ACCUMULATION AND DECCUMULATION OF UNIVERSAL PENSION FUNDS. THE CASE OF ROMANIA

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Abstract_The pension system reform in Romania initiated in 2000 is based on three pillars: 1) the public redistributive mandatory pillar; 2) the private mandatory pillar; 3) the private optional pillar. The paper tries to answer a few questions concerning the juridical and technical problems raised by the implementation of the last two pillars. The method used is that 'of scenarios', and the simulations are made separately for men and women, given that the duration of contribution payment and also the life expectancy at retirement are, at least in the present, different for the two categories of beneficiaries.

Keywords: private pension, universal pension funds, accumulation, deccumulation.

1. The Organization and Functioning of Universal Pension Funds

Together with the mandatory component (Law 19/2000 concerning public pension system and other social security benefits), the reform started in 2000 included other components, namely:

a) mandatory private component;

b) optional private component;

These components will be functioning on other principles and regulations, as follows:

a) Mandatory private component:

- is based on mandatory contributions;
- the universal pensions funds will be established based on contributions, which are to be invested and capitalized accordingly to the special regulations adopted for this purpose;
- the contributions and the interest from investing them are kept in individual accounts;
- the pension funds of this component are administered by private institutions.

b) Optional private component pillar III:

- is based on optional pension plans (contributions are not mandatory);
- cumulated funds of this component are to be invested and capitalized;
- the contributions and the return on the investments made from the contributions are kept in individual accounts;
- the pension funds of this component are administered by private institutions.

The reason for introducing the universal pension funds are, besides the increase of the replacement income, by supplementing it with a pension received from the private system, the reduction of the importance of the public pension system, the insured's possibility to choose and assume responsibility for the fund they are insured at and for the age they plan to retire, and also, the development of financial markets.

Regarding the second pillar of the pensions system (the mandatory private component), in October 2004, Law 411 was adopted. This Act stipulates that the pension funds are to be managed privately by a non-commercial entity, the participants of the fund beginning the same time members and shareholders. The functioning model is that of mutual funds. Shareholders of the pension fund (the insured) are individuals aged less than 35 years who contribute presently to the public pension system. They must contribute to one of the pension schemes privately managed. There is another participant category, those aged between 35 and 45 years presently contributing to the public pension system. For them, participation to the private pension schemes regulated in the second pillar is their own option. For each of the members of the private pension funds, an individual pension account will be opened, monthly contributions to the private pension

together with the profit from investing these amounts being accumulated in these accounts. In the first year of contribution to the scheme, this will be 2% of the gross income (the same calculation base used in the public pension system). In 8 years from the beginning of participation, the contribution share will increase with 0.5% each year, beginning with the 1st of January of each year, reaching 6% of the gross income at the end of the 8 years. The contributions to the private pension funds are lower than in other Eastern European countries. The explanation for this fact is the decrease of the social security budget's financial resources because of re-direction part of the contributions to the public system towards private funds, situation that might unbalance social security's budget a seriously affect public pension system's functioning. Pension funds can be invested in several financial instruments such as bank deposits, treasury bills, shares traded on the regulated capital markets of Romania or EU, mutual funds, etc, precise maximum proportions of each of them being stipulated in the fund's prospect. *The conclusion* that can be drawn from this is that the managers of private pension funds can invest the financial resources in financial instruments with minimum and medium risk, fact that offers a higher security for the investors.

Regarding the third pillar of the pension system (the private optional component), the participants are not obligated to participate to this pillar, contribution to such a pension fund being optional. Contribution payment for the private pension schemes can be shared between the employer and the employee, according to the stipulations in the collective working contract or, if this doesn't exist, according to a protocol between the employees' representatives. For the contribution to the private pension there is a fiscal exempt up to the equivalent of 200 euros per year, both for the employer and the employee.

Managers of the optional private pensions can be insurance companies and other companies allowed to manage pension funds but, all of them have to get a license in this respect. Their activity will be monitored by the Private Pensions Surveillance Committee (CSSPP).

