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## Working conditions and retirement privileges on the example of mining

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# Working conditions and retirement privileges on the example of mining

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**Abstract.** The article contains an explanation of the miners' retirement privilege, which is classified as mining work and a description of working conditions and threats. The analysis is based on statistical data for 2016 and 2017 regarding mining pensioners and the total number of retirees receiving benefits from the Social Insurance fund, and concerns the age of retirees and the incidence of occupational diseases.

## 1. Introduction

Mining work involves some health effects, which is reflected in the pension regulations that allow miners to take advantage of the so-called "mining pension". This benefit can be obtained by meeting the following criteria: "The right to mining pension, irrespective of age and occupied position, is granted to employees who have been working underground and have been working full time for at least 25 years (...)"[1]. In addition, there are also other criteria according to which the following three conditions must be fulfilled simultaneously: a person aged 55 and over has a "mining work period equal to at least 20 years for women and 25 years for men, including at least 10 years mining work "[1] and did not join an open pension fund or donated funds from this fund to the state budget revenues [1]. The topic of early retirement for miners is often discussed in discussions about the national pension system. People from outside the mining industry are asking why exactly miners have such a privilege as one of the few professional groups. People who meet the eligibility criteria for a mining pension answer without hesitation, that doing work in such unfavorable and difficult to withstand conditions for a longer period than 25 years is a very heavy burden undoubtedly affecting their health. The adopted assumptions consist in the compilation of data on persons receiving mining pensions from total retirees receiving a benefit from the Social Insurance Fund. The analysis will also cover occupational diseases occurring in mining workers and mining retirees.

## 2. Mining work and conditions for its implementation

Mining work has been defined in the Act on old-age and disability pensions from the Social Insurance Fund and according to its content, workers performing mining work are employed, among others:

- a) underground in coal mines and other raw materials;
- b) underground and at sinking and construction of shafts and in enterprises performing mining works and renovation works underground;
- c) on the outcrops in sulfur and brown coal mines (with strictly defined works);
- d) underground in the positions of traffic supervision and mine traffic management, enterprises involved in the aforementioned works;



- e) as members of the rescue teams of mines, mechanics of rescue equipment and professional rescuers performing duties in mining rescue stations;
- f) at stations of hoist drivers on windscreens and at whistleblower positions on shaft shafts in underground mines;
- g) in underground workplaces in inactive underground mines;
- h) at the positions of instructors working in mining training fields located underground [1].

Focusing on hard coal, the location of resources means that nowadays coal is going deeper and deeper and exploitation pits are located further and further away from the shafts, which has a significant impact on the deterioration of working conditions. In connection with the above, the number and intensity of natural hazards also needs to be taken into account technical hazards caused mainly by the equipment, technologies and energy used [2]. Occupational hazards occurring at workplaces in underground mines include, among others, numerous natural hazards such as: climate, methane, fire, coal dust explosion, rock bursts, floods, water and gas and rock outbursts. Physical hazards such as dustiness, which are the main cause of occupational diseases in the mining industry, are significant in terms of the incidence of occupational diseases, where, for example, in 2005, pneumothorax accounted for 77.2% of all diagnosed diseases [3], followed by the noise emitted by the installed in excavations, machines and equipment during work, and vibrations that affect operators in particular. The work is carried out in the underground, therefore, only artificial lighting is not accessible to sunlight, which adversely affects the eyes. It should also be remembered about psychophysical factors such as: physical (dynamic) load caused by physical effort and repetitive movements at work, as well as psycho-mental load resulting from accident risk awareness and shift work. Of course, the list of hazards in mining work includes many other threats and exposures, and as a result we get one of the most difficult jobs currently.

### 3. Discussion

The analysis was conducted on data obtained from the Social Insurance Institution in the years 2016-2017, the collected data were compiled (table 1). Miners' pensioners have reduced their percentage of retirees by 0.25% in the last two years. The average age of the retiree did not decrease a bit but in the case of mining pensioners, a minimal increase was recorded. Earlier retirement of miners causes that the average age in this case is significantly lower by about 7 years on average every year.

**Table 1.** Data collection on mining pensions and from the Social Insurance Fund in 2016-2017<sup>a</sup>.

Year	2016	2017
Total number of retirees [4]	5 162 280	5 493 796
Number of mining retirees [4]	205 595	204 647
Percentage of the total	3,98 %	3,73%
Average age of general old-age pensions [4]	70,7	70,6
Average age of mining pensions [4]	62,9	63,2

<sup>a</sup> own study

The next step was to check the percentage of retirees in individual age groups. The analysis included retirees aged 65 and over, as it is important to check the number of the oldest age groups to check whether the life expectancy of mining retirees is reduced in relation to the total. Three age groups were created: from 65 years to 71 years, from 72 years to 79 years and 80 years and more, and then the percentage of individual groups was calculated, where as 100% the total number of beneficiaries aged 65 and more was assumed (table 2).

