

# IMPACT OF ECONOMIC AND NON-ECONOMIC FACTORS ON THE SUSTAINABILITY OF THE PENSION SYSTEM IN CROATIA

---

**Matić, Branko; Vretenar Cobović, Maja**

*Source / Izvornik:* **Ekonomski vjesnik : Review of Contemporary Entrepreneurship, Business, and Economic Issues, 2017, 30, 51 - 65**

**Journal article, Published version**

**Rad u časopisu, Objavljena verzija rada (izdavačev PDF)**

*Permanent link / Trajna poveznica:* <https://um.nsk.hr/um:nbn:hr:145:315880>

*Rights / Prava:* [Attribution-NonCommercial-NoDerivatives 4.0 International/Imenovanje-Nekomercijalno-Bez prerada 4.0 međunarodna](#)

*Download date / Datum preuzimanja:* **2024-11-26**



*Repository / Repozitorij:*

[EFOS REPOSITORY - Repository of the Faculty of Economics in Osijek](#)



**Branko Matić**  
Josip Juraj Strossmayer  
University of Osijek  
Faculty of Economics in Osijek  
Trg Ljudevita Gaja 7,  
31000 Osijek, Croatia  
matic@efos.hr  
Phone: +38531224496

**Maja Vretenar Cobović**  
College of SlavonSKI Brod  
Dr. Mile Budaka 1,  
35000 SlavonSKI Brod, Croatia  
mvretenar@vusb.hr  
Phone: +38535492633

**UDK: 368.914(497.5)**  
**Original scientific article**

Received: November 2, 2016  
Accepted for publishing: November 25, 2016

This work is licensed under a  
Creative Commons Attribution-  
NonCommercial-NoDerivatives 4.0  
International License



# IMPACT OF ECONOMIC AND NON-ECONOMIC FACTORS ON THE SUSTAINABILITY OF THE PENSION SYSTEM IN CROATIA

## ABSTRACT

The pension system is very important in the context of the social security of every individual or the society in which it is located. Maintaining the stability of this system is one of the fundamental problems, both for Croatia and for other EU member states. The aim of this paper is to analyse the efficiency and sustainability of the existing pension system in the Republic of Croatia and the identification of key parameters which determine its further development. The authors' comparative analysis of the Croatian pension system with the pension systems of individual EU Member States investigates the compliance of the Croatian pension insurance with the European social model, and the impact of economic factors on the sustainability of this system. Through the survey, authors explored the impact of non-economic factors on the pension system, and received relevant information about the attitudes of stakeholders (users) of the current pension system, their awareness and confidence in the system, the willingness to participate in certain forms of pension insurance (in particular those that are voluntary) and expectations of the insured on the return on investment, and the threshold of satisfaction on investments in pension funds.

**Keywords:** Pension system, sustainability, the European social model, economic factors, non-economic factors

## 1. Introduction

Pension systems are part of the system in the context of the social policy of the company. These systems are "a collection of legal norms, financial and institutional arrangements governing the insurance risk of old age and disability" (Puljiz, 2005). Their financing is one of the main factors that determine the standard of living for every pensioner and their financial and social security. Therefore, the level of rights that can be achieved in the pension insurance

system is directly dependent on the capabilities of its funding, i.e. on its sources of funding.

Since the pension system provides for the most significant social risks that can happen to everyone (e.g. the risk of age, disability, etc.) the importance of its stability is of great importance for the population of a country, and this system is necessary for the balanced functioning of the whole society and maintenance of its social cohesion, thus connecting individuals and groups within society as a whole.

## 2. The development and distribution of pension systems

“The pension is a public institute, thanks to which citizens can generate revenues at an age when they are no longer able to earn money for a living. Through the pension insurance system, one part of an individual’s spending, which is realized during the active years, is postponed for the future when they will be old and powerless” (Puljiz, 2005). Specifically, by even distribution of individual income and consumption, the individual is saving for the future.

The pension insurance system consists of several subsystems defined in terms of types of insured persons, method of financing, pension fund management and distribution of pensions. Models of pension insurance are usually defined on the basis of five criteria: 1) insurance of employees vs. universal pensions, 2) public management vs. private management, 3) mandatory participation vs. voluntary participation, 4) a defined benefit vs. defined contribution, 5) current distribution vs. capitalization. Based on the preliminary classification of pension systems, according to the method of funding and the allocation of funds for pensions, today it is the most commonly used classification of these systems. The first method of collection and distribution of pensions is the current distribution on the basis of inter-generational solidarity, and the second are capitalized pension funds.

