

RETIREMENT IMPLICATIONS OF LIFE DECISIONS IN POLAND

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1. Introduction

Adequacy of pension benefit is very important for retired people in the aim to maintain their previous standard of living. The issue of inadequate retirement pension has a significant impact on the Polish social support system as well. In Poland, the size of elderly population is 21% of population in 2018 (Gus 2019, p. 210) and it is expected to rise to 27% in 2035 due to increased life expectancy. Additionally, in 2018, 28,4% of pensioners (ZUS 2019, p. 40) received less than 40% of average income, which can be assumed as a poverty risk.

Hence, it is crucial to understand how different kind of decision in the socio-economical and demographical field can influence on the level of pension benefit. Especially interesting can be answer how much time should be spent on education, how long stay in work, when we should to retire or how many children is advisable to have. This kind of knowledge can be useful to stimulate an individual foresight of each future pensioner and helps them to work out a high enough retirement pension yourself.

This paper aims to show consequences of life decisions for the level of retirement benefits. We accomplish it by investigation of individual career paths which leads to adequate pension benefit, men and women, in the Polish Pension System.

We examine, by using sequence analysis, the impact on the level of pension following variables: time of education, seniority and retirement age, and the number of children.

2. Data, Variables and Method

Data come from the Survey of Health, Ageing and Retirement in Europe – SHARE (Börsch-Supan 2019). We used unique data that were collected during the seventh wave of SHARE which is called SHARELIFE. This wave was conducted in 2017 and took place in 28 countries of EU. It provides detailed information about person individual income, pension income, as well as retrospective information about individual work-family trajectories starting from early adulthood until retirement. Data collection of SHARE is based on a probability sample and face-to-face interviews (Bergmann et al. 2019).

First we chose 5499 people who come from Poland. Secondly we restricted our sample to 2650 people who were retired. They were born between 1915 and 1967.

Than we identified pensioners who had given information about their first pension benefit and about the last income or last wage. For those 813 pensioners, the individual replacement rate (RR) was calculated (Borella and Fornero 2009; EU 2018; Chybalski 2016a; OECD 2018).

The replacement rate is a relation of pension benefit to a preretirement income. The RR was used as the measure of pension adequacy, although there are several methods for estimating pension adequacy (Chybalski and Marcinkiewicz 2016; Bajtelsmit et al. 2013). We chose RR because it is the easiest measure to calculate and interpreted by every person and more over "the replacement rate is a complete measure, good enough to use it to make a synthetic assessment of the adequacy of pension systems" (Chybalski 2016b, p. 27). In the last step we focused on the group of 409 people who achieved adequate pension benefit. As an adequate RR we assumed 70%, according to previous researchers (Czepulis-Rutkowska 2000; Palmer 1989, 1994; Duncan et al. 1984; Moore and Mitchell 1998). During the last decade in Poland the pension benefit received from the ZUS was over 60% of last income as well (ZUS 2019). This level of the benefit can be considered sufficient to maintain the previous standard of living.

The group of pensioners with adequate pension benefits was divided by gender finally. Table 1 provides an overview of sample taken into analyses.

Table 1. Sample size by gender and the level of pension benefit

Pension Benefit	Men	Women	Total
Adequate	197	212	409
No Adequate	192	212	404
Total	389	424	N=813

Source: own calculation on SHARELIFE data.

Among 813 pensioners in the Polish Pension System, there were 409 (50.3%) people who had achieved an adequate pension benefit. Adequacy varied very slightly by gender. There were 50.0% of men with an adequate pension benefit and 50.6% of women.

“Literature on pension system describes a vast range of factors potentially affecting the adequacy of pension benefit. Among them are factors directly affecting the level of pension benefits such as expected earnings’ growth (Cocco and Lopes 2011), retirement age, and seniority (Ponomarenko 2016). Other factors may affect the individual level pension benefit indirectly. These include various socio-economic factors, such as gender, education period, or the number of children (Aisenbrey and Fasang 2010; Madero-Cabib and Fasang 2015)” (Jajko-Siwiek 2018).

In this paper we focus separately on three variables connected with adequacy of pensions and with work-family life: time of education, time of work and retirement age and number of children. We assigned each pensioner a states from the dimension shown in Table 2.