According to the legislation, the right to receive an optional private pension will be given at the request of the participant, but with the compliance of the following cumulative conditions: the participant must be at least 60 years old; he had been paid at least 90 monthly contributions (about 8 ½ years); the optional private pension calculated is at least equal to the minimum optional private pension according to the CSSPP regulations, exempts from this rule being applied in case of death of the participant or in case of permanent invalidity. In case of both pillars (second and third), private pension funds can not be declared bankrupt.

2. Possible scenarios of accumulation and deccumulation of universal pension funds

The need to supplement the replacement income obtained from the public system was motivated above. Given the fact that during the accumulation phase the funds are collected in the individual accounts the problem that appears, though, is what level of replacement income can an insured expect and how long will be the deccumulation phase. The questions persist, mainly because the computations based on average values, concerning the accumulation values in the individual accounts and the level of the annual pension that could be obtained, are not relevant. Concerning these aspects, there is a major difference between men and women because, considering that the incomes used as basis for the contribution to the pension system over the entire accumulation period are equal for both gender, the standard accumulation phase and life expectancy at retirement, are different. Thus, according to the law, the standard accumulation phase is 30 years for women and 35 years for men, fact that, evidently, has an influence on the funds collected over the accumulation phase. Starting from the normal retirement age, i.e. 60 for women and 65 years for men, as far as life expectancy at retirement is concerned, the difference is even bigger, of 13 years for women (from 60 to 73) and of about 2 years for men (from 65 to 67). These figures will have a strong impact on the length of the deccumulation phase and, implicitly, on the level of pension that can be obtained. For these reasons, in the present paper, we proceeded to different computations for men and women.

a. Possible scenarios. Second pillar. The mandatory private component.

Working premises

In order to compute the insurance fund obtained in the accumulation phase (Fa) we used the compound interest formula:

$$S_n = S_0(1+i)^n \qquad (1), \text{ where:}$$

- *So* is the annually invested sum in a pension fund. We used a monthly base of 300. For its calculation we began with a monthly base of 300 euros, the equivalent of the present average salary in the first year of privately administered funds. Starting with the second year, we considered an annual 5% increase of the salaries. To compute the contribution to the pension funds the lawful percentages were applied: 2% in the first year, and increasing the contribution for the following 8 years by 0,5 pp/year finally reaching 6%. Using this percentage the contribution for the entire period was computed. The resulted contribution is considered as a gross one being composed of a net contribution of 90% of the gross contribution invested for the contributor, and 10% is the added value meant to cover the administrator's costs.

-*Sn* is the annually invested sum at the pension fund together with the yearly fructification

i- is the level of compound interest during To simplify the computation we considered the i factor as unchanged (4%). This value is realistic given that the low and medium risk financial instruments the fund legally invests in. -n is the number of years for each contribution

The total sum obtained on the basis of annual contributions being fructified is given by the net yearly added contributions together with the fructification:

$$F_{a=}\sum S_{nt} \qquad (2)$$

The result of or simulation is summarized bellow: Tabel 1

Scenario for men	**The age the contributor accedes to a fund**	**Contribution period**	**Fructifying factor**	**Resulted fund**
SC1	22 years	43 years	4%	50.346 EURO
SC2	35 years	30 years	4%	19.106 EURO
SC3	40 years	25 years	4%	12.477 EURO
SC4	45 years	20 years	4%	8.351 EURO

Tabel 2

Scenario for women	**The age the contributor accedes to a fund**	**Contribution period**	**Fructifying factor**	**Resulted fund**
SC1	22 years	38 years	4%	35.297 EURO
SC2	35 years	25 years	4%	12.477 EURO
SC3	40 years	20 years	4%	8.351 EURO
SC4	45 years	15 years	4%	4.371 EURO

It can be observed that for women a smaller value is accumulated at the end of the contribution period, all the other variables being unchanged.

