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INFLUENCE OF DEMOGRAPHIC TRENDS AND EMPLOYMENT ON THE FINANCIAL SUSTAINABILITY OF THE MONTENEGRIN PENSION SYSTEM

УТИЦАЈ ДЕМОГРАФСКИХ ТРЕНДОВА И ЗАПОСЛЕНОСТИ НА ФИНАНСИЈСКУ ОДРЖИВОСТ ПЕНЗИОНОГ СИСТЕМА ЦРНЕ ГОРЕ

Summary: *The aim of this research is to analyze the impact of employment on the sustainability of the Montenegrin pension system. The paper discusses the impact of demographic trends on the stability of pension system financing. The stability projection of the pension system is based on demographic trends and the change in the level of employment on the labor market. The research method included the analysis of extensive statistical material, the research of the latest published papers regarding the subject, as well as a comparative overview of the pension systems of the transition economies.*

Research of demographic trends indicates that in the first half of the 21st century, the population aging process will be one of the most important features of Montenegro's demographic development. The aging of the population will affect the increase in costs for dependents or persons over 65 years old, primarily those costs that are being distributed from current fiscal revenues.

Current pension system is financially unsustainable in short-term and medium-term, given the rate of activity on the labor market (53.7%) and employment (44%). In order for the existing system to be sustainable, the activity level of the population should be 61% and the level of employment should amount to 51%. By analyzing the projection alternatives, we note that the sustainability of the pension system in the long run requires intensive economic growth and development that will lead to an increase in long-term labor market activity as well as a smaller increase in the number of pensioners and an increase in inflows from contributions. Thus, this should all lead to a reduction in the deficit of the pension system.

Keywords: *system, employment, financial stability, demographic trends.*

JEL classification: *J10, J64, H55*

Резиме: *Циљ овог истраживања је анализа утицаја запослености на одрживост пензионог система у Црној Гори. У раду је разматран утицај демографских трендова на стабилност финансирања пензионог система. Пројекција стабилности пензионог система базирана је на демографским токовима и пројмени нивоа запослености на тржишту рада. Истраживање је обухватило анализу обимног статистичког материјала, најновија истраживања предметне материје, као и компаративни преглед пензионих система транзиционих земаља.*

У погледу демографских кретања, резултати истраживања указују да ће у првој половини 21. вијека процес старења становништва бити једна од најважнијих карактеристика демографског развоја Црне Горе. Старење становништва утицаће на повећање трошкова за издржавана лица или лица старија од 65 година, првенствено оних који се издвајају из текућих фискалних прихода.

Постојећи пензиони систем је краткорочно и средњорочно финансијски неодржив при датој стопи активности на тржишту рада (53,7%) и запослености (44%). Да би постојећи систем био одржив, потребан је ниво активности становништва од 61% и ниво запослености од 51%. Анализом пројекционих варијанти уочавамо да одрживост пензионог система на дуги рок захтијева интензиван економски раст и развој. То ће довести до повећања активности на тржишту рада у дугом року и мањег прираста броја пензионера и пораста прихода од доприноса, а тиме и до смањења дефицита пензионог система.

Кључне ријечи: *пензиони систем, запосленост, финансијска стабилност, демографски токови.*

JEL класификација: *J10, J64, H55*

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1. INTRODUCTION

Taking into account the negative demographic trends and low activity rates in the Montenegrin labor market, as well as the financial sustainability of the pension system of Montenegro, the need for

an analysis of the sustainability of the pension system of Montenegro from the aspect of employment was imposed.

The problem of financial sustainability of pension systems is not only a feature of the Montenegrin economy. Comparative analysis shows that population aging in many countries across the region has also contributed to the increase in dependency rates in the system through increasing age dependency rates (defined by the ratio of the population aged 65 and over and the population aged between 20 and 64). Although the benefits provided by pension systems have met the immediate needs of the dismissed workers who have been negatively affected by the privatization process, the rapid deterioration of the dependency rate in the system has led to a significant increase in the rate of pension expenditure. The countries of Central and Eastern Europe responded by adopting a series of measures that adjusted the structure of contributions and compensations and improved the administrative efficiency of pension systems. Nevertheless, the additional aging of the population, the steady increase in the number of pensioners, the decrease in the number of contributors, and the deterioration in the rate of revenue from the rise in informal work resulted in a high pension cost, which resulted in an increase in deficits in pension systems (Hirose 2012).