### 2.1 Pension systems based on intergenerational solidarity

The English abbreviation PAYG (pay as you go), which means “pay to get”, is used for the pension system based on intergenerational solidarity. In this model of pensions, pensioners are financed from contributions paid from the employed population, and the basic principles of the PAYG system are as follows:

- A) long-term does not accumulate resources in funds in order to pay for future pensions, but the contributions are paid by the employed population who fund the pensions of current retirees,
- B) the state is relieved of the obligations to pay the funds to retirees who contributed during their working life in the form of pension contributions; increased pensions are paid

from the proceedings of future generations of employees,

- C) assuming normal economic growth and maintaining the demographic balance, every new generation of pensioners can get a higher pension in relation to contributions paid during their working life (Puljiz, 2008).

Unfortunately, the third characteristic of the pension system based on the model of intergenerational solidarity is often not realized, but exactly the opposite (a fall in output of employees and at the same time a decrease of retirees’ pensions), which often leads to a crisis of this system. However, these systems certainly have some advantages, and some of them are:

- A) easier to adjust to inflationary trends and to the various market fluctuations in relation to funded pension plans,
- B) enable real increases in pensions depending on economic growth,
- C) they can be built quickly in relation to funded pension plans.

The biggest drawback to the PAYG system is that it is usually threatened by a reduced birth rate and by the population aging. In such a generational imbalance, these systems are unsustainable, as they are more appropriate for a society of full employment.

### 2.2 Funded pension systems

Another method of collection and distribution of pensions are funded pension systems (capital-funded pensions), related to the capitalization of pensions. The basic principles of capitalized pension funds are as follows:

- A) the insured persons allocate contributions to their future pensions,
- B) contributions to the fund are invested in the capital market for profit,
- C) the insured persons receive a pension when they stop working and the profit on investments is included in the retirement benefits,
- D) an additional amount on the contributions is achieved, leading to a separate account for each insured person, and on cessation of work it turns into a pension annuity,

- E) policyholders bear the investment risk of pension funds,
- F) funds that exist at the state level are specific legal entities that operate on the principles of profitability and security,
- G) an individual's pension depends on the accumulated amount of contributions, the realized profit and the calculation of life expectancy at the time of retirement (Puljiz, 2008).

In accordance with the above principles one should note the advantages and disadvantages of capitalized pension funds. The biggest advantage of these funds, as opposed to the system of intergenerational solidarity, is to encourage people to be responsible and rational in use of resources and savings for old age during their working years. However, the biggest drawback of this pension system is the exposure of pension funds to capital markets, and consequently the risks of investing that is eventually borne by the insured.

Based on the clarification of these models of pension insurance, it is possible to conclude that in pension schemes based on intergenerational solidarity, the essential component is the redistribution from richer to poorer categories of pensioners, while in pension schemes based on the capitalization of pensions, the most important element is the personal responsibility which is reflected in contributions and their capitalization. "Since no model of pension insurance is fully effective, it is common that today's pension systems are a combination of different models with regard to the method of financing, resource allocation, organization and management" (Vretenar Cobović, Cobović, 2016). Accordingly, instead of one (mono-pillar system), in most countries there are systems with multiple pension pillars (multi-pillar system) that operate according to different ways of collecting, managing and distributing funds.

### **3. The pension system of the Republic of Croatia and its sustainability**

The pension system of the Republic of Croatia has a long tradition. The crisis of this system, which was present at the end of the period of socialism, was deepened even after the independence of Croatia and during the Homeland war. This is why, at the end of the nineties, there was the beginning of the

reform of the Croatian pension insurance system, which was completed in 2002.

#### *3.1 The structure of the pension system in the Republic of Croatia*

Reforms of today's pension system of the Republic of Croatia are based on the mixed financing model, in which instead of one there is a system with more pillars. The first pension pillar is a mandatory pension insurance based on intergenerational solidarity, and it is financed by contributions from the insured, that employers pay at a rate of 20% employees' gross salaries. Pension insurance under the second pillar is obligatory for insured persons who are insured under the Pension Insurance Law, and holders of this insurance are mandatory pension funds. The contribution rate which is paid to the mandatory pension funds is 5% of the gross salary of the insured. Accordingly, insured persons who in 2002 were younger than 40 years of age, and are secured in both pillars, allocate 15% of the contributions to the first pillar and 5% of the contributions to the second pillar. The third pillar in the Republic of Croatia is a voluntary pension insurance based on individual capitalized savings, which are carried out by voluntary pension funds. The contributors to the third pillar of insurance are the beneficiaries who wish to further ensure against the risk of old age, disability and death.

But despite the reforms, today's pension insurance system in the Republic of Croatia has significant problems that hamper its effective functioning. Therefore, in continuation we will analyse the compatibility of the Croatian pension insurance with the European social model and the economic impact, as well as the non-economic factors in the sustainability of this system.

