the *Demographic Forecast of Population* of the Republic of Moldova for 2015-2035. The values of the population indicators are declining, mainly due to the continuous active labour migration, a consequence of the growth

of poverty in the country, reduction of investments in country's economy, most of which is invested in the country's capital, etc. (Savelieva G., Zaharov S. [18]).

The decline in population will affect the functioning of labour market by reducing the number in economically active - working age, i.e. will cause “contraction” of labour market. The decline in population, especially of those of working age, will become a limiting factor in the development of the country's infrastructure.

Forecast Supply of Labour Force for 2015-2035, elaborated by author (Zaharov S. [15, 19]) on the basis of the above Demographic Forecast of Population of the Republic of Moldova allows assessing the state and changes in labour force in the current and prospective period. The number of labour force (economically active population), according to all three scenarios, will decrease, what, in turn, is the consequence of the decline in population, including the working age population. By 2035, losses due to demographic changes may amount to -212,5 thousand persons (I Scenario) and 51,2 thousand persons (III Scenario), which constitutes from 21,3% to 5,1% of labour force in 2015. The reducing of labour force, the “contraction” of labour market will have the impact on the functioning of labour market. At the same time, it should be noted that the rate of drop in labour force will slow down.

The indicator of economically active population in the RM, according to the NBS RM' data, is also decreasing, including in 2017-2018 reached the values of 955 thousand persons. The dynamics of the indicator of economically active population corresponds to I Scenario - low, which indicates that the number of economically active population is losing at the factual rates that are set by demographic changes.

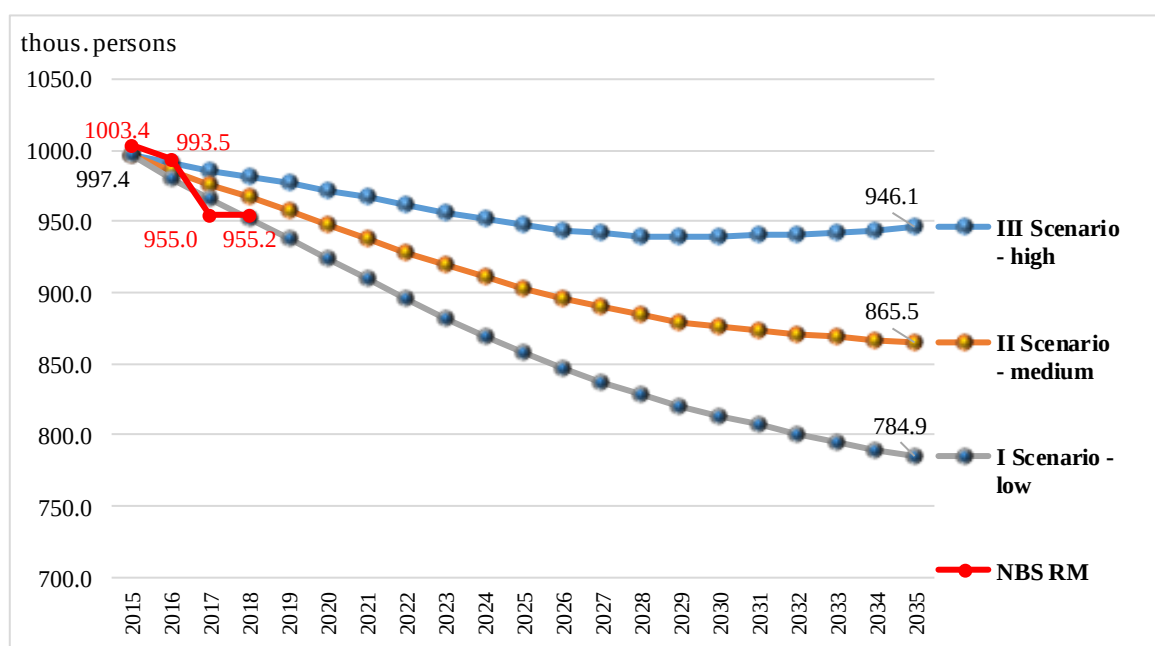


Figure 2. Forecast Supply of Labour Force (I-III Scenarios), 15-64 years old, 2015-2035, thousand persons

Source: author's calculations

The total economic activity rate of population in 2015-2035 will increase both at the expense of the decrease in working-age population and changes in share of elder age groups

in labour market. In order to keep the number of economically active population at the level of 2015 it will be necessary to increase the participation rate to 65%.