Taking into account the negative demographic trends in Montenegro and the comparison with the countries of the region, there are some noticeable similar tendencies. The World Bank's projections (2010-2050), although based on very optimistic assumptions, indicate that the share of the old population in the coming decades will continue to grow steadily in all countries of the region (Western Balkan + Bulgaria, Hungary and Romania) and especially in those countries with a relatively young population, which will lower mutual differences between them, so that apart from Montenegro (which is slightly below 25%), there will be no country in which at least one in four inhabitants is not older than 65 years (Zdravković et al. 2012). Research in Croatia shows that, under the influence of long-term reduction in the number of newborns, there is a significant reduction in the number and share of young people, a decrease in the number of working population, and at the same time - a significant increase in the number and share of the elderly, i.e. people over 65 (Akrap 2006). Similar trends are present in Serbia. As the research shows, Serbia is about to become a country with an extremely high share of the elderly in total population. Annually, the number of the deceased is higher by 30 thousand citizens, compared to the number of newborns, which is an extremely unfavorable data, taking into account the total number of inhabitants. Regarding migration, it is known that elderly and retired, do not decide on this step, and with the preliminary data, it is clear why we are an aging population. This, also, has a negative effect on the incomes of the pension system (Birovljev et al. 2015).

Unfavorable developments in the parameters of the pension insurance system make this system non-functional and unsustainable. This primarily refers to the inability to adjust the system of current financing to long-term movements (decline in the degree of fertility, longer life expectancy). Also, there is no direct link between paid contributions and the amount of pension benefits, since pensions are currently paid to current pensioners by contributions paid by the working population (Rovčanin and Rovčanin 2014, 93).

Pursuing an optimal solution to the problem of financial unsustainability of pension systems, changes in the legal provisions regarding the retirement age are being applied. However, in most countries, moving the age limit for retirement is gradual and slow (Šuković 2013, 100).

2. DEMOGRAPHIC TRENDS IN MONTENEGRO

According to the population estimates carried out by the Statistical Office of Montenegro (Monstat), in mid 2015, there are 622,159 inhabitants in Montenegro. The working age population or population aged 15-64 makes 67.6% of the total population. The following table presents key demographic indicators.

Table 1. Key demographic indicators, 2015, Montenegro

Birth rate	11,9
The rate of infant deaths	2,2
Expected life expectancy - total	76,5
Mortality rate	10,2

Mortality rate for children under 5 years old	3,1
Expected life expectancy - men	74,7
Population growth rate	1,7
Vital index of live births per 100 deaths	116,7
Life expectancy - women	78,6
Nuptiality rate	6,2
Rates of masculinity of live births	109,9
Total fertility rate	1,7
Divorciality rate	0,9
The masculinity rates of the dead	102,8
The migration rate	7,0

Source: Monstat, 2015.

Based on population growth per 1000 inhabitants, the number of inhabitants is increasing by 1.7 per year. There are 6.2 marriages per 1000 inhabitants a year, which represents the rate of nuptiality, while the divorce rate is 0.9. The migration rate in Montenegro is 7.0, which means that for 1000 inhabitants, 7 people changed their place of residence within the borders of Montenegro. The life expectancy at birth in 2015 is 76.5 years.

It is important to point out the interdependence of the dynamics and basic structures of the population, primarily regarding gender and age structure. The results of the last census, as well as the previous ones, indicate a certain surplus of female in relation to the male population, both at the national level and in the municipalities.

As the age structure is an indicator of the quality of human factors, we also point out the tendency of population aging, with noticeable regional differences. There is a decrease in the share of the young population, an increase in the share of the population in the middle aged and especially the old population over 60 years and 65 years, respectively.

Table 2. Age structure of the Montenegrin population (%)

Year	Total	- 20 years old	21-30	31-40	45-59	60 -
1961	100	44,5	17,7	12,3	15,1	13,4
1971	100	42,8	14,9	14,2	17,7	11,1
1981	100	37,3	17,8	12,4	21,5	11,0
1991	100	33,6	15,9	15,0	21,9	13,6
2003	100	28,6	15,2	13,4	18,2	16,6
2011	100	26,3	14,3	13,9	20,6	18,3

Source: Monstat, Census 2011, Podgorica, 2012.

In the analysis of indicators of the age of population, the 1960s can be characterized as the beginning of undesirable trends in the age structure of the population of Montenegro. Since then, the reduction of share of the young population and increase of the relative share of the old population is noticeable. In addition to this indicator, the aging trend of the population and the attained level of "age" is illustrated by the average age that shows the tendency of growth.