#### *3.2 Compliance of the pension system of the Republic of Croatia with other EU Member States*

The European Union is trying to build a European model of pensions, which should serve as a landmark for the pension reform of other countries, especially those that will soon become its new members. "Pension systems in the Union are the foundation of social protection, which is increasingly used as the broadest term, and includes all the collective transfer systems that are built to protect

people against social risks” (Bijelić, 2005). Although there are significant differences between Member States, all countries provide payment receipts to cover the classic risks: old age and retirement, death, disability, unemployment and so on.

Based on the above, the European social model is based under the Charter of Fundamental Social Rights of Workers of the European Economic Community (EEC) in 1989 and the Charter of Fundamental Rights of the European Union in 2007, which became part of the Treaty of Lisbon. Within these documents, obligations are set out for Member States of the Union, and the European social model which has the following characteristics:

- A) prohibiting all forms of discrimination based on age, sex, race, ethnic or social origin, language, religion or personal beliefs, political views and belonging to a national minority,
- B) the right of the elderly to a dignified and independent life and participation in social and cultural life,
- C) the right of persons with disabilities to use measures that ensure independence, social and professional inclusion and participation in community life,
- D) the right to assistance from the social services providing protection in case of sickness, maternity, accidents at work and unemployment, according to the terms of European Union law and national legislation,
- E) the pension system, established as a compulsory and public pension insurance, supplementary pension insurance and profes-

sional and individual voluntary pension insurance.<sup>1</sup>

Within these characteristics, it is possible to realize the importance of the pension system in the context of the European social model. According to Rismondo (2010), the European social model has four forms: Nordic, Anglo-Saxon, corporate western and southern European, and common characteristics of these types are:

- A) on the first level, public and compulsory pension insurance, which is set up and carried out according to law, and in which is ensured the solidarity achieved at the national level and that guarantees its users a certain level of benefits in accordance with internationally accepted standards,
- B) on the second level, additional pension insurance, as a rule related to professional organization,
- C) at the third level, the voluntary and individual insurance, the choice is left to each individual.

Based on this allocation, and within the first pillar of pension insurance in the European Union, state pensions are financed from current revenues based on contributions from salaries of employees and further from the state budget. Unlike the first, the pension systems of the second and third pillars are based on the investment of collected funds, and their capitalization. However, the representation (dominance) of individual pillars of pension insurance is not the same in all countries.

The following table shows the total pension income in the three pillar pension funds in certain European countries (Table 1).

**Table 1** Income from pension contributions paid to the three pillars of insurance in certain European countries (in %)

Country	First pension pillar	Second pension pillar	Third pension pillar	Total
Germany	65%	19%	16%	100%
France	60%	22%	18%	100%
Italy	85%	10%	5%	100%
Netherlands	30%	53%	17%	100%
United Kingdom	30%	45%	25%	100%
Croatia	80%	15%	5%	100%

Source: CEA – Insurers of Europe, statistics report, 2015, edited by the authors

Based on the data in the table, it can be seen that the first pillar pension income occupies the largest share in the overall pension income for most of the observed countries. This is followed by revenues from paid pension contributions in the second and third pillar. The largest revenue in the context of the second pillar of pension insurance is in the Netherlands and the United Kingdom, while the dominance of the first pillar is most common in Italy, followed by Croatia, Germany and France. This distribution of income depends on the structure of the pension insurance system of a country, its executed reforms, demographic trends, economic indicators and historical tradition of individual areas of Europe.

Pension systems in the second pillar of the European Union are represented by the institutions whose fundamental objective is to solve problems that arise in the system of state pensions (first pillar) caused by demographic and economic fluctuations, especially in times of financial crisis which has affected all parts of Europe in recent years. Such systems can be set up as voluntary or mandatory depending on the organizational form and the degree of coverage of employed in each Member State of the Union. On the basis of the main features of the second pillar of the Union, the characteristics of this pillar in the individual EU countries are shown in Table 2.

**Table 2** *The characteristics of the second pillar of pension insurance in the individual countries of the European Union*

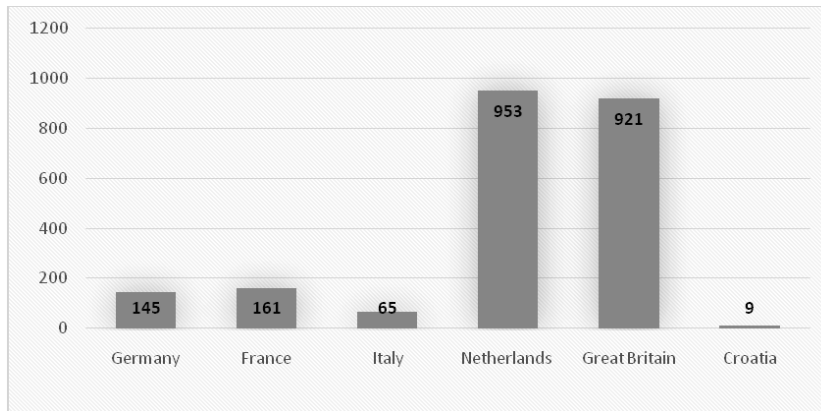
Country	The share of second pillar pension in total payments (%)	Characteristics
Germany	18%	Voluntary pension funds, with investment capital, group insurance
France	22%	Tariff contracts regulated by mandatory insurance, and additional voluntary pension insurance for managers with investment capital
Italy	5%	Voluntary pension funds, mostly for managers with investment capital
Netherlands	51%	Voluntary pension funds, with investment capital
United Kingdom	42%	Voluntary pension funds, with investment capital
Croatia	10%	Mandatory pension funds based on individual capitalized savings

