

WHAT'S BETTER FOR THE WORKERS FROM JIU VALLEY MINING AREA - A UNIT-LINKED OR A TRADITIONAL INSURANCE?

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ABSTRACT: *The purpose of this paper is to determine the best type of insurance and the factors that influence the decision of workers from the mining sector, to purchase a life insurance policy and provide financial protection in the most difficult times of their lives. One of the most relevant concerns of employees from the mining sector, especially those working underground, is related to workplace safety, this is demonstrated by the large number of underground work accidents. Underground work should automatically involve a life insurance policy, which should become a mandatory condition for these people.*

KEY WORDS: *insurance, income, prevention, financial protection, financial crisis, life insurance, insurance premium.*

JEL CLASSIFICATIONS: *G01, G14, G22.*

1. INTRODUCTION

There are 17 years from the first dismissals of the restructuring process in Jiu Valley, which threw the area into an unprecedented poverty, the number of employee from mining sector recorded a decreasing trend until today, from about 45.000 mineworkers who come in Jiu Valley from all over the country, to 2700 mineworkers.

After joining the European Union in 2007, Romania decided to drastically reduce subsidies for the mining sector, which operated with large financial losses, and production fell from 22 million tons in 1992 to 600,000 tons in 2019.

One of the reasons why the miners here say they chose this job is that they have the right to retire early, at the age of 45. But they pay a heavy price for it: the average life expectancy among them is only 55 years, and this is mainly due to the lung

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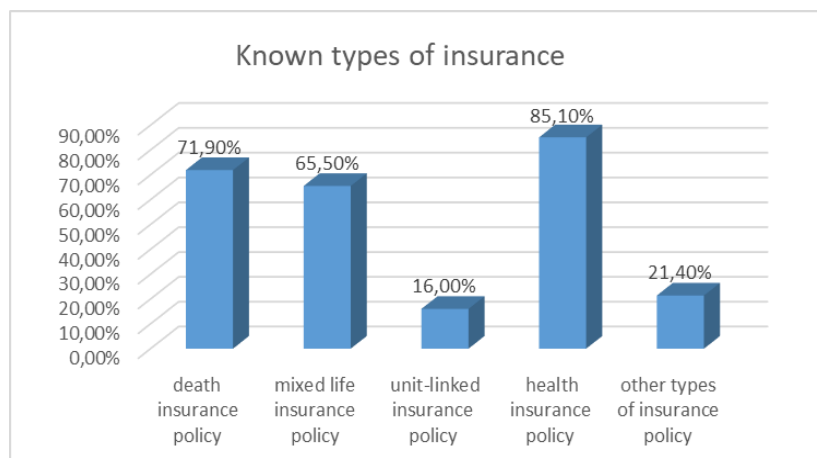
disease characteristic of this branch, silicosis, which is manifested by the strengthening and practically the gradual petrification of the lungs, until total asphyxia. Life insurance were compulsory for the miners who worked underground being aware about the danger of their workplace, a well-paid work, but now when demand for coal decreased, the lack of underground jobs has affected local communities, people have been left from the mining sector and only few of the former miners have managed to develop a small business with the money received from job loss (compensations from collective dismissal).

In order to be able to analyse the demand for life insurance in the Jiu Valley we have collected the data by applying a questionnaire to a sample of 450 subjects. We will create a database using the statistical system for analysing data IBM SPSS Statistics 20. Our database is composed from numerous variables of which the most important are: the known types of insurance: death insurance, mixed life insurance, unit-linked insurance, health insurance and other types of insurance; the intention to purchase an insurance policy; reasons why the subject does not purchase an insurance policy; the monthly income; the monthly amount allocated for payment of insurance premium; the city of residence of the subject.

2. THE ANALYSIS OF COLLECTED DATA

A large number of diverse forms are currently practiced in life insurance, most of them representing the creation of the last decades. The most representative and most common forms are: death insurance policy, mixed life insurance policy, unit-linked insurance policy, health insurance policy.