Table 2. Dimension of states in adequate pensioner’s trajectories

Variable	Sign	State
Education	0	No Education
	1	In Education
Work	0	No Work
	1	In Work
Number of children	0	No children
	1	1 child
	2	2 children
	3	3 children
	4	4 children
	5+	5 or more children

Source: own calculation on SHARELIFE data.

Regarding education we focus on the period between 15th and 30th birthday for our analyses; regarding employment we take into accounting age between 20 and 65 years, and regarding number of children we concentrate on age between 20 and 45 years old.

As the method of study of retirement decisions we applied sequence analysis, which provides a comprehensive look at the whole course of one’s life. It also allows us for an identification of typical trajectories of the life course (Abbott and Forrest 1986; Sackmann and Wingens 2003; Brzinsky-Fay et al. 2006). An ordered sample of units we called a “sequence”. Next, separate elements of sequences are called “states” and the focus is on the trajectories of transitions between states in the life course of an individual. To create sequences of states we treat individual life as a chain of discrete time units and assigns a number.

Sequence analysis is a method very popular in different social research such as motherhood (Rybińska 2014), family life course (Struffolino et al. 2015), determinants of vulnerability in late careers (Madero-Cabib and Kaeser 2016) or life course regimes (Möhring 2016).

3. Results

The results of the sequence analysis are presented on percentage plots, exactly there are in Figs. 1 – for education, 3 – for children and 5 – for work. Table 3-5 summarizes the most common sequences for every variable. Modal plots – Fig. 2, 4, and 6, show the most popular sequence for a whole group.

3.1. Education

As we see from the set of most common sequences in Tab. 3, 73% of women and 80% of men with adequate pension benefit spend some time on education. Noteworthy, the 26% of women and 19% of men do not continue education after 15th birthday. Less than 1% of analysed people continue education after 30th the age of 30 years (Fig. 3). We can see from the index plot (Fig. 3) that by the age of 19, 50% of women and men have already finished education.

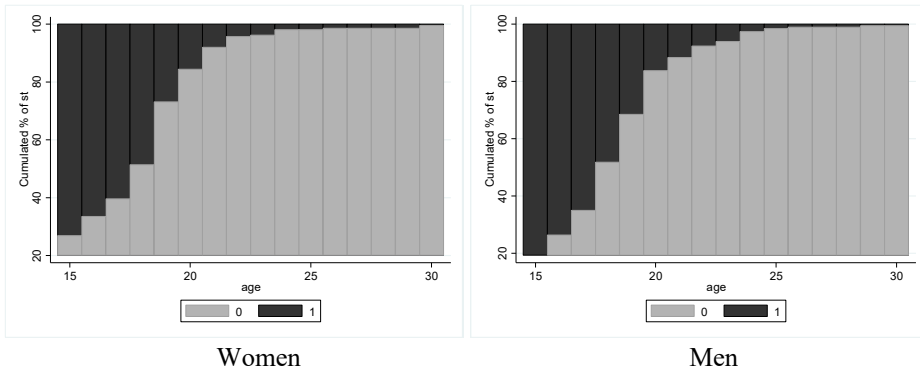


Fig. 1. Distribution of states connected with education across the life course
Source: SHARELIFE data and own calculation in STATA.

Table 3. The most common sequences connected with education

No.	Sequence Elements	Frequence	Percent	Cum.	No.	Sequence Elements	Frequence	Percent	Cum.
Women					Men				
1	1 0	154	0,7264	0,7264	1	1 0	158	0,8020	0,8020
2	0	57	0,2689	0,9953	2	0	38	0,1929	0,9949
3	1	1	0,0047	1,0000	3	1	1	0,0051	1,0000

Source: SHARELIFE data and own calculation in STATA.

There is no visible difference between the two groups, by gender, in the length of the period of schooling (Fig. 2). On average, men spend just 0.3 years more in education than women.