Source: EFRP – European Federation for Retirement Provision, annual report, 2015, edited by the authors

In the EU member states there are different characteristics of the second pillar pension scheme based on additional (i.e. vocational) insurance. However, in most countries, according to the Union Directives<sup>2</sup> financing takes place within pension funds and is mostly of the voluntary type. The differences are mainly in the share of second pillar pensions in total payments to pensioners. That number is the largest in the Netherlands and the UK, which is to be expected, since the pensions in these countries are paid mainly from

the pension system, which belongs to the second pillar. In addition, it is possible to spot the differences in the characteristics of the second pillar in the Republic of Croatia in relation to other countries observed. In Croatia, the second pillar has the exclusive feature of this obligation and is not based on vocational insurance. EU member states that have the largest share of second pillar pension in total payments to pensioners, also take up the largest percentage of pension fund assets in the Union (Figure 1).

**Figure 1 Pension fund assets in the European Union in 2015 (in billions of €)**



Source: EFRP – European Federation for Retirement Provision, annual report, 2015, edited by the authors

Total assets of pension funds in the second pillar of the European Union in 2015 amounted to 2.254 billion euros. Of the total amount of assets, the two countries with the largest pension funds are the Netherlands and the United Kingdom.

In 2015, the Netherlands possessed 42% and the UK 41% of the total assets of pension funds in the Union. Other countries take up a much smaller percentage of the assets of these funds (from 0.40% in Croatia to the largest 7.14% in France).

According to the assets of pension funds at their disposal, the EU member states have different forms of investments and assets in the capital market, but the level of these investments is certainly in line with the regulations and restrictions that have each member country. Anglo-Saxon countries invest more in stocks and other riskier forms, while the countries of continental Europe are much more cautious and often invest their assets in government bonds (Table 3).

**Table 3 The investment portfolios of pension funds of the second pillar in certain countries of the European Union**

Country	Investment principles
Germany	- Up to 30% of the investment in shares of the European Union - Up to 6% invest in shares outside the European Union - Up to 75% in government bonds of the European Union - Up to 10% of own investments
France	- Up to 12% of the investment in shares of the European Union - Up to 68% in government bonds of the European Union
Italy	- mostly invest in government bonds
Netherlands	- Up to 55% of the investment in shares of the European Union - Up to 25% invest in shares outside the European Union - Up to 13% in government bonds of the European Union - Up to 5% of own investments
United Kingdom	- Up to 80% of the investment in shares of the European Union - Up to 30% invest in shares outside the European Union - Up to 11% in government bonds of the European Union - Up to 5% of own investments
Croatia	- Up to 30% of the investment in shares of the Republic of Croatia or other EU countries - Up to 65% investment in government bonds of the Republic of Croatia or other EU countries

Source: EFRP – European Federation for Retirement Provision, annual report, 2015, edited by the authors

There are significant differences in the investment portfolios of pension funds in the second pillar of the investigated countries of the Union. Assets of Great Britain and the Netherlands are invested mainly in shares of the Union, followed by the expected higher income from such investments, while France, Germany and Croatia are more prone to investing in government bonds. The differences are defined in relation to investments in their own country and abroad. In this form of investment, Great Britain is represented with 30% of investments abroad, followed by the Netherlands with 25%, while in most other countries this share does not exceed 10%.

According to the analysis, it is possible to conclude that the legislation of the Croatian pension system is formally in line with the obligations arising from the Directive of the European Union in the field of pension insurance, but the Croatian pension system is not in line with the European social model in the context of the second pillar of the pension system of insurance. Based on the three pillars of security, the pension system of the Republic of Croatia has mandatory pension insurance in the second pillar which is financed by applying capitalization of contributions to the personal accounts of the insured. In contrast, there is frequently vocational insurance in Europe (company, group of companies, sector of the economy, branches and the like) and in most countries of the EU it is of voluntary type.

In addition, the weak development of capital savings in Croatia significantly affects the economic, but even more the non-economic factors, whose influence is of great importance for the sustainability of the pension system.