3. PROJECTION OF DEMOGRAPHIC TRENDS

According to the projection results by the Statistical Office of Montenegro, the population of Montenegro in 2061 could range from 747 thousand (variant of high fertility) to 469 (constant variant). This means that the realization of the "maximum" variant (significant increase in fertility, reduction of mortality, positive migration balance) in the half-century will result in an increase in the population of 127 thousand inhabitants in comparison with January 1, 2011 (620 thousand).

According to certain projections, it is realistic to expect that in the next half of the century, Montenegro will from emigrant become a very immigrant area. This is also presumed in projection

variants that include the so-called expected migration. It is assumed that after 2021, ie starting from the five-year period 2021-2025, the number of immigrants will be constantly higher than the number of emigrants and that the total positive migration balance in the entire projection period 2011-2060 will amount to about 58 thousand persons or an average of about 1,200 persons per year. It is of particular importance that until now, or more specifically in the second half of the 20th century and the first decade of the 21st century, no similar volume was recorded in Montenegro nor the positive rate of the average annual migration balance. If we focus only on the projection variant of medium fertility, which was selected as the most probable, then the average annual migration balance in Montenegro in the period 2011-2060 would amount to 1.8 promil and in the last projection subperiod (2056-2060) it would reach 4.0 promil.

The projections results indicate that in the first half of the 21st century the process of aging will be one of the most important features of the demographic development of Montenegro. The population will continue to be exposed to demographic aging. At the end of the projection period, Montenegro will be demographically older than fifty years earlier, if any combination of assumptions on which the projection variants are based is achieved.

In Montenegro, according to the results of the low-fertility projection variant, the number of people older than 65 years would be more than doubled by 2061 (from 79 thousand in 2011 to 176 thousand in 2061), which on average would represent an annual increase of almost 2 thousand persons. At the end of the projection period, 28.5% of the population of Montenegro would be older than 65 years. At the beginning of the projection period not even every eighth inhabitant of the country was at that age (12.8%). Especially accelerated would be the so-called lagging of the old ones - aging of the very peak of the pyramid of old. In the same period, the number of persons aged 80 or more would increase by more than 4 times (from 15 thousand to 61 thousand). This means that the fulfillment of the assumptions on which the projection variant of low fertility was based has led to the fact that in 2061 every 10 inhabitants of the country will be older than 80 years. At the same time, according to the variant of low fertility, the number of persons under the age of 15 will decrease very rapidly in the following half-century, from 119 thousand in 2011 to 76 thousand in 2061. Their share in the total population would be reduced from 19.2% to 12.4%.

The aging of the population affects the increase of expenses for dependents or persons older than 65 years, primarily those that are deducted from current fiscal revenues. Additionally, the elderly population has a need for higher costs for health care, which ultimately leads to an increase in health expenditures and in addition to a higher burden on the working population. However, the consequence of these trends is not only an increase in government expenditures for transfers (pensions and health), but a higher burden on the working population. In the long term, even more significant negative effects will be reflected in the reduction of national savings.

4. MONTENEGRIN PENSION SYSTEM

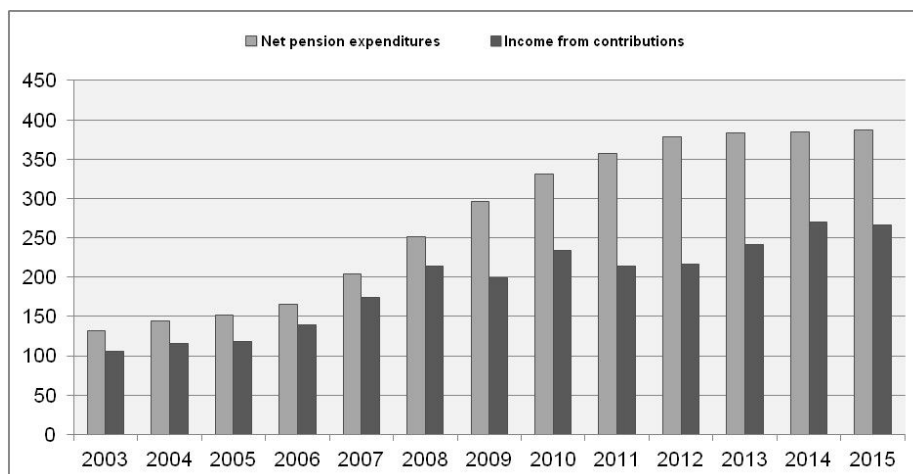
From 2003 to 2009, there was a constant increase in the number of employees, however, in 2010, the highest percentage drop in employment was recorded at 7.12%. Each year the number of employees continued to grow. Compared to the number of employees, whose growth trend was interrupted in 2010 due to the effects of the global economic crisis, the number of pensioners had a growing trend from 2003 to 2015 without significant deviation.

