Review of Socio-Economic Perspectives **Siwek, A.J., pp. 107-115**
Vol. 5 Issue: 2/ June 2020

ADEQUATE RETIREMENT PATHS IN THE POLISH PENSION SYSTEM

Alicja Jajko-Siwek[1]

Abstract

Adequacy is the one of the most important issue for every pension system and especially for every future pensioner. Therefore, the question arises what people should done during his life to achieve enough high pension benefit to maintain after retirement the previous standard of living. The article aims to characterize the life trajectory of people who have obtained an adequate retirement benefit in Poland. Polish pension system can be treated as an example of defined benefit scheme. This research has been done by using sequence analysis and cluster analysis. The study used data come from the seventh round of SHARE 50+ in Europe (SHARELIFE). The study was conducted separately for women and men. Four variables were taken into account: time of education, time of work, number of children and retirement age. Obtained results allow to indicate how long education and professional work should be continued, as well as what number of children contributes to achieving an adequate pension. The results show differences in the life cycle of retired men and women as well.

Keywords: Adequacy, pension benefit, sequence analysis

JEL Codes: C18, H55, J32

Citation : Siwek, A.J. (2020). Adequate retirement paths in the Polish Pension System, Review of Socio-Economic Perspectives, Vol 5(2), pp. 107-115, DOI : 10.19275/RSEP084.

Article Type: Research Article
Application Date: 07.01.2020 **& Admission Date:** 15.04.2020
DOI: 10.19275/RSEP084

---

1. Dr., Poznań University of Economics and Business, Brzozowa 1, Poland
Email: alicja.jajko-siwek@ue.poznan.pl

1. Introduction

One of the most important aim of pension benefit system is to generate adequately high pension. For individual pensioner it is crucial to maintain his previous standard of living after retirement. That is significantly important nowadays because, as we can see from polish national insurance company called ZUS, that in 2018 (ZUS 2019, p.40), 28,4% of pensioners received less than 40% of average income, which can be assumed as a poverty risk. Hence, future pensioners should know what to do during their work career and even wider in their social life, if they want to achieve adequate pension benefit.

They should get to know answers especially on question how long to work and when to retire (Ponomarenko, 2016). Another question is connected with time spend on education. And finally, one of the most important factor for our life, the number of children which is advisable to have in the context of adequacy (Aisenbrey & Fasang 2010; Madero-Cabib & Fasang 2015; Jajko-Siwek 2018). This paper aims to show the individual life paths to adequate pension benefit in the polish pension system. We consider individual paths for men and women separately. Nowadays we have Notional Defined Contribution Pension System in Poland. But because people who are taken into research had belonged only to the old polish pension system, and they received their pension benefit only form that old system, Polish Pension System can be treated as an example of Defined Benefit Scheme (Szumlicz & Żukowski 2004).

2. Data, variables and research method

In the paper, data was used from the Survey of Health, Ageing and Retirement in Europe - SHARE[1] 50+ (Börsch-Supan 2019). Especially the data from the seventh wave, called SHARELIFE, which were conducted in 28 countries of EU in 2017, were used.

First we extracted pensioners from Poland. Second we selected people who were retired and who had given information about their first pension benefit and about the last wage. We calculated the individual replacement rate (RR) for these people. Replacement rate is assumed to be the best measure of adequacy (Borella & Fornero 2009; EU 2018; Chybalski 2016 b; OECD 2018). Finally we divided our sample by gender and on people

[1] This paper uses data from SHARE Waves 1, 2, 3, 4, 5, 6 and 7 (DOIs: 10.6103/SHARE.w1.700, 10.6103/SHARE.w2.700, 10.6103/SHARE.w3.700, 10.6103/SHARE.w4.700, 10.6103/SHARE.w5.700, 10.6103/SHARE.w6.700, 10.6103/SHARE.w7.700), see Börsch-Supan et al. (2013) for methodological details.(1)
The SHARE data collection has been funded by the European Commission through FP5 (QLK6-CT-2001-00360), FP6 (SHARE-I3: RII-CT-2006-062193, COMPARE: CIT5-CT-2005-028857, SHARELIFE: CIT4-CT-2006-028812), FP7 (SHARE-PREP: GA N°211909, SHARE-LEAP: GA N°227822, SHARE M4: GA N°261982) and Horizon 2020 (SHARE-DEV3: GA N°676536, SERISS: GA N°654221) and by DG Employment, Social Affairs & Inclusion. Additional funding from the German Ministry of Education and Research, the Max Planck Society for the Advancement of Science, the U.S. National Institute on Aging (U01_AG09740-13S2, P01_AG005842, P01_AG08291, P30_AG12815, R21_AG025169, Y1-AG-4553-01, IAG_BSR06-11, OGHA_04-064, HHSN271201300071C) and from various national funding sources is gratefully acknowledged (see www.share-project.org).

who achieve or not adequate pension, while adequate pension means the replacement rate over 70% (Czepulis-Rutkowska 2000; Palmer 1989, 1994).

Table 1 gives an overview of research sample.

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.