### 3.3 The impact of non-economic factors in the sustainability of the pension system in the Republic of Croatia - research results

In order to collect relevant information about the attitudes of stakeholders (users) of the current pension system, a primary research was conducted via survey method and the instrument that was used was a questionnaire. The survey was conducted in June and July 2016, on a sample of 414 respondents. A sample of the target group included the persons employed in small, medium and large companies on Croatian territory. The survey was conducted by sending a questionnaire electronically.

The questionnaire was structured in four parts. The first part of the questionnaire was related to the study of basic data about the sample (gender, age, completed degree, the size of companies in which the respondent works and forms of ownership of enterprises); the second and third part of the questionnaire was related to how informed the insured was about the functioning of the pension system and confidence in the system and willingness to participate in certain forms of pension insurance. The fourth part of the questionnaire was related to the issues related to the personal attitudes towards the pension system in the Republic of Croatia. The goal of the survey was to investigate the influence of non-economic factors in the pension insurance system in the Republic of Croatia obtained from the attitudes of the insured and to connect them to the previously conducted analysis.

The age and gender structure of the respondents is shown in Table 4.

**Table 4** The age and gender structure of respondents

Age requirements		17-24	25-35	36-55	56-65	Total
Male	Number	6	75	115	38	234
	% gender	2.56%	32.05%	49.15%	16.24%	100%
	% age	66.67%	53.57%	51.11%	95.00%	56.52%
Female	Number	3	65	110	2	180
	% gender	1.67%	36.11%	61.11%	1.11%	100%
	% age	33.33%	46.43%	48.89%	5.00%	43.48%
Total	Number	9	140	225	40	414
	% gender	2.17%	33.82%	54.35%	9.66%	100%
	% age	100%	100%	100%	100%	100%

Source: Made by the authors based on the results of the survey



Analysing the data in the table it can be seen that the largest group of respondents are persons aged 36 to 55 years of age, accounting for 54.35% of the total surveyed. The next largest group consists of respondents aged 25-35 years, accounting for 33.82% of the total study population, followed by those aged 56-65 years (share of 9.66% of the total surveyed). In the total sample, the least numerous are those aged 17 to 24 years of age. This population makes 2.17%

of the total participants. In the total sample, 234 men and 180 women were surveyed. In all four age groups, more males than females were interviewed. The highest percentage of respondents differs in relation to age. In relation to gender, the respondents differ 19 times in favour of men in the age group 56-65 years of age. The sample structure according to educational qualifications is shown in Table 5.

**Table 5 Completed professional qualification of respondents**

Professional qualifications <sup>3</sup>	Number of respondents	Share (%)	Rank
Primary school	0	-	5
Secondary school	129	34.13	2
College degree	54	14.29	3
University degree	189	50.00	1
Other	6	1.58	4
<b>Total</b>	<b>378</b>	<b>100.00</b>	-

Source: Made by the authors based on the results of the survey

When asked about their work experience, 36 surveyed subjects of the sample did not want to answer the question. Of the total surveyed, the most common response related to qualifications is the completion of the higher education qualification. This population covers 50% of the sample. In the total sample, most respondents come from the Brod-Posavina County (33.85%), the Varaždin County

(10.52%), the Sisak County (8.01%), the Split-Dalmatia County (4.39%) and the City of Zagreb (4.29%). The total sample of the population in other surrounding parts is in the range of 1% to 3%, depending on the county.

The size and ownership structure of companies in which respondents work is presented in Table 6.

**Table 6 The size and company ownership structure**

Description	Size of enterprises			Structure of enterprises			
	Small	Medium	Big	State ownership	Majority state ownership	Private ownership	Majority private ownership
Number	212	151	51	68	50	290	6
%	51.21	36.47	12.32	16.43	12.08	70.04	1.45
Rank	1	2	3	2	3	1	4

Source: Made by the authors based on the results of the survey

In the total sample, most of the surveyed employees are in small businesses, while the most common ownership structure in which the respondents worked is privately owned. In addition, the most frequently mentioned activity of companies is manufacturing (26.37%), followed by construction (13.19%), agriculture and forestry (5.49%),

education (3.30%), financial and insurance activities (2.20%) and other (energy, municipal services, transport, trade, catering, etc.).

The second group of questions explored the respondents' awareness about the functioning of the pension system in the Republic of Croatia (Table 7).

**Table 7 Familiarity with the structure of the pension insurance and the level of respondents' satisfaction with the existing structure**

Description	Familiarity with the structure of the pension insurance			Level of satisfaction		
	Completely known	Mostly known	Unknown	Completely adequate structure	Mostly adequate structure	Inadequate structure
Number	210	186	18	18	240	156
%	50.72	44.93	4.35	4.35	57.97	37.68
Rank	1	2	3	3	1	2
Median	2.00	2.00	3.00	1.00	1.00	2.00
Variance	5.486	2.358	3.596	4.256	5.698	2.263
Standard deviation	2.342	1.778	2.659	1.666	2.631	1.236

Source: Made by the authors based on the results of the survey

In the total sample, 44.93% of the employed population is only partially familiar with the current structure of the pension system, which indicates the necessity of additional educational and informative programs for certain categories of the population (present and future stakeholders of the pension system). This would help policyholders in facilitating decisions in participation in the system, espe-

cially in the context of its voluntary part. In addition, 57.97% of respondents identified themselves as partly satisfied regarding the functioning of the current structures, while 37.68% is extremely dissatisfied with the current functioning of the pension system. The most common reasons for dissatisfaction are shown in Table 8.