The ratio of the number of employees and the number of pensioners ranged from a rising trend of 1.61 in 2003 to 1.79 in 2009, where it reached the maximum. Since 2010, due to the fall in the number of employees, this ratio was 1.63, and in the next five-year period it was maintained at a lower level and had approximately the same value - on average 1.57.

The average pension in Montenegro had the lowest value at the beginning of the observed period in 2003 and amounted to € 121.53. From this level, the average pension increased over the years to 2012, where it reached a maximum value of € 277.65. In the following years, by the end of the observed period, a slight decline in the average pension was noticeable, which in 2015 amounted to € 270.18. The highest increase in average pensions was achieved in the period 2007-2009 and amounted to € 96.05 in absolute amount, i.e. 67.27%.

Expenditures for net pensions, without contributions to health care for pensioners, increased from € 131.46 million in 2003 to € 387.04 million in 2015.

Chart 1. Net pensions and income from contributions



Source: Fund PIO Crne Gore 2016.

Coverage of pensions with contributions at the beginning of the observed period amounted to 80.52% and in the following periods, with the exception of 2006-2008, this amount was lower than the initial one. The maximum coverage of pensions with contributions was achieved in 2008, amounting to 85.53%. In 2015, the coverage was 68.72%.

The increase in net pension expenditure is not accompanied by an increase in income from contributions, but on the contrary, there is a negative trend in the relationship between these two values, which indicates that the current pension system is unsustainable. The share of the contributions, as the main source of financing of the Pension and Disability Insurance Fund, in the amount of total income in 2015 amounted to 67.78%, i.e. EUR 265.9 million. At the same time, transfers from the budget, accounting for 32% of total receipts, were reduced by 6.5% compared to the same period of the previous year.

Expenditures for pensions and other rights from the Pension and Disability Insurance Fund paid in 2015 totaled EUR 387 million and are by 0.69% higher than in 2014 (EUR 384 million).

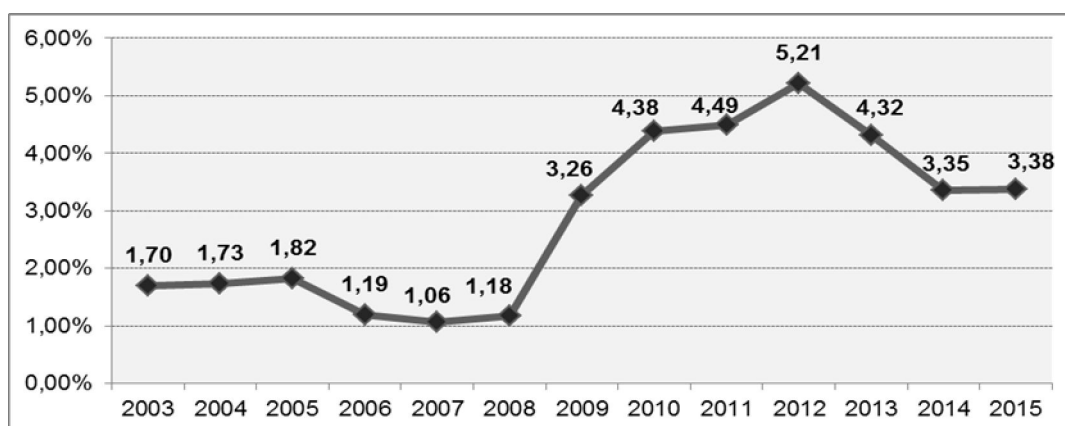
Bearing in mind the growth of expenditures in the following period, which are in accordance with demographic trends, certain pension insurance funds are finding additional financing opportunities. Participation of funds on stock exchanges, the purchase of securities and the expansion of portfolios is proving to be an adequate way of ensuring financial sustainability. The recommendations of researchers from Central and Eastern European countries support this thesis, with an emphasis on the diversification of risks in the creation of portfolio of financial assets of pension funds (Kompa and Witkowska 2015, 983).