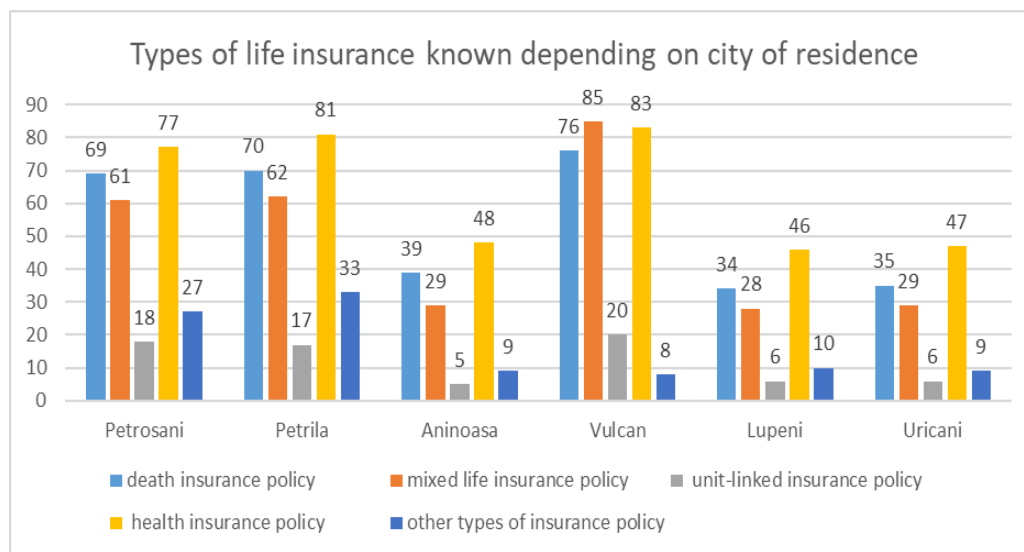
In figure 1 we will present the degree of knowledge of the most common types of insurance. We want to make an analysis on the number and percentage of the insurances specified in the questionnaire.



Source: data collected by authors and processed using IBM SPSS Statistics 20

Figure 1. Known types of insurance

Figure 2 shows the percentage of subjects who answered Yes from total questioned regarding the fact that they know the type of insurance mentioned, also describe the known types of insurance with the tabular value 1 (which corresponding to the affirmative responses, meaning Yes, the subjects knows at least one type of insurance), the subjects which knows death insurance policy (323), mixed life insurance policy (294), health insurance policy (382), and other types of insurance (96).



Source: data collected by authors and processed using IBM SPSS Statistics 20

Figure 2. Types of life insurance known depending on city of residence

Most types of life insurance are better known in the city of Vulcan and Petrila, followed then by Petroșani and in equal proportion in other cities of the Jiu Valley. Numerically from a total of 323 subjects who know health insurance, 83 are from Vulcan followed by the city of Petrila, where 81 subjects from those questioned know this type of insurance policy, and Petroșani with 77 subjects. In other cities the proportion is almost equal. The same order is maintained also for the rest of the types of insurance, but in a smaller proportion.

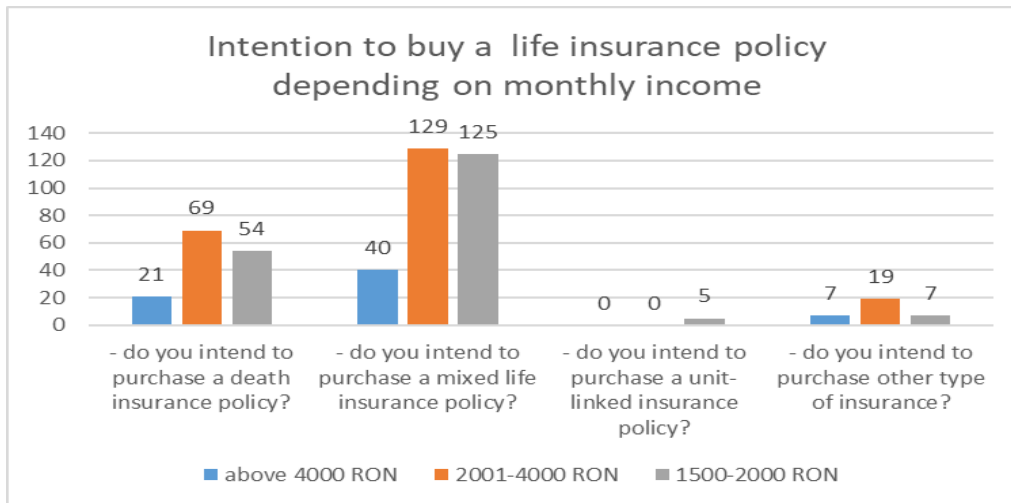
Table 1 describes the intentions to purchase one or more insurance policies from those that have the tabular value 1 (corresponding to the affirmative responses, meaning Yes, that intend to purchase an insurance policy). N indicates the number of subjects that intend to purchase an insurance policy, there are 476 affirmative responses, and 450 subjects, because 26 subjects are going to purchase two policies, 61,8% of total affirmative responses (Total = 476), represents the percentage of subjects who prefer to purchase a mixed life insurance policy, 30,3% intend to purchase a death insurance policy, 1,1% intend to purchase a unit-linked insurance policy and 6,9% intend to purchase other type of insurance. The last column of the table shows the percentage of