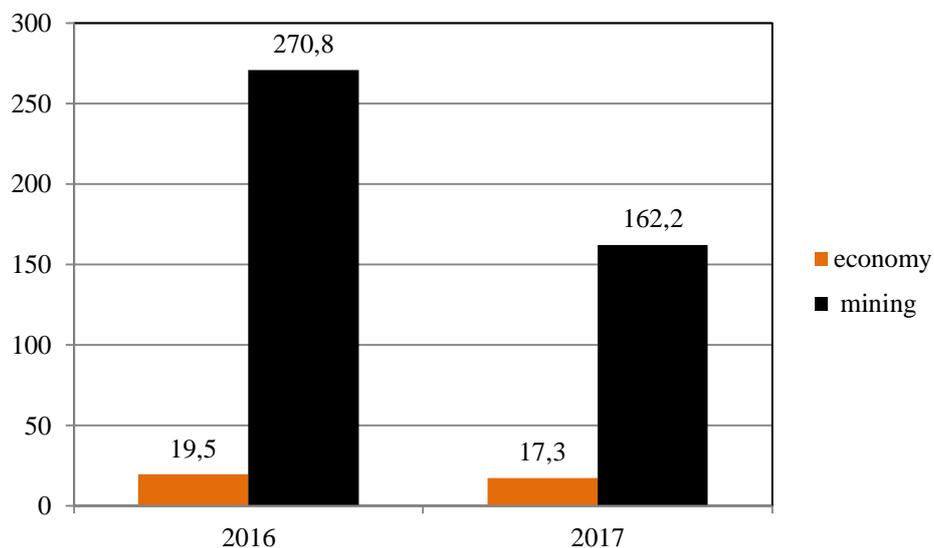
**Table 2.** Percentage share of individual age groups of beneficiaries in 2016-2017<sup>a</sup>.

year	2016		2017	
	mining pensions	general old-age pensions	mining pensions	general old-age pensions
from 65 years to 71 years	44,53	51,84	45,71	54,35
from 72 years to 79 years	37,04	29,05	34,66	27,11
80 years and more	18,44	19,11	19,63	18,54
total	100,00	100	100,00	100,00

<sup>a</sup> own study

Analyzing individual years, it can be concluded that in 2016, as in the previous studies [5], the group of the oldest pensioners in the case of mining pensioners is much less than in the case of all pensioners. The situation in 2017 has changed and here we notice the opposite situation than in the previous year, because in the case of general pensioners the oldest group is less numerous than in the case of mining retirees. In all four cases the size of the group decreases with age, whereas in the case of pensioners, the group from 65 to 71 is more than 10% more numerous than in the case of mining pensions, where the percentage is in the group from 72 years to 79 years.

The last stage of the research is the analysis of the incidence of occupational diseases, where data on the entire economy and mining have been compiled. The incidence rate for occupational diseases per 100,000 employed in the economy was taken from the data of the Institute of Occupational Medicine prof. J. Nofera [6] whereas data for mining was taken from the study of the State Mining Authority [7] and on the basis of them knowing that employment in 2016 was 180 213 people and in 2017 - 177 592 people and the number of cases of occupational diseases found in in 2016 - 488 and in 2017 - 288, the value of the incidence rate for occupational diseases in mining was calculated for 100,000 employees. The results are illustrated graphically (figure 1).

**Figure 1.** Comparison of the value of the incidence rate for occupational diseases per 100,000 employees in 2016-2017 [own study].

The values of the coefficient calculated for mining in 2016 are almost 14 times higher and in 2017 more than 9 times higher than for the whole economy. Among the occupational diseases diagnosed in mining in 2017 the largest group were pneumoconiosis, which was found in 251 miners, then permanent hearing loss in 23 people, vibration syndrome of 4 employees, chronic bronchitis 1 case and other

diseases in 9 people. The year 2016 was also the largest group of pneumoconiosis, of which 439 were found, followed by permanent hearing loss of 27 people, vibration syndrome of 6 employees, chronic bronchitis 2 and other diseases in 14 people [7].

Having the number of detected pneumothorax among miners in retirement and the number of mining retirees, the index of incidence of pneumoconiosis was calculated for 100,000 mining retirees in 2016-2017. The results are summarized in the table (table 3).

**Table 3.** Values of the incidence index of pneumonia retired in 2016- 2017<sup>a</sup>.

year	2016	2017
number of mining retirees [4]	205 595	204 647
number of pneumoconiosis found [7]	250	132
index	121,6	64,5

<sup>a</sup> own study

The values of the coefficient as well as the number of pylicologies found in 2017 are significantly lower than in 2016, while in relation to the whole economy they are still very high values.

#### 4. Conclusions

To sum up, the privilege of early retirement for employees performing mining work contributed to the decline in the average age of a pensioner, which in this case is, by as much as 7 years lower than in the case of all pensioners receiving benefits from the Social Insurance Fund. Miners' pensioners in the analyzed period constituted approximately 4% of all retirees. The analysis with the division into age groups showed that in 2016 the number of retirees aged 80 and more is not much smaller than the same group in the case of the general population, while in 2017 the situation was reversed. Taking into account previous observations and different results only for 2017, it is necessary to continue observation of the studied phenomena and to look more broadly at the problem under investigation.

Significantly different results gave an analysis of the incidence of occupational diseases, here the results obtained for the mining industry indicate a strong impact, in particular, on the health of employees, both current and former. The results obtained for the total employed are as much as 14 times and 9 times lower than for the mining industry. The three professional types that most often occur in mining plant workers include pneumoconiosis, permanent hearing loss and vibration syndrome, which requires the necessity to extend prevention in the scope of elimination of dust, noise and vibration. The values of the incidence rate for occupational diseases among mining retirees are very high. This fact proves that despite the early retirement and the years of mining work, they have a negative impact on health, which results in a decrease in the quality of life after retirement. The results obtained for 2017 are much better than in the previous year and previous years [5]. It will be important to check the trend in the following years.

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