We have 813 pensioners in the Polish Pension System, who were taken into the research. Among them there were 409 (50,3%) people who had achieved an adequate pension benefit. Furthermore, there were 50,0% of men with an adequate pension benefit and 50,6% of women. Due to this we can say that adequacy varied very slightly by gender in Poland.

In the paper we consider four variables connected with work-family life:

1) Education - in education (iE) or no education (nE);
2) Work - in Work (iW) or no Work (nW) – connected with:
    a. Seniority - time in work;
    b. Retirement age;
3) Number of Children - no Cildren (nC), few Children (fC) (mean 1 or 2 children), many Children (mC) (mean 3 and more children). By combining these variables we achieve a set of states presented in Table 2.

Table 2. Dimension of states in pensioner trajectories

Sign	Symbol	Sign	Symbol
1	**iEnWnC**	**4**	**iEiWnC**
2	*iEnWfC*	*5*	*iEiWfC*
3	iEnWmC	6	iEiWmC
7	**nEnWnC**	**10**	**nEiWnC**
8	*nEnWfC*	*11*	*nEiWfC*
9	nEnWmC	12	nEiWmC

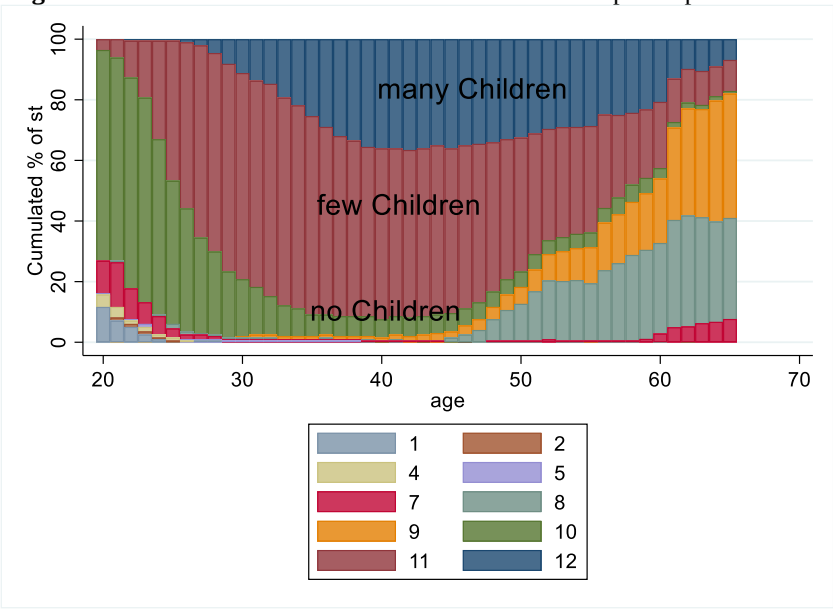
Source: Own calculation on SHARELIFE data.

We have used sequence analysis as the method of study (SA). SA is a method that provides a comprehensive look at the whole course of one's life and is widely used in life course analysis (Möhrinfg 2016). It allows for an identification of typical trajectories of the life course as well (Abbott and Forrest 1986; Brzinsky-Fay, Kohler, & Luniak 2006). Finally, based on the results obtained from sequence analysis, we applied cluster analysis for building a typology of the sequences. As a method for clustering we have used the Ward method, which allows to minimize the variance between clusters.

3. Results

Fig. 1 and Fig. 2 shows state distribution plots for men and for women in the polish pension system. State distribution plots show, at each age, the distribution of the states for combinations of education, work and number of children.

Fig. 1. Distribution of states across the life course in the polish pension scheme for men

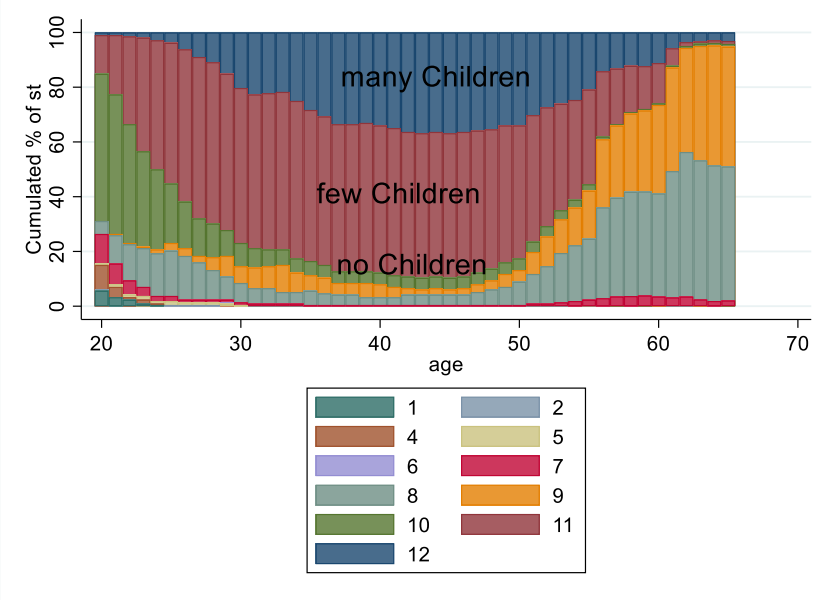


Source: SHARELIFE data and own calculation in STATA.