subjects from total questioned (total =450), who answered affirmative to the intention to purchase an insurance policy.

Table 1. Intention to buy a life insurance policy

		Responses		Percentage of total cases
		N	Percentage	
Intention to buy an insurance policy	- do you intend to purchase a death insurance policy?	144	30.3%	32,2%
	- do you intend to purchase a mixed life insurance policy?	294	61.8%	65,8%
	- do you intend to purchase a unit-linked insurance policy?	5	1.1%	1,1%
	- do you intend to purchase other type of insurance?	33	6.9%	7,4%
Total		476	100,0%	106.5%

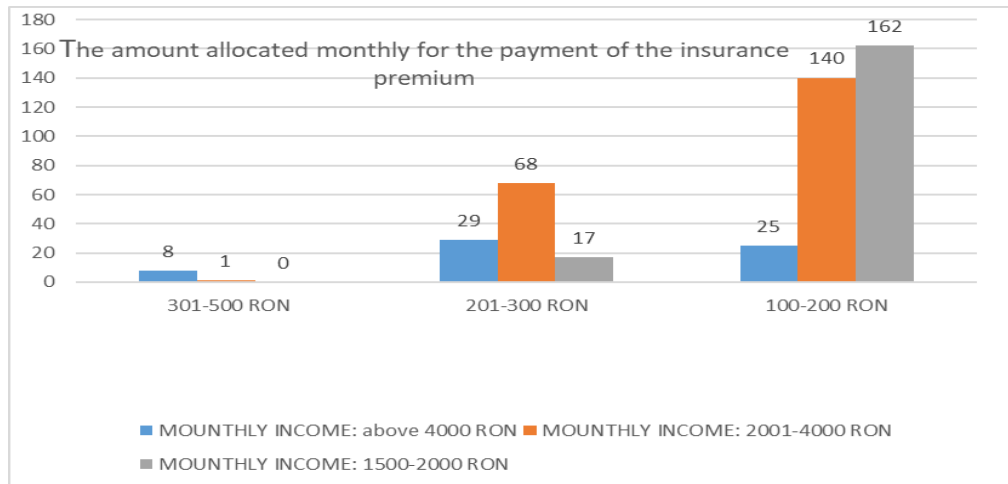
a. Dichotomy group tabulated at value 1.



Source: data collected by authors and processed using IBM SPSS Statistics 20

Figure 3. Intention to buy a life insurance policy depending on monthly income

As the incomes are small, 46.3 % of those questioned have an income between 2001-4000 RON and 28,9% would purchase a mixed life insurance, 15,4% would purchase death insurance, 4,3% would buy other type of insurance, while the unit-linked insurance does not enter at all into the discussion the percentage being null, 39,8% of those who have monthly income between 1500-2000 RON, 28% would purchase a mixed life insurance, 12,1% would purchase death insurance, 1,6% would buy other type of insurance, and 1,1% would purchase a unit-linked insurance. The subjects with an income above the 4000 RON intends to buy a mixed life insurance in percentage of 8,9%, 4,7% would buy a death insurance and 1,6% other policies.