5. PROJECTIONS OF THE EMPLOYMENT AND FINANCIAL INDICATORS OF THE PENSION SYSTEM FOR THE PERIOD 2016-2025

By analyzing the observed period (2003-2015), we notice that the number of pensioners grew at an average annual rate of 1.8%, while the employment grew at an average rate of 1.6%. Slower employment growth compared to the increase in the number of pensioners led to a contribution coverage of only 68.72%, that is, a deficit of 31.28% or an absolute amount of EUR 121 million at the end of 2015. The missing funds per one pensioner amount to EUR 689.3 per year.

In the observed period, the maximum deficit was realized in 2012, in the amount of EUR 164.06 million, which represented 5.21% of GDP. In the period of the global economic crisis, a significantly higher deficit was achieved, and since 2008, with EUR 36.31 million (1.18% of GDP), this deficit increased to a maximum of EUR 164.06 million in 2012. In 2013, the deficit was reduced to 4.32% of GDP, and the downward trend continued in 2014 and 2015, when the deficit amounted to 3.35% and 3.38% of GDP, respectively.

Chart 2. Deficit of the pension system (% of GDP)



Source: Fund PIO Crne Gore 2016.

In order for the existing way of financing the pension system to be sustainable, taking into account the percentage of coverage of expenditures for pensions with income from contributions, it was necessary to employ 210,400 persons by the end of 2015 in Montenegro, which is 35,000 more employees than 175,617 actually employed persons in 2015. This further means that in the existing situation (a constant number of pensioners), the current pension system would be completely sustainable if the population's activity rate was 61%, and not 54% in the year of 2015. The employment rate should have been 51%, and not 45% in 2015.

However, given the trends and the existing system of social protection, it is unlikely that this situation will occur in the short term, and probably not even in the medium term.

Real GDP growth over the past thirteen year period was 1.9% on average annually, while employment in the observed period grew at a rate of 1.5%, while the number of pensioners had an average growth 1.8% annually. In order to ensure the sustainability of financing the pension system in the analyzed period, a minimum employment growth of 3% per annum is required, which, according to the existing GDP per employee (in relation to the current state of the economy), should produce GDP in the amount EUR 4.307 milion. Starting from the trends of the previous period, and taking into account the factual situation regarding the expected demographic trends and trends in the labor market, in the continuation of this paper, we will give variants simulations of the expected developments regarding the financial sustainability of the Pension and Disability Insurance Fund.

I. Variant - Expected projection

Assuming that in the next ten-year period the selected parameters increase at an average rate as in the previous analyzed period: employment - 1.6%, number of pensioners - 1.8%, income from contributions - 7.1%, expenditures for net pensions 8.3% , and average pension - 5.5%.¹

Table 3. Expected projection

Indicator	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Employment	175617	178427	181282	184182	187129	190123	193165	196256	199396	202586
Number of pensioners	112362	114385	116443	118539	120673	122845	125056	127307	129599	131932
Income for contributions in mil. €	387,04	414,5	444,0	475,5	509,2	545,4	584,1	625,6	670,0	717,6
Net pension payments in mil. €	265,98	288,1	312,0	337,9	365,9	396,3	429,2	464,8	503,4	545,1
Coverage of pensions with contributions in %	68,7	69,5	70,3	71,1	71,9	72,7	73,5	74,3	75,1	76,0

Source: authors' calculations

In the simulation of this variant, we note that the coverage of pensions with contributions in 2025 will be 62.2%, that is, the missing revenue from the contributions will be 37.8%.

¹ Financial indicators are calculated at the current level of prices.

II. Variant – Pessimistic projection

Assuming that in the next ten-year period the selected parameters increase at the following average rates: employment - 1,5%, number of pensioners - 2%, income from contributions - 6%, expenses for net pensions 8,5% and average pension - 5,5% .

Table 4. Pessimistic projection

<i>Indicators</i>	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Employment	175617	178251	180925	183639	186393	189189	192027	194908	197831	200799
Number of pensioners	112362	114609	116901	119239	121624	124057	126538	129069	131650	134283
Income for contributions in mil. €	265,98	281,9	298,9	316,8	335,8	355,9	377,3	399,9	423,9	449,4
Net pension payments in mil. €	387,04	419,9	455,6	494,4	536,4	582,0	631,4	685,1	743,4	806,5
Coverage of pensions with contributions in %	68,7	67,1	65,6	64,1	62,6	61,2	59,8	58,4	57,0	55,7

Source: authors' calculations

According to the pessimistic variant, there will be 50% lacking funds at the end of 2025 for financing benefits for pensions from source income.