The next issue is the computation of the possible pension computation, according to the accumulated funds at the time of contribution to the system considering the life expectation at the time of retirement E(X) different for men and women, i.e. 2 years for men and 13 for women. Considering that the rent $Pa=X_1$, is paid on an annual basis at the end of the period.. To determine the annual pension rents obtained in the deccumulation phase we used the actual value of serial equal payments[189]:

[189] Şeulean Victoria, *Protecţie şi asigurări sociale*, pag 148-149, Ed. Mirton, Timişoara, 2003.

$$S_{VA} = X_1 \cdot \sum_{t=1}^{n} \frac{1}{(1+i)^t} \quad (3), \text{ where:}$$

X_1- is the value of the obtainable pension considering life expectancy for men and women, resulting:

$$X_1 = \frac{S_{VA}}{\sum_{t=1}^{n} \frac{1}{(1+i)^t}} \quad (4), \text{ where:}$$

t- is the deccumulation period, i.e. the period the pension is received computed as a difference between the life expectancy and the standard retirement age;

i- is the actual factor during deccumulation. We maintained a constant 4% level.

The scenarios for the deccumulation phase are:

Men Tabel 3

Scenario	**Contribution period**	**Resulted insurance fund**	**Fructifying factor**	**Yearly payable pension**
SC1	43 years	50.346 EURO	4%	26.923 EURO
SC2	30 years	19.106 EURO	4%	10.217 EURO
SC3	25 years	12.477 EURO	4%	6.672 EURO
SC4	20 years	8.351 EURO	4%	4.465 EURO

Women Tabel 4

Scenario	**Contribution period**	**Resulted insurance fund**	**Fructifying factor**	**Yearly payable pension**
SC1	38 years	35.297 EURO	4%	3.533 EURO
SC2	25 years	12.477 EURO	4%	1.248 EURO
SC3	20 years	8.351 EURO	4%	835 EURO
SC4	15 years	4.371 EURO	4%	437 EURO

Obviously, the results are based on presumed determinants there evolution being subject to changes, and therefore our extrapolation is slightly different from real life situations. The computations can be detailed increasing time factor by one year or monthly but the conclusions are not significantly different. The contributor can also choose a different rent system than the one considered in our scenarios. Although, considering that data used for computation is realistic and according to the legislation at the moment of the study, we can draw several conclusions**.**

The first conclusion is that the difference between pensions obtained by men and women in the private pension schemes is significant. The reasons, briefly, are connected with the accumulation phase, shorter for women than for men and the difference between life expectancy (73 years for women and 67 years for men), given the fact that the principles of accumulation and deccumulation are the same.

The second conclusion is that if in the public pension system, based on the redistribution of funds between the generations the positive discriminations for women because of the earlier retirement with 5 years will not affect the replacement income, in the case of private pensions, each participant, man or woman, can expect a pensions that depends only on the contribution to the pension scheme and on the contributing

period. In case that, at retirement, the insured opts for a yearly rent, its amount will also depend on the life expectancy of the insured at the retirement.

The third conclusion, which is in fact a corollary of the previous two, is that, considering the actual data regarding the eligibility requirements of the retirees in the public pension system ant the life expectancy at retirement, higher for women than for men, we can expect that in the future there will be an equalization of conditions for the contribution stage and the normal retirement age for the two categories of beneficiaries. Such a decision would be the first premise towards equalization of the replacement incomes obtained in the private pension system. Considering this, it is not surprising the fact that many countries, developed or developing, proceeded to modification and equalization of the normal retirement ages and of the contribution stage for women and men.

b. The third pillar. The optional private component.