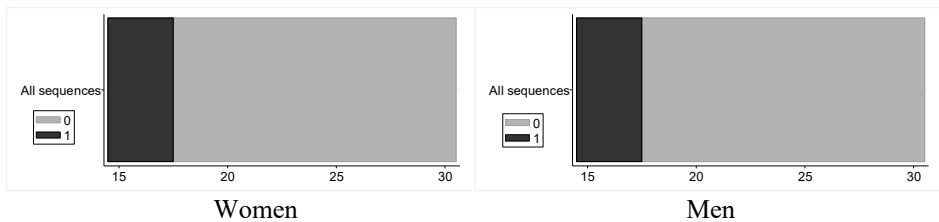


Fig. 2. Modal plot of states connected with education

Source: SHARELIFE data and own calculation in STATA.

3.2. Number of children

Fig. 3 shows state distribution plot for women, connected with number of children across the life course. As we can see 35% of women followed the most common sequence which mean to have two children (Tab. 4). The second most common sequence is connected with having three children and by this path follow 19%

of women. The third path includes 10% of pensioners and mean having just one child. Another paths are less common.

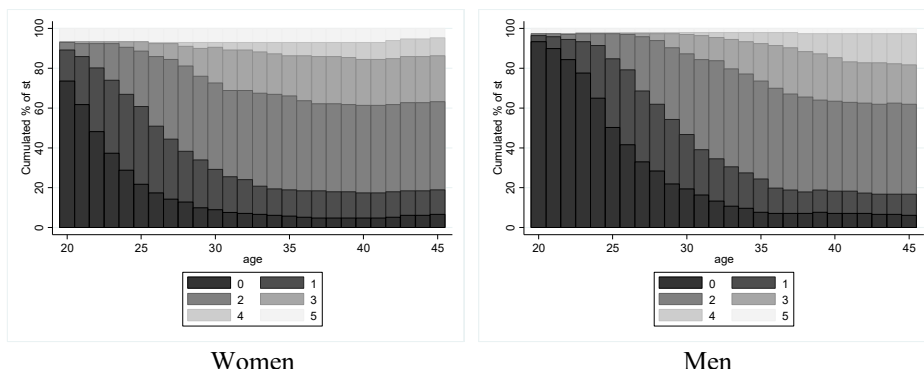


Fig. 3. Distribution of states connected with number of children across the life course
Source: SHARELIFE data and own calculation in STATA.

In men’s case 42 % of people goes the same, most popular trajectory which lead to an adequate pension. This part of people have two children. The second and third popular way leading to an adequate pension, is connected with decision about having many children – three or four. Around 11% of men have just one child. 5-6% of women and men with adequate pension benefit have no children.

Table 4. The most common sequences connected with number of children

No.	Sequence Elements	Frequency	Percent	Cum.	No.	Sequence Elements	Frequency	Percent	Cum.
Women					Men				
1	0 1 2	74	0,3491	0,3491	1	0 1 2	83	0,4213	0,4213
2	0 1 2 3	41	0,1934	0,5425	2	0 1 2 3	37	0,1878	0,6091
3	0 1	21	0,0991	0,6415	3	0 1 2 3 4	30	0,1523	0,7614
4	1 2	14	0,0660	0,7075	4	0 1	21	0,1066	0,8680
5	1 2	6	0,0283	0,7358	5	0	12	0,0609	0,9289
6	0	10	0,0472	0,7830					

Source: SHARELIFE data and own calculation in STATA.

As it was said women most often have 2 children: first one with average age about 24.2, and second one around 27.3 years. While men also most often have 2 children, but around two years later than women, it means: first one with average age about 26.3, and second one around 29.3 years.

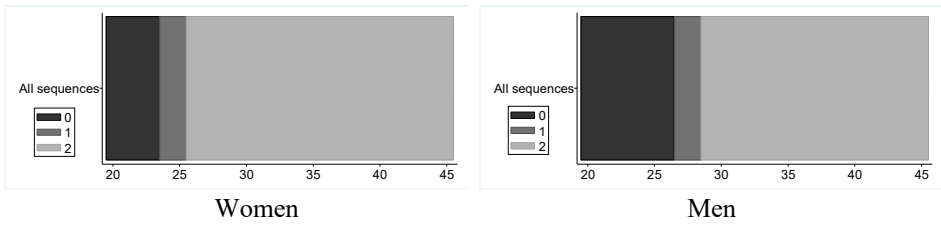


Fig. 4. Modal plot of states connected with number of children

Source: SHARELIFE data and own calculation in STATA.