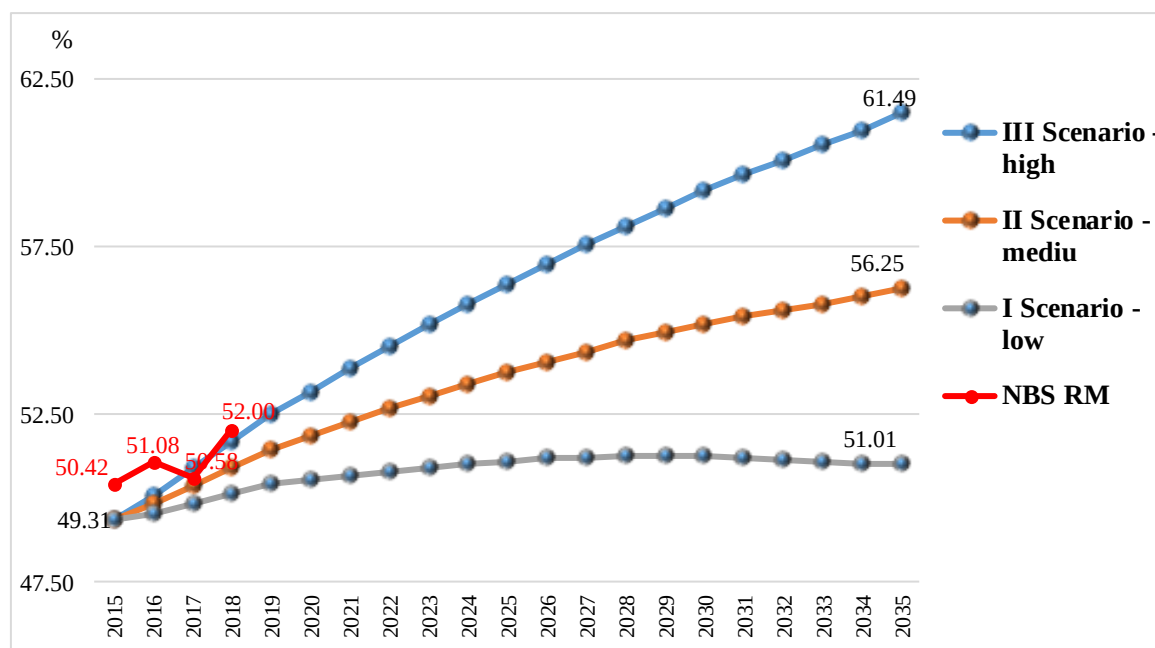


Figure 3. Forecast values of economic activity rate (I-III Scenarios), 15-64 years old, 2015-2035, %

Source: author's calculations

In the next two decades, small generations born in the early 2000s will enter the labour market, i.e. the share of youth will decrease (*Fig. 4.*). Which will cause following changes in the age structure of labour force, as a result of differences in the amount of different cohorts. The share in the three age groups 40-44, 45-49 and 50-54 years will reach the highest values, which will have the impact on the increase in total participation rate of population.

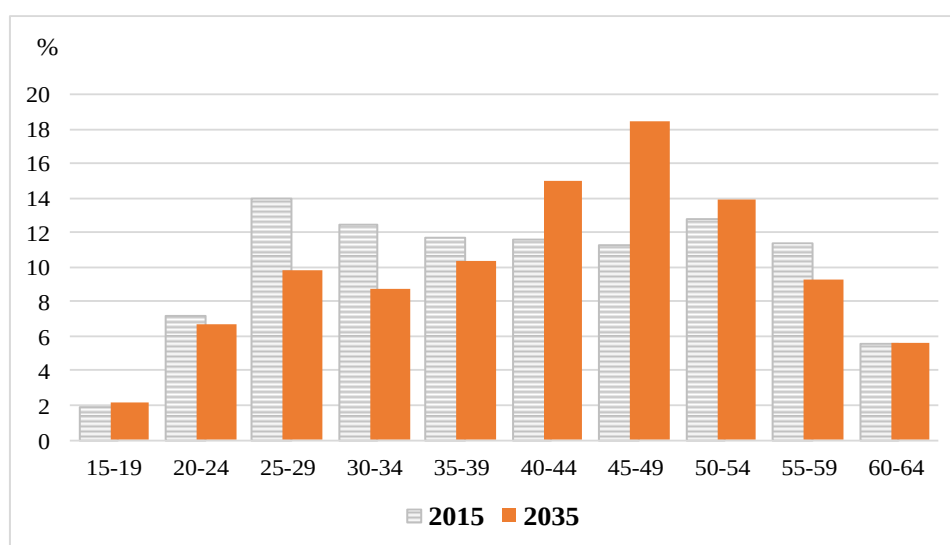


Figure 4. Age structure of labour force (II Scenarios), 15-64 years old, 2015-2035, %

Source: author's calculations

The average age of labour force will increase accordingly. The increase in amount of elder age groups in labour market will emerge the issue of increasing the competitiveness of these age groups in labour market and increasing their protection in the event of transition to the status of unemployed. The unification of retirement age also contributes to the increase in the age of labour force, which raises the upper limit of work ability and increases the number of elder age groups in labour market in labour force.