Source: data collected by authors and processed using IBM SPSS Statistics 20

Figure 4. The amount allocated monthly for the payment of the insurance premium

The figure no 4 indicates that only 2% would be willing to allocate a monthly policy rate between 301-500, while 72.7% would allocate for an insurance between 100-200 lei.

3. SIMULATION OF INSURED RESULTS BY PURCHASING A UNIT-LINKED INSURANCE OR TRADITIONAL LIFE INSURANCE

In a unit-linked insurance contract, the policy holder does not participate in a mutual fund but decides on their own investments to some extent. The participating policies hold a very strong position in many countries and the unit-linked market has been long in coming, but since the beginning of the twenty-first century life insurance companies in these countries have started to offer unit-linked insurance contracts. The unit-linked insurance contract can be decorated with many different kinds of guarantees, and insurance companies have shown some creativity on that point. However, the market is still young, and there is still a lot of space for new developments and improvements

Insurance industry, in the coming years, will be influenced by some non-economic factors: the aging population, which does not necessarily mean a better life as a result of the relationship between needs and available resources to cover them, reducing the birth rate, rising unemployment.

Unit-linked is a complex product and has two components: the protection component and the investment component. Moreover, unit-linked insurance are considered riskier than traditional life insurance, but are more flexible in terms of:

- Size of the premium (the choice of fee insurance);
- Choice of the insured amount;
- Choice of the investments funds;
- Choice of the investment component, and parts of the investment risk;

- Insured direct control over its investment;
- Insured amount may be modified all throughout the duration of the contract;
- Premium size can be adjusted;
- Payments frequency can be changed upon each anniversary of the contract;
- Possibility to pay additional single premium at any time;
- Policy holder has the right to withdraw, at any time, a quota of his units.

We will analyse a unit- linked product with the following features: age of insured person 36 years, male gender, frequency of payment - single insurance premium 60,000 lei, amount insured in case of death 15,000.00 lei, contracting period 20 years.

People with a long-term investment horizon, willing to gamble at a high level, looking for long-term returns, will opt for a risky investment program. The objective of the program is to achieve long-term capital growth by investing 100% in shares. The amount of the account at the end of the contract is **106,987** lei. From the point of view of the insured's earnings, it is the most advantageous but not recommended in times of financial crisis, being too risky.

Table 2. The evolution of the insurance contract investing 100% in shares

Year	Single insurance premium	Cost of accidental death insurance	Amount Insured by accidental death	Predicted Yield	Account value	Death benefit	Repurchase
1	60000	27	15000	5.10%	58808	73808	0
2	-	27	15000	5.10%	60676	75676	51574
3	-	27	15000	5.10%	62604	77604	56343
4	-	27	15000	5.10%	64595	79595	61365
5	-	27	15000	5.10%	66650	81650	66650
6	-	27	15000	5.10%	68773	83773	68773
7	-	27	15000	5.10%	70965	85965	70965
8	-	27	15000	5.10%	73230	88230	73230
9	-	27	15000	5.10%	75568	90568	75568
10	-	27	15000	5.10%	77984	92984	77984
11	-	27	15000	5.10%	80479	95479	80479
12	-	27	15000	5.10%	83056	98056	83056
13	-	27	15000	5.10%	85718	100718	85718
14	-	27	15000	5.10%	88468	103468	88468
15	-	27	15000	5.10%	91309	106309	91309
16	-	27	15000	5.10%	94243	109243	94243
17	-	27	15000	5.10%	97275	112275	97275
18	-	27	15000	5.10%	100407	115407	100407
19	-	27	15000	5.10%	103644	118644	103644
20	-	27	15000	5.10%	106987	121987	106987

Source: author's work with the EQUITY investment program - NN Romania

In the case of traditional insurance, the risk of investments is assumed by the insurer and therefore they are invested almost exclusively in fixed income and low risk instruments, usually corporate bonds or bank deposits. As such, the investment risk is lower, the evolution of investments is more predictable, but also the expected return is lower.

We will analyse a traditional product with the following features: age of insured person 36 years, male gender, frequency of payment - annual insurance premiums, amount insured in case of death **113.486** lei, period of payment of insurance premiums 20 years, amount insured in case of survival **74.393** lei, contracting period 20 years.