**Table 8 The reasons for respondents' dissatisfaction**

Description	The current system is inefficient	Long-term sustainability of the current structure is not possible	Mandatory pension funds are not exercising large enough yields	The stimulating arrangements of the state in the third pillar are too small	Other
Number	121	109	21	41	9
%	40.20	36.21	6.98	13.62	2.99
Rank	1	2	4	3	5
Median	1.00	1.00	1.00	2.00	2.00
Variance	.297	.382	1.638	1.731	1.889
Standard deviation	.088	.618	1.280	1.316	1.265

Source: Made by the authors based on the results of the survey

Reasons for dissatisfaction with the current pension system were expressed by 301 respondents. The most common reason for dissatisfaction of those surveyed was the inefficiency of the current system and its long-term viability. In addition, 23.51% of respondents believe that government incentives in the third pillar are too small, and that pension funds

do not generate sufficiently large returns. Based on these observations it can be concluded that it is necessary to change certain variables within the system and that additional measures and activities should improve the economic and social effects of the pension insurance. The trust of the insured in the current pension system is shown in Table 9.

**Table 9** The confidence of respondents in the current pension system

Description	Complete confidence	Partial confidence	No confidence
Number	87	192	135
%	21.01	46.38	32.61
Rank	3	1	2
Median	1.00	1.00	1.00
Variance	.569	.458	.563
Standard deviation	.325	.333	.310

Source: Made by the authors based on the results of the survey

The largest percentage of respondents has partial confidence in the current pension system, while only 21.01% of respondents have full trust. Based on the results, the inefficiency of the current system and the importance of changes in some of its variables can again be observed.

The third group of questions explored the participation of the insured in certain forms of pension

insurance and their threshold of satisfaction on investments in pension funds. In the total sample, 78% of the insured participate in both mandatory insurance pillars, while 22% of respondents are provided for under the first pillar. The respondents' satisfaction based on realized returns of their mandatory pension funds is shown in Table 10.

**Table 10** Satisfaction of the insured with yield from mandatory pension funds

Description	Complete satisfaction	Partial satisfaction	Dissatisfied
Number	18	214	91
%	5.57	66.25	28.18
Rank	3	1	2
Median	1.00	2.00	1.00
Variance	.452	.301	.652
Standard deviation	.256	.110	.457

Source: Made by the authors based on the results of the survey

From the total number of insured in the second pillar of insurance, 66.25% are partially satisfied with the overall yield of their funds, while only 5.57% are

fully satisfied. The preferred structure of the investment of pension fund assets by the insured is shown in Table 11.

**Table 11** The preferred structure of the pension fund investment assets by the insured

Description	Increase investment in domestic government bonds, stocks and investment funds	Decrease investment in domestic government bonds, stocks and investment funds	Increase investment in foreign government bonds, stocks and investment funds	Decrease investment in foreign government bonds, stocks and investment funds	Other (a combination of the previous forms)
Number	90	15	78	9	23
%	41.85	6.98	36.28	4.19	10.70
Rank	1	4	2	5	3
Median	1.00	2.00	1.00	2.00	1.00
Variance	.348	.488	1.856	1.679	1.880
Standard deviation	.188	.222	1.110	1.311	1.256

Source: Made by the authors based on the results of the survey

When asked about the preferred structure of pension fund investments, 215 respondents responded. Based on the data in the table it can be seen that there is not too much deviation from the current investment assets from mandatory pension funds and the level of investment that respondents would want. Mostly these are investments in government bonds and shares, which is a portfolio that Croatian pension funds generally have. On the other hand, the main result of this research is the insufficiently developed capital market in the Republic of Croatia and certain restrictions on the investment of assets from mandatory pension funds that will surely change over time.

The question about the participation in the third pillar was answered by all respondents in the sample. From the total sample, as many as 75.36% of respondents said that they do not participate in the framework of the voluntary pension insurance. Other insured members participate in compulsory pension funds (18.68%) and closed-end voluntary pension funds (5.96%). Regarding the basic reason for membership in the fund, 90% of respondents stated that their pension from the first and second pillar will not be sufficient and that they want to further provide for their old age. The reasons of other respondents who do not participate in the framework of the third pillar are presented in Table 12.

