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A CHOICE OF A PENSION FUND AS AN EXAMPLE OF BOUNDED RATIONALITY

Abstract. The paper describes an experiment concerned a choice of a pension fund in Poland, in 1999. That time the reform of a pension system was made in Poland. Citizens at first chose a pension fund. Many causes influenced a choice of a pension fund. People were unaware of some of them. Experiment presents some not logical causes which may be treated as examples of bounded rationality.

1. Introduction

An economic system changed in 1989 in Poland. In a previous, communist system, there were no many economic institutions, which work in market economies. People started to live in new economic system without an experience in a market economy and knowledge about its laws. In such situations people made decisions without sufficient knowledge about results of their decisions. Moreover, such knowledge was not attainable. In this paper we shall deal with a problem of a choice of a pension fund. Before 2000 year a system “pay as you go” was obligatory in Poland. The reform of a pension system introduced pension funds. A choice of a fund was obligatory for all people before 30 and optional for people between 30 and 50. It was a beginning of an activity of pension funds in Poland. No people nor funds have experience. It was very difficult to define criterions of a choice of a pension fund. A very intensive advertising was conducted. Many irrational choices were observed. In this paper we deal with a situation in which people are sure that their choices are rational. The other reasons causes that that it is a bounded rationality.

People had to choose a pension fund to the end of 1999. In the autumn on 1999 most of them chose the fund. The experiment was conducted in the autumn 1999 on a group students of MBA studies (mostly managers, 30–50 years old) in one of non public Polish high economic schools.

2. Procedural decision making

Rubinstein (1998) in his book presents procedural decision making. We use one of his examples as a basis of our experiment. The example follows Huber, Payne and Puto (1982).

Let us consider a situation in which a travel bureau offers a holiday packages (x, y) , where x denotes number of days in London, y – number of days in Paris, all at the same price. The packages $A = (7, 4)$, $B = (4, 7)$, $C = (6, 3)$, $D = (3, 6)$ are considered. It is observed that the people have a tendency to choose A from packages A, B, C and B from A, B, D . “Rational man” should choose the same element from both triples because A and B are the best packages. So, in both cases he really chooses from the same set of packages $\{A, B\}$. The difference of results is caused by procedure of decision making (“dominating another alternative”) and is an example of bounded rationality.

In the above example procedure of decision making influences the choice. In the next sections we analyze an experiment based on a choice of a pension fund. People made their decision at first and results are very important in their life. It appears that a procedure of decision making influences the choice.

3. A choice of a pension fund – description of experiment

Polish people should choose their first pension fund in 1999. In autumn 1999 they have many information about pension funds. Most of people chose their fund. The experiment of a choice of a pension fund was conducted in autumn 1999 as part of exercises on bounded rationality at MBA studies in one of non public high economic school. Students were after lectures of economics and game theory.

We considered 19 pension funds. The following data were known for students. Stock capital (in millions of zlotys), commission of pension premium in percentages and annual management fee in percentages. The data based on a publication “A prospective pensioner’s guide” published in weekly “Polityka” from September 4, 1999. The names of funds were not known, funds were numbered. The form with basic list of pension funds is presented in the Table 1. There is not the fund no. 3 on the basic list of funds. The reason of this lack was to make the form like the other forms used in the experiment. The fund no. 3 was not popular and it was forecasted that it would not be chosen.

A Choice of a Pension Fund as an Example of Bounded Rationality

Table 1

The basic list of pension funds (forms 2 and 4)