3.3. Time of work

The biggest differences among men and women can be observed in employment histories. Men and women spent different time in work and leave labor market at the different retirement age.

99% of women and 93% of men with adequate pension benefit after some time of working, retired. Only 1% of women remain in employment after the standard retirement age, while 6% of men continued working after that age (Fig. 5). Additionally, there was no person, who achieve adequate pension and did not work at all in whole life course.

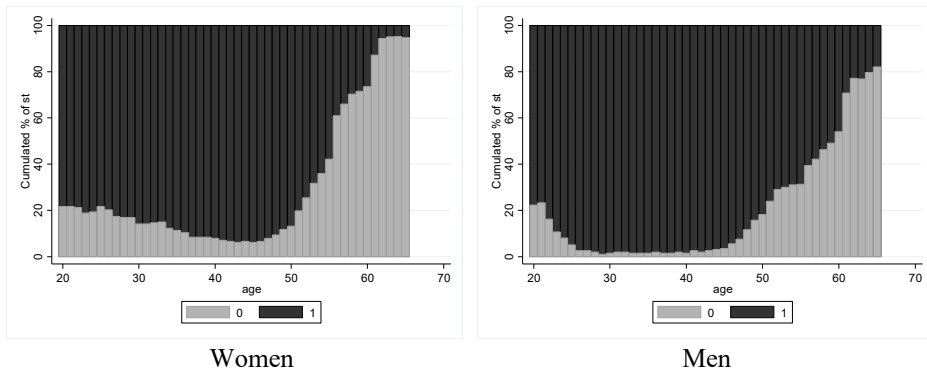


Fig. 5. Distribution of states connected with time of work across the life course

Source: SHARELIFE data and own calculation in STATA.

Table 5. The most common sequences connected with time of work

No.	Sequence Elements	Frequence	Percent	Cum.	No.	Sequence Elements	Frequence	Percent	Cum.
Women					Men				
1	1 0	210	0,9906	0,9906	1	1 0	185	0,9391	0,9391
2	1	2	0,0094	1,0000	2	1	12	0,0609	1,0000

Source: SHARELIFE data and own calculation in STATA.

On average women worked for 34 years, while men worked for 4 years longer. But the most common time of working is much higher for men and equal 43 years, while for women is the same as average.

Furthermore, women stop working earlier than men – on average and modal at the age 54, while men finish employment around 55, with modal value 59.

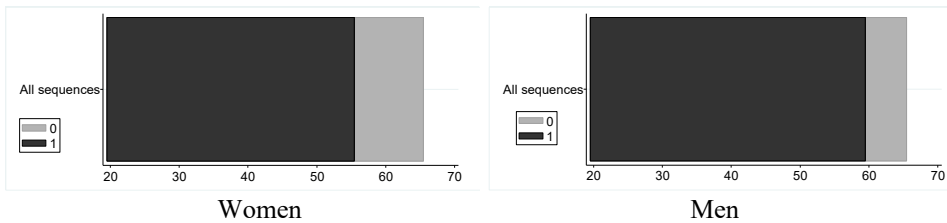


Fig. 6. Modal plot of states connected with time of work

Source: SHARELIFE data and own calculation in STATA.

3. Conclusion

This study investigated the effects of life decisions connected with time of education, time of work and the number of children on pension adequacy using the sequence analysis.

The results show that 50% of people in the sample have adequate retirement income. Furthermore we determined the standard adequate retirement paths by using sequence analysis.

The results indicate no significant differences between retired people, by gender, in the field of education and in number of children, while the patterns of seniority and leaving the labor market are different.

First of all, pensioner with adequate pension benefit remain in education rather short time, only till 19th birthday. The second conclusion is that men spent more time labor market and retire later than women. In addition, a little number of person stay on labor market after retirement age. Noteworthy, every person who achieved adequate pension benefit worked while his course life.

Two children is definitely the most favorable number of children which leads for achieving adequate pension. 5-6% of people had not children at all.

For future studies of pension adequacy, using the multichannel sequence analysis and logistic regression are recommended.

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