**Table 12** *The reasons for non-participation in the framework of the voluntary pension insurance*

Description	This form of insurance for me is completely unnecessary	Investments of voluntary pension funds are inefficient	The yield of voluntary pension funds is low	I don't have financial resources for this type of savings	I'm saving within the framework of life insurance
Number	15	112	25	151	9
%	4.81	35.90	8.01	48.40	2.88
Rank	4	2	3	1	5
Median	1.00	2.00	2.00	2.00	1.00
Variance	1.358	1.451	1.339	1.796	1.845
Standard deviation	1.187	1.277	1.101	1.131	1.412

Source: Made by the authors based on the results of the survey

The most common reason for respondents not participating in the context of the third pillar is a shortage of money and the idea that such investments are ineffective. Accordingly, it is again possible to observe that the future development of the pension system significantly depends on economic factors (particularly employment and wage growth and the GDP), because even further awareness and education of the insured on the importance of participation in the context of the third pillar will not be enough if the population will not have enough money to save. Of the total surveyed, only 2.88% pay premiums for life insurance, which is a too small percentage if one wants to ensure the long-term effectiveness of the pension system, as well as other forms of voluntary insurance. Preferences according to the importance of certain variables on which care is in-

ured in the second pillar insurance are presented in Table 13.

The fourth group of questions obtained answers to questions related to the personal attitudes of the respondents towards the Croatian pension system. When asked about the degree of concern of the insured for their future pension amount and its sufficiency for life after retirement, 57.75% of respondents said they partially take care of their future retirement, while 23.94% take full care. Of the 311 respondents who answered this question, 18.31% of them do not take care of their future retirement. Based on the responses it is possible to conclude that the highest percentage of insured are only partially concerned about their future retirement and its sufficiency for life. The respondents' preference for certain variables in the second pillar of insurance are shown in Table 13.

**Table 13 The priorities of the insured in analysing their business fund**

Priorities of the insured	Least important		Relatively important		Important		Very important		Most important	
	%	Rank	%	Rank	%		%	Rank	%	Rank
The amount of the fund's assets	5.71	5	10.00	4	15.71	3	31.43	2	37.15	1
Yield of fund	1.43	5	5.71	4	10.00	3	31.43	2	51.43	1
Number of participants in fund	10.48	4	9.52	5	34.29	1	30.00	2	15.71	3
The amount of paid annual contributions	4.29	4	1.43	5	27.14	3	38.57	1	28.57	2
The percentage deviation of contributions paid per year	2.86	5	14.29	4	27.14	2	30.00	1	25.71	3
The structure of investment fund assets	2.62	5	3.10	4	18.57	3	42.86	1	32.85	2

Source: Made by the authors based on the results of the survey

A total of 309 respondents voiced their views regarding the ranking priorities in analysing the business of their mandatory pension fund. The analysis of the attitudes of the respondents according to the importance of certain variables relevant to the operation of pension funds shows that the insured find as the most important the amount of the fund assets and the fund's performance. Also, considered as very important is the amount of annual contributions payment, as well as the percentage deviation of contributions paid per year and the fund investment structure. As an important element, they cited the number of fund members. However, no variable in the category of relatively important and least important takes the first rank.

Based on the data it can be concluded that there is considerable interest from this part of the insured, which exclusively or at least partially take care of their future retirement, the business of their pension funds based on the assigned priority rankings for each variable.

#### 4. Conclusion

The pension system is an extremely important part of the social security of every individual or the society in which it is located. Its sustainability is significantly affected by the economic, but even more the non-economic factors. Results of research on the

impact of these factors on the sustainability of the pension system in the Republic of Croatia indicate the following:

- Pension income from the first pillar occupies the largest share of total pension income in the Republic of Croatia,
- The main characteristics of the second pillar in Croatia significantly differ from other observed countries of the European Union (in Croatia the second pillar has the exclusive feature of this obligation and is not based on vocational insurance)
- The investment portfolio from pension funds in the second pillar in the Republic of Croatia is as follows: 30% in stocks and 65% in government bonds, which is significantly different from the example of investments of the Netherlands or Great Britain,
- In the context of primary research, it was observed that in the Republic of Croatia, the respondents have partial familiarity with the structure of the pension insurance, which indicates the necessity of additional educational and informative programs for certain categories of the population (present and future stakeholders of the pension system),
- In addition, respondents identified themselves as partly satisfied in relation to the func-

tioning of the current structure of the pension insurance system, and expressed their greatest dissatisfaction with the inefficiency of the current system and its long-term unsustainability,

- Due to the partial trust of the respondents in the entire current system of pension insurance, it is necessary to change certain variables within the system and additional measures and actions need to be undertaken to improve the economic and social effects of this insurance,

- Since most of the respondents do not participate in the framework of the voluntary pension insurance (they claim that the investments from voluntary pension funds are inefficient and they do not have money for that type of savings), the necessity of complete harmonization of the Croatian pension system with the European social model will be of great importance in the coming period. The overall economic development (particularly employment and GDP growth and wages) of the country significantly affects the efficiency of the pension system as a whole.