Pension Fund	Stock capital in mln zł	Commission o pension premium in %	Annual management Fee in %
1.	68,988	8,5	0,6
2.	72	6,5 in 1999–2000, 6 – 2001–2002, 5 – 2003–2004, 4 – after 2004	0,6
4.	120	7,9	0,6
5.	130	10 – two first years, 4 – third year	0,6
6.	175	8,9 – two first years, 4 – third year	0,6
7.	65	7,9 – two first years, 6,5 – till 15 th year, 2,5 – since 16 th year	0,6
8.	45	9,5 – first year, 9 – second year, 8,5 – third year, 5,8 – since 4 th year	0,6
9.	40	8 – till third year, 6 – till 10 th , 5,8 – since 10 th	0,6
10.	29	8,7 – two first years, 5,8 – third year	0,6
11.	208,4	8	0,6
12.	29,167	8,9 – two first years, 8,4 – 3 th , 4 th years, 7,9 – since 5 th	0,6
13.	17,1	7,8 – two first years, 8 – third, 5,5 – 4 th , 5 – 5 th , 4,5 – since 6 th +	0,6
14.	120	9,9 – till 20 months, next – 8,9, after 3 years – 8,7, after 4 – 8,4, after 10 – 7,4, after 15 – 5,4, after 20 – 2,5, after 25 – 0	Till end of 1999 – 0
15.	18,77	8,9 – first two years, 7,5 – till third to 15 th , 2,9 since 16 th	0,6
16.	48,571	8,8 – till second year, 8,2 – after	0,6
17.	18	8,5	0,6
18.	20	9 – first two years, 7,5 – since third till 15 th , 3 – after	0,6
19.	100	9 two first years, 5,25 – since third to 10 th , 5 since 11th till 20 th , 3,5 – after	0,6
20.	140,5	9 – first year, 7 – second year	0,6

Students chose a fund four times. Each time they got a special form. First time they got the form, where some funds (no. 2, 5, 6) were removed from the basic list. Second time they chose from the basic list. Third time they got the form where some funds were removed (no. 10, 13) but another than first time. Fourth time again the basic list was presented on the same

Table 2

Results of the experiment and real choices

Pension fund	I choice	II choice	III choice	IV choice	Real Choices
1. AIG	1	1	2	2	2
2. Allianz	0	6	7	6	0
3. –	–	–	–	–	0
4. BIG Bank	7	6	6	5	0
5. Commercial Union	x	1	7	7	7
6. Dom	x	0	2	2	1
7. Epoka	3	2	2	2	0
8. Rodzina	0	0	0	0	0
9. Kredyt Bank PBI	0	0	0	0	0
10. Nationale Nederlanden	0	0	x	0	18
11. Norwich	10	9	7	7	0
12. Orzeł	0	0	0	0	0
13. Pekao Alliance	0	0	x	0	0
14. Bankowy	3	3	6	4	2
15. Pocztylion	0	0	0	0	0
16. Pioneer	0	0	0	0	0
17. Polsat	1	0	0	0	0
18. PZU	0	0	0	0	3
19. Winthertur	7	6	0	4	1
20. Zurich – Solidarni	5	3	1	2	0

form as in second choice. At the end of experiment students wrote which fund they had chose in their real life (anonymously, of course). The results of experiment are presented in the Table 2. Results of the first choice are in the column I, the second – II, the third – III, the fourth – IV. The real choice is presented in the last column. Funds are numbered, but their names are also given.

There are the following reasons of removing just these funds in forms for first and third choice. First time, the funds of high stock capital were removed, second time (in the third form) – of low capital stock. Both times one of the most popular funds was removed (the Commercial Union, no. 5 – first form and the Nationale Nederlanden, no. 10 – third form). We supposed that the essential observations would be concerned these funds.

The number of answers are different in each choice. It yields from the fact that some students were absent in the some parts of experiment. The system of studies in this high school is such that it is almost impossible to bring together all students. Independently of absences all students understood the rules of the experiment.

4. Analysis of the results of the experiment

Let us consider the second and the fourth choice. Both time the same form with the basic list of funds was given. So, if students chose rationally, results would differ slightly. But in case of fund no. 5 (the Commercial Union, one of most popular funds) there is the essential difference. In first form the fund was removed, in second choice one student chose the fund from the basic list of fund, in third form, where other funds were removed, 7 students chose the fund, 7 students also chose the fund from the basic list in fourth form. In real life also 7 student chose the fund. So, there is a difference between second choice (1 person) and four choice (7 persons). Both time the forms was the same. We suppose that this essential difference is caused by a procedure of choice. The fund no. 5 was in the form first time only at second choice. The situation is not repeated in case of the fund no. 10 (the Nationale Nederlanden, one of most popular funds). No one chose this fund in any choice. So, the data were not persuasive for student. Most of them chose this fund in real life. They said that the reason was reputation of the fund. The reputation could not be taken into account in the experiment because the names of funds were not known.

The observed difference between number of choices in case of fund no. 5 we interpret as a result of procedural decision making and case of bounded rationality. After the experiment, but before announcement of results, students discussed their strategies of choices. All were sure that their strategy is convincing one and that they chose in a rational way.

References

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