In conditions of population decline, it is important to identify reserves for maintaining stability in the labour market and ensuring sustainable economic growth for improvement the living standard and quality of life, including incomes of population and reduce poverty, as one of the main tasks of the country's socio-economic development. At the same time, better utilization of labour force can be the important factor in economic growth and it's driver. Sustained economic growth increases the demand for labour force. Therefore, the *Forecast of Demand for Labour Force* was used for the determination the opportunities for economic growth due to the wider involvement of population in economic activity. To identify the reserves for maintaining the proportions of demand and supply for labour force in the perspective, estimates of the economy's need for additional workers were calculated – forecast estimates of demand for labour force based on the *Model of Demand for Labour Force*, calculated on the basis of the use of GDP and labour productivity rate (Zaharov S. [15]).

The need (necessity) for additional workers (employed) will be from 2,2 to 2,3 thousand persons annually on condition to an average annual GDP growth of 0,2%, what, in turn, will require an increase in employed population by 2035 by 4,4% (*Table 1.*).

The additional involvement of workers in economy is limited by the amount of labour force. The forecasted estimates of demand for labor force and supply of labor force are compared for assessment the economy's needs for additional workers (I Scenario). This comparison allows to assess the equilibrium in labour market, to determine the deficit or surplus of labour force in labour market (the balance of supply and demand for labor force). In this case, the difference between the forecast number of employed population (demand) to achieve the target indicators of GDP growth and the forecast number of employed population (supply) will be determined. Given process of coordination the quantitative parameters of supply and demand for labor at the macro level determines the success of labour market functioning.

Deficit of employed population by 2035 will amount to 212,3 thousand persons. The labour market will be characterized by the imbalance between supply and demand.

Table 1. Forecast of the requirements for employed population (I Scenario), 15-64 years old, 2017-2020, 2025, 2030, 2035, thousand persons

	2017*	2018	2019	2020	2025	2030	2035
Demand for labour (employed)**	917,8	920,0	922,2	924,4	935,5	946,7	958,0
Average annual growth in labour demand	-	+2,2	+2,2	+2,2	+2,2	+2,3	+2,3
Labour supply (employed)***	917,8	904,7	891,4	877,6	809,4	772,9	745,7
Average annual growth of	-	-13,1	-13,3	-13,8	-13,64	-7,3	-5,44

labour supply							
Need (deficit "-", surplus "+")	-	-15,3	-30,8	-46,8	-126,1	-173,8	-212,3
* Calculated supply of employed population aged 15-64 for 2017 is used as a baseline indicator for labour supply and demand. ** Satisfied demand for labour force - the number of employed population. *** Accordingly, the labour supply is the forecasted number of employed population, calculated on the basis of forecasted values minus the number of unemployed (the unemployment rate in 2015 was 5%).							

Source: author's calculations

Reducing the imbalance between supply and demand for labour can be compensated for both by increasing the supply of labor and increasing the labour productivity.

The need for additional workers can be compensated for by the inactive population, as a hidden reserve of labour market. The forecast number of inactive population will also decrease and according to calculations (I Scenario) will amount to about 28% of the inactive population by 2035 (*Table 2.*). The official statistics are even lower.

Table 2. Assessment of inactive population, 15-64 years old, 2017-2020, 2025, 2030, 2035, thousand persons

Inactive population	2017	2018	2019	2020	2025	2030	2035
I Scenario	972,7	947,6	924,1	904,0	828,4	774,7	753,8
NBS RM*	933,0	881,8	-	-			

* NBS RM' data only for 2017-2018. From January 1, 2019, the NBS RM changed the methodology for calculating the number of employed population, namely, according to the new survey plan, it excluded those employed in households producing products for their own needs from the number the employed population. In view of the above, the labour market indicators of NBS RM for 2019-2020 are not comparable to previous years.