## REFERENCES

1. Bijelić, M. (2005). *Osiguranje i reosiguranje*. Zagreb: Tectus.
2. Matić, B., Serdarušić, H., Vretenar Cobović, M. (2014), "Economic Circumstances and Personal Finance Management", in Bacher, U. et al. (Eds.), *Interdisciplinary Management Research X*, Josip Juraj Strossmayer University in Osijek, Faculty of Economics of Osijek; Hochschule Pforzheim University, Opatija, pp. 557-564.
3. Matić, B., Serdarušić, H., Vretenar, M. (2010), "Financijski marginalno stanovništvo kao faktor ograničenja regionalnog razvoja", in Katalinić, B. (Ed.), *Proceedings of 2nd International Conference "Vallis Aurea" Focus on: Regional Development*, Polytechnic of Požega; DAAAM International Vienna, pp. 829-833.
4. Puljiz, V. (2005). *Socijalna politika*. Zagreb: Faculty of Law of the University of Zagreb.
5. Puljiz, V. (2008). *Socijalna politika Hrvatske*. Zagreb: Faculty of Law of the University of Zagreb.
6. Rismondo, M. (2010), "Hrvatski sustav mirovinskog osiguranja i europski socijalni model", *Revija za socijalnu politiku*, Vol. 17, No. 1, pp. 89-112.
7. Vretenar Cobović, M., Cobović, M. (2016), "Sustainability of Pension Insurance System in Republic of Croatia", in Mašek Tonković, A. (Ed.), *5th International Scientific Symposium "Economy of eastern Croatia – vision and growth"*, Josip Juraj Strossmayer University of Osijek, Faculty of Economics in Osijek, Osijek, pp. 840-848.

## (ENDNOTES)

- 1 Charter EEC 1989 Charter of Fundamental Social Rights of Workers, *Journal officiel C 325*; Charter of Fundamental Rights of the European Union in 2007, *Journal officiel C 303/1*
- 2 Directive 98/49/EC on the protection of the supplementary pension rights of employees and self-employed persons moving within the Community, *Journal officiel L 209*; Directive 86/378/EEC on the implementation of the principle of equal treatment for men and women in the professional systems of social insurance, the *Journal officiel L 225*; Directive 2003/41/EC on the activities and supervision of institutions for occupational retirement, *Journal officiel L 235*
- 3 Levels of education in the Republic of Croatia according to the National Standard Classification of Education (ISCED) (Official Gazette no. 105/01) are: no schooling and incomplete primary school, primary school, secondary school up to 3 years and schools for skilled and highly skilled workers, vocational secondary school of 4 or more years and grammar schools, the first level of faculty, professional studies and college, university, academy, master's and doctorate. For the purposes of the survey in the questionnaire, a simplified classification of education was used for the reference ease of respondents.

*Branko Matić*  
*Maja Vretenar Cobović*

## UTJECAJ GOSPODARSKIH TE NEEKONOMSKIH FAKTORA NA ODRŽIVOST MIROVINSKOG SUSTAVA U REPUBLICI HRVATSKOJ

### SAŽETAK

Sustav mirovinskog osiguranja vrlo je važan u okviru socijalne sigurnosti svakog pojedinca, odnosno društva u kojem se nalazi. Održavanje stabilnosti ovoga sustava danas je jedan od temeljnih problema, kako za Republiku Hrvatsku, tako i za ostale zemlje članice Europske unije.

Cilj je ovoga rada analizirati učinkovitost i održivosti postojećega sustava mirovinskoga osiguranja u Republici Hrvatskoj te utvrđivanje ključnih parametara koji određuju njegov daljnji razvoj. Autori u radu komparativnom analizom mirovinskoga sustava Republike Hrvatske s mirovinskim sustavima pojedinih zemalja članica Europske unije istražuju usklađenost hrvatskoga mirovinskoga osiguranja s europskim socijalnim modelom te utjecaj gospodarskih čimbenika na održivost ovoga sustava. Kroz provedenu anketu istražuju i utjecaj neekonomskih čimbenika na sustav mirovinskoga osiguranja, odnosno dobivaju relevantne informacije o stavovima dionika (korisnika) sadašnjega sustava mirovinskoga osiguranja, njihovoj informiranosti te povjerenju u sustav, spremnosti da sudjeluju u pojedinim oblicima mirovinskoga osiguranja (posebice onima dobrovoljnoga tipa) te očekivanjima osiguranika o povratu uloženi sredstava, odnosno pragu zadovoljstva temeljem ulaganja u mirovinske fondove.

**Ključne riječi:** mirovinski sustav, održivost, europski socijalni model, gospodarski čimbenici, neekonomski čimbenici