Table 3. The evolution of the traditional insurance contract

Year	The amount of premiums for the component of survival	The amount premiums for the death component	Assured amount in case of survival	Assured amount in case of death	Predicted Yield	Profit sharing account	Repurchase	Reduced insured amount
1	1800	140	44910	44910	4.8%	1	0	0
2	3690	303	47402	47156	4.8%	5	0	0
3	5675	493	49826	49513	5.00%	19	0	0
4	7758	712	52176	51989	5.20%	50	5596	10317
5	9946	964	54448	54589	5.40%	110	7643	13544
6	12244	1257	56640	57318	5.50%	195	9901	16857
7	14656	1595	58739	60184	5.30%	286	12365	20253
8	17189	1982	60741	63193	5.10%	380	15047	23728
9	19848	2426	62639	66353	5.00%	469	17958	27282
10	22641	2933	64429	69670	4.90%	562	21124	30912
11	25573	3511	66099	73154	4.90%	662	24571	34614
12	28651	4163	67642	76812	4.80%	766	28312	38386
13	31884	4898	69050	80652	4.60%	839	32343	42225
14	35278	5722	70316	84685	4.60%	905	36710	46127
15	38842	6644	71430	88919	4.60%	962	41439	50089
16	42585	7678	72383	93365	4.50%	1008	46559	54108
17	46514	8831	73166	98033	4.50%	1048	52110	58179
18	50640	10118	73769	102935	4.40%	1090	58136	62300
19	54972	11557	74181	108082	4.40%	1133	64680	66466
20	59520	13174	74393	113486	4.40%	1178	71792	70673

Source: author's work with the BOND investment program - NN Romania

4. CONCLUSIONS

The most important factor influencing market demand of life insurance from the Jiu Valley mining area, is the income of the population, followed by other factors: lack of information about these products, the high cost of the monthly premium, the indifference, the level of education, the age. We all need protection, the values that we have accumulated in our life with much toil, which can disappear in an instant because

of an unexpected event, the financial loss cannot be compensated only through a life insurance, and the danger of working underground is a good and sufficient reason for purchasing such a product.

Single premium products are the most advantageous in terms of the insured's earnings, but the big disadvantage is that the person who wants such a policy must have all the money he will pay as a premium at the beginning of the contract. Both the account value and the death benefit and the redemption value are higher in value compared to the unit-linked product with the annual payment of the insurance premium.

The traditional product seems to be the most optimal for the insured, located somewhere in the middle between unit-linked products with a single premium and those with an annual premium, as a financial result obtained by the insured. For this type of product, the insured does not assume the risk for the investments made, secondly he pays an annual premium, thirdly the value of the insured amount at the end of the contract is a substantial one.

REFERENCES:

- [1]. Briys, E.; De Varenne, F. (2001) *Insurance from underwriting to derivatives*, John Willey @Sons Ltd
- [2]. Cristea M. (2010) *Corelația dintre piața asigurărilor și gradul de intermediere financiară în România*, Revista română de asigurări, nr.4
- [3]. Cizek, P.; Hardle, W.; Weron, R. (2005) *Statistical tools for finances and insurance*, Springer-Verlag, Berlin, Germany
- [4]. Negru, T. (2010) *Economia asigurărilor. Metode, tehnici, soluții*, Editura Wolters Kluwer România
- [5]. Preda, A.; Monea, M.; Bogdanffy, L. (2016) *Simulation insured results by purchasing a life insurance*, Annals of the University of Petroșani, Economics, vol.16(2)
- [6]. Preda, A.; Monea, M.; Cioara, I. (2015) *Study Regarding Life Insurance Need of Workers in the Jiu Valley Mining Area*, Reports of the XXIII International Scientific Symposium "Miner's Week - 2015" Mining gas and oil geology, geophysics and surveying, Moscova, Rusia Seminar №9.
- [7]. Păsculescu, D.; Pana, L.; Păsculescu, V.M.; Deliu, F. (2019) *Economic criteria for optimizing the number and load factor of mining transformers*, Mining of Mineral Deposits, Dnipro University of Technology, vol. 13(2)