Source: author's calculations

The analysis based on data from the Population and Housing Census in the Republic of Moldova in 2014 [11] showed, that only a part of the inactive population in the amount of 30-34% (seasonal workers – 4,0%, and other reasons – 30,0%) can be involved as a reserve for replenishing the labour market. The other part consists of pupils, students, pensioners, disabled people, housewives. According to the structure of inactive population, only 34,2% are age groups with the highest rates of economic activity (30-54 years). Youth (15-24 years old) consists about 30%. Raising the retirement age only partially alleviates the deficit of labour force, at the same time, the increase in the retirement age has been stopped in the country from 2022. The reserve of inactive population is insufficient has been stopped the deficit in labor demand.

The analysis of the necessary number of employed population at different levels of labour productivity based on the *Model of Demand for Labour Force* (Zaharov S. [15]) showed that at a given GDP growth rate, the need in labour force is rapidly decreasing. The difference in decline reaches about 4 thousand persons with minimum values of growth in labour productivity (2%) and 47,4 thousand persona with the increase in labour productivity of 8% (*Table 3.*). Sustainable economic growth is possible due to the increase in labour

productivity and without attracting additional labour force with condition, what the growth rate of labour productivity is higher (exceed) the growth rate of GDP.

On the other hand, there are no examples in history of maintaining high rates of economic growth in the context of the annual decline in the amount of working-age population.

Table 3. Prospective assessments of annual requirement in employed (“deficit” + “surplus”) at different levels of labour productivity (I Scenario), 15-64 years old, 2018-2020, 2025, 2035, thousand persons

Labour productivity growth rate	2018	2019	2020	2025	2030	2035
Basic	+2,2	+2,2	+2,2	+2,2	+2,3	+2,3
2%	-15,8	-15,6	-15,3	-14,0	-12,9	-11,8
4%	-33,2	-32,0	-30,8	-25,6	-21,3	-17,7
6%	-49,9	-47,2	-44,6	-33,7	-25,5	-19,3
8%	-66,0	-61,2	-56,8	-39,1	-27,0	-18,6

Source: author's calculations

Labour productivity is becoming one of the reserves for maintaining stability in labour market in conditions of population decline and its ageing. Labour productivity, as an indicator of labour efficiency, is a fundamental characteristic of the quality of population employment. The labour productivity growth is possible only on the basis of increase in educational level and, as a consequence, improvement in labour force quality. Time expenditures of population in getting higher education are large, but they are compensated by the effect of increase in labour productivity as a result of increase in human capital stocks (Peng X., Fausten D. [12, p. 26]). The exceeding growth of labour productivity, in comparison with the dynamics of GDP, will affect the changes in structure of demand for labour, which cannot be provided without professionally trained competitive labour force.

The qualitative component of labour, the increase in educational level and, as a consequence, the improvement in quality of labour force becomes important in conditions, when the possibilities of the quantitative approach to ensuring the demand for labour are limited. On the other hand, the comparison of labour force quality in the Republic of Moldova with the European Union' countries (*Table 4.*) showed that the difference between the indicators of employed population with higher education in the Republic of Moldova and the EU constituted 11,9 p.p. in 2018. The greatest difference was noted with a number of countries: Ireland, Belgium, Lithuania, Great Britain, Spain (respectively – 25,4; 23,3; 21,9; 20,8; 19,7 p.p.). The share of employed population with higher education in the Republic of Moldova does not have the tendency of accelerated growth. It should be noted, that evaluation given situation according to the indicators calculated on the basis of the population with usual residence, the situation is approximately the same (2014 – 23,6%, 2018 – 23,2%), and is similar to the countries of Bulgaria and Spain. What is the obstacle to the implementation of new productions, new technologies, including information, contributing to the economic development of the country.

Table 4. Share of employed population with higher education*, EU, RM, 15-64 years old, 2014, 2018, %

	2014	2018		2014	2018
EU (28 countries)	32,7	35,1	Bulgaria	31,6	31,6
Belgium	43,2	46,5	Romania	19,1	21,1
Ireland	46,8	48,6	Czech Republic	22,8	24,8
France	37,8	41,4	Poland	32,4	35,4
Germany	27,6	29,2	Hungary	26,5	26,7
Great Britain	41,6	44,0	Estonia	39,0	40,9
Italy	20,3	23,0	Latvia	33,8	37,2
Spain	42,0	42,9	Lithuania	42,3	45,1
Greece	33,7	36,9	MOLDOVA	24,4	24,8

* Due to the fact that Eurostat data are calculated on the basis of resident population, we used data on the labour market of the Republic of Moldova, also calculated on the basis of resident population.