III. Variant – Optimistic projection

Assuming that in the next ten-year period, the selected parameters increase at the following average rates: employment - 2%, number of pensioners - 1.5%, income from contributions - 9%, expenses for net pensions 6% and average pension - 4.2%.

Table 5. Optimistic projection

<i>Indikator</i>	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Employment	175617	179129	182712	186366	190093	193895	197773	201729	205763	209879
Number of pensioners	112362	113710	115075	116456	117853	119267	120699	122147	123613	125096
Income for contributions in mil. €	265,98	292,6	321,8	354,0	389,4	428,4	471,2	518,3	570,2	627,2
Net pension payments in mil. €	387,04	410,3	434,9	461,0	488,6	517,9	549,0	582,0	616,9	653,9
Coverage of pensions with contributions in %	68,7	71,3	74,0	76,8	79,7	82,7	85,8	89,1	92,4	96,0

Source: authors' calculations

According to the optimistic projection, coverage of pensions with contributions by the end of 2025 would be 96%. According to a given projection in 2026, 100% coverage of pension contributions would be achieved. According to this variant in 2026, the ratio of the number of employees and pensioners should be 1: 1.9.

By analyzing the above-mentioned variants, we note that the sustainability of the pension system in the long run requires intensive economic growth and development. In the previous ten-year period, the rate of real productivity growth - r_p in Montenegro was 0.4%, calculated as the difference between the average annual growth rate of GDP - r_y and the rate of employment growth - r_e . In order to be able to achieve an optimistic variant of the sustainability projections of the Pension Fund in the coming period, an average real annual GDP growth of around 3% is needed, which would, with an employment growth rate of about 2% annually, lead to an average annual growth rate of productivity of 1%.

6. CONCLUSION

A key challenge for Montenegro is how to increase economic growth again, or how to reduce or eliminate barriers that prevent the economy from fully exploiting its potentials. As fiscal policy measures are necessary, but not sufficient, the priority of Montenegrin economic policy must be structural reforms aimed at increasing the competitiveness of the economy.

The subjected analysis of the stability of the pension system in Montenegro leads to the following conclusions:

- According to the population estimates, in mid 2015, there are 622,159 inhabitants in Montenegro. The working age population or population aged between 15 and 64 makes 67.6% of the total population. As the age structure is an indicator of the quality of human factors, we also point out the tendency of population aging, with noticeable regional differences. This is a decrease in the share of the young population, an increase in the share of the middle age population and especially the old population over 60 years and 65 years;
- The projection results of the Statistical Office show that in the first half of the 21st century the process of aging will be one of the most important features of the demographic development of Montenegro. The population will continue to be exposed to demographic aging. In Montenegro, according to the results of the low-fertility projection variant, the number of people older than 65 years would be more than doubled by 2061 (from 79 thousand in 2011 to 176 thousand in 2061), which on average would represent an annual increase of almost 2 thousand persons. At the end of the projection period, 28.5% of the population of Montenegro would be older than 65 years. The aging of the population affects the increase of expenses for dependents or persons older than 65 years, primarily those that are deducted from current fiscal revenues;
- Characteristics of the Montenegrin labor market is a low activity rate, as well as a relatively low employment rate. Since the activity rate has not changed significantly over the past twenty years, one of the causes of such situation in the labor market is a generous social protection system and along with it - a pension system. Approximately 1/6 of the total population of Montenegro enjoys a certain right in the field of pension protection;
- As for financing of the pension insurance system in Montenegro, it is evident that in the observed period (2003-2015) the coverage of pensions with contributions was 80.52% at the beginning, and in the following period, with the exception of 2006-2008, this amount was lower than the initial one. The maximum coverage of pensions with contributions was recorded in 2008, amounting to 85.53%. In 2015, the coverage with contributions was 68.72%. The increase in net pension expenditure is not accompanied by an increase in income from contributions, but, on the contrary, there is a negative trend in the relationship between these two sizes, which indicates that the current pension system is unsustainable;
- The existing pension system is financially unsustainable in short-term and medium-term, with a given activity rate on the labor market (53.7%) and employment rate (44%). In order for the existing system to be sustainable, the level of activity of the population has to be 61% and the level of employment has to be 51%;
- By analyzing the projection variants, we note that the sustainability of the pension system in the long run requires intensive economic growth and development which will lead to an increase in labor market activity in the long run and a smaller increase in the number of pensioners as well as an increase in income from contributions, thus leading to a reduction in the deficit of the pension system.

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