Starting with the functioning principles of this component that have been presented above, we chose the following scenario:

The annual contribution to the system : 300 euros, equal for women and men; accumulation stage : 10 years, 15 years, 20 years, 25 years, 30years and 35 years , both for women and men; the actualizing factor is 4% , constant all the stage; the deccumulation stage, respectively life expectancy at retirement is 7 years for men and, respectively 11 years for women, closer to that in the EU countries. For computation of the pension fund obtained in the accumulation stage (Fa) we used the formula of equal payments series in future values:

$$S_{vv} = (1+i)^n \cdot X_2 \cdot \sum_{t=1}^{n} \frac{1}{(1+i)^t} \qquad (5), \text{ where:}$$

Svv – accumulated pension fund; X_2- the value of the contribution to the system in the accumulation stage, considered as one single payment made at the beginning of the period; *t*- the accumulation stage, in years; *i*- the actualizing factor in the accumulation stage.

For determining the value of the annual rents that will be obtained in the deccumulation phase we used the formula of actual values of equal payments series, explicitated above.

In these circumstances, the resulted scenario will have the following configuration:

Accumulated pension fund for men and women Table 5

Scenario	**Accumulation period**	**Actualization factor**	**Accumulated pension fund**
SC1	t= 10 years	4%	Fa_1= 3.603 EURO
SC2	t= 15 years	4%	Fa_2= 6.006 EURO
SC3	t= 20 years	4%	Fa_3= 8.934 EURO
SC4	t= 25 years	4%	Fa_4= 12.495 EURO
SC5	t= 30 years	4%	Fa_5= 16.824 EURO
SC6	t= 35 years	4%	Fa_7= 20.001 EURO

Annual pension –Pa- obtained in the deccumulation phase Tabel 6

Scenario	**Men**		**Women**	
	Pension payment period	**Annual pension - Pa**	**Pension payment period**	**Annual pension - Pa**
SC1	E(x)= 7 yrs	Pa_1= 577 EURO	E(X)= 11 yrs	Pa_1= 369 EURO
SC2	E(x)= 7 yrs	Pa_2= 962 EURO	E(X)= 11 yrs	Pa_2= 616 EURO
SC3	E(x)= 7 yrs	Pa_3= 1.431EURO	E(X)= 11 yrs	Pa_3= 916 EURO

SC4	E(x)= 7 yrs	Pa_4= 2.002 EURO	E(X)= 11 yrs	Pa_4= 1.281 EURO
SC5	E(x)= 7 yrs	Pa_5= 2.696 EURO	E(X)= 11 yrs	Pa_5= 1.725 EURO
SC6	E(x)= 7 yrs	Pa_6= 3.205 EURO	E(X)= 11 yrs	Pa_6= 2.051 EURO

We can observe that, considering equal eligibility conditions in the private pension schemes, for women and men, the difference in the replacement income decreases, the only factor responsible for the difference between the two categories of beneficiaries remaining the life expectancy at retirement of 11 years for women and 7 years for men.

The calculations performed in the study, regarding the value of the accumulated funds and, based on them, the value of the pension rents obtainable, start with a monthly income equivalent to the average income. Serious problems will occur in case of participants with the income equal to the minimum income or, in any case, lower than the average income. In case of lower contributions the accumulations and rents in the private pensions system will be lower. Also, their low income will not allow, most of them, to contribute to the third pillar of the pension system. For this category of participants the support from the government will be probably necessary in the future.

Based on the scenarios sketched in the paper, there have been solved, at least at a regulatory level, a series of problems concerning the functioning of the second and third pillar of the pension system, as viable alternatives to the public pension. Among them, we can mention: 1. express authorization of the universal funds managers, that should be able to provide solid financial situation indicators; 2. the surveillance of investments made by the universal pension funds and limitation of these investments to financial instruments with low and medium risk; 3. separate management of universal funds actives by those managers that also administer other funds.

REFERENCES

1. Law nr. 411/2004 concerning the private pension system.
2. Şeulean Victoria, *Protecţie şi asigurări sociale*, Ed. Mirton, Timişoara, 2003.
3. Statistical outlooks for Romania 2000-2005
4. The European Comission, Mutual Information System on Social Protection in the EU Member States and the EEA,
5. http://europa.eu.int/comm/employment_social/missoc2001.htm.