Source: elaborated by the author on the basis of Eurostat' data and the author's calculations based on the NBS RM database, www.statistica.md; Eurostat, Employment by educational attainment level -annual data (%). Code: lfsi_educ_a. <https://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do>

Increase the educational level is considered a fairly reliable resource for the vertical mobility of labour force, the mechanism of which should be based on education and professionalism, and be an important reserve for the further development of labour market in the conditions of action of demographic processes. Transparent mechanisms of vertical mobility contribute to a mass orientation towards obtaining a quality education, which guarantees positive prospects for the development of human capital, increased competition in labour market, and the development of open competition processes, which contributes to an increase in the competitiveness of national economy. Open competition contributes to the realization of social dynamics processes much more intensively, reducing the volume of social support for population, due to an increase in the ability of different strata and groups of the population to self-promote their status in society, what is important for elder age groups in labour market.

The sectoral structure of employed population in the country has changed, the share of those employed in agriculture and industry has decreased, and the share of those employed in the service sphere has increased. The service sector, which has significant social utility, is labourious. The increase in employment at the expense of the development of the service sphere will be connected with the provision of individual services with a low level of labour productivity, but requiring higher qualifications (Cl. Vimont [17]). The implementation of advanced foreign and domestic experience contributes to the development of new types of economic activities, new productions, progressive technologies, an innovative economy and, finally, the creation of new work places and, as a consequence, puts forward new requirements in the field of education and qualifications of labour force, its professional training, which promotes the improvement the qualitative characteristics of labour force. Information and communications, financial activities, including banking and insurance, as well as construction, education and healthcare are the most promising sectors with high added value for the Republic of Moldova. It will require the formation of the new structure of economy and employment, significant structural changes in employment, having sustainable

nature, including new blocks - information, financial, scientific and technical services. The increase the level of educational and professional training of labour resources and shifts in the level of training of professional personnel is necessary to conformity with new structure of the economy.

In the conditions of ageing of labor force on Moldovan labour market, maintain and increase of labour activity of population in pre-retirement and retirement age (55-64 years old) is one of the important reserves for compensation of reduction of labour force in the perspective period. In order to increase labour activity of this population group in labour market it is necessary to adoption the set of measures both to prolong labour activity and to reintegrate unemployed people of 55-64 age group into labour market.

4. Conclusions

Based on given research, the following conclusions can be noted:

- Forecast of labour supply for the period up to 2035 showed that the supply of economically active population will decrease and losses could be from 212,5 thousand persons according to Scenario I to 51,2 thousand persons (Scenario III), which is from 21,3% to 5,1% of the workforce in 2015. Reducing the number of labour force, "contraction" of labour market will affect the functioning of labour market.

- By 2035 the labour force will not only decrease quantitatively, its qualitative characteristics will change. Thus, the structure of labour force will be characterized by a disproportionate reduction in the number of workers under 40 years old, as few generations born in the early 2000s will enter the labour market. The labour market will be dominated by age groups from 40 to 54 years old, which is determined by the prevailing age economic activity rate. Accordingly, the average age of labour force will increase. The increase in the number of elder age groups in labour market will raise the issue of improving the competitiveness of these age groups in labour market and increasing their protection in the event of their transition to the status of the unemployed.

- The ratio of labour supply and demand projections showed the labour deficit in labour market of 212,3 thousand persons by 2035, in subsequent decades, economic growth will require attracting additional workers.

- The analysis of reserves to maintain the balance of labour supply and demand and market stability in the perspective period showed that the need for additional workers cannot be compensated by inactive population, the forecasted number of which will decrease, and the age structure of inactive population will not allow to attract the large share of inactive population in the age groups with the highest coefficients of economic activity (men 35-59 years, women 35-54 years). The number of inactive population will not allow to satisfy significantly the deficit of demand for labour.

- The main reserve for maintaining the balance between labour supply and demand under conditions of the reduction of the number of population and the process of population ageing is the increase in labour productivity. Industries with low labour productivity can be an obstacle to overall productivity growth and economic growth. Labour productivity growth is possible only on the basis of increasing the educational level and improving the quality of labour force.

Based on the conducted research, it may be concluded that demographic processes in the Republic of Moldova, leading to the decline in the population size, impact to the state of labour market, limiting not only the supply on labour market, but also contributing to the change in the labour force structure. Further development of labour market in the Republic of Moldova is connected with the change in its qualitative component.

Taking into account the demographic prospective of the Republic of Moldova, increasing the education level of population is the main process that can improve the situation on labour market to create the qualified labour market in the future, renewing the necessary labour force for future generations, whose numbers will be less, but they will be older.

Measures on the current employment policy should correspond to the requirements of modern labour market, the ensure of the equilibrium of labour demand and supply, especially the necessity for new professions, training and retraining of workers, including the needs of economic agents.

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