The factor most differentiate our research sample is the number of chil-dren. It concerns both men and women. People with one or two children have the largest share in the surveyed population. On the other hand the time of education is definitely the least important. The percentage of people who remained in education over the age of 20 - these are states 1 to 6 - is very small. This applies to both men and women as well. Only 2% of

women remain in employment after the standard retirement age, while 11% of men continue working after that age.

Fig. 2. Distribution of states across the life course in the polish pension scheme for women



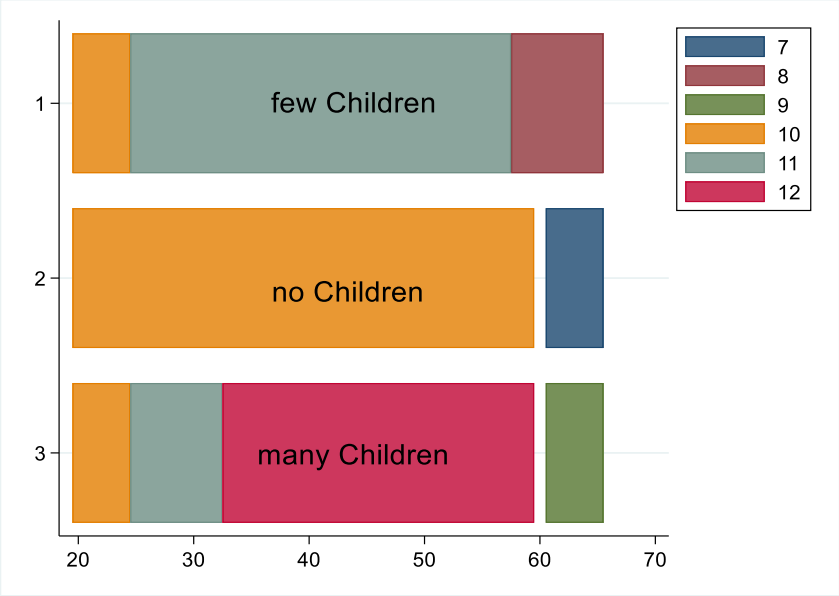
Source: SHARELIFE data and own calculation in STATA.

After cluster analysis we achieve three clusters for men which are shown in Fig. 3. In the case of women we can reveal three clusters for retirement paths as well. We can see all of them as a modal plot in Fig. 4.

Cluster 1 is the same for men and women. We called this cluster "Few Children" and it is the largest cluster and contains 55.3% of men and 56.6% of women. To this cluster belongs men or women who have few children: one or two. This is the most typical trajectory leading to an ad-equate pension benefit in the polish pension system.

Men from this group have first child with average age about 25.5 and they stop working on average at the age 56.5. The most common time of working is for this men equal 41 years. Women in this cluster have first child a little bit earlier than men, it is at the age 23.3 and they finish working also a few years earlier on average at the age 53.8. The most common time of working for women is about 36 years.

Fig. 3. Modal plot of states across the life course for men in clusters



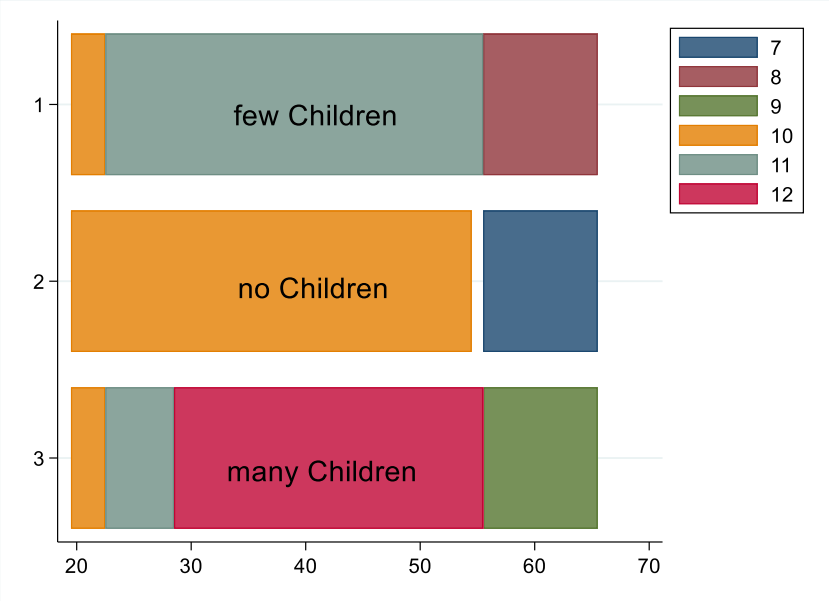
Source: SHARELIFE data and own calculation in STATA.

The second popular way which leads to an adequate pension is to live with many children. This cluster has number 3 and we called it "Many Children", because this cluster summarizes trajectories for men or women with many - 3 and more - children. This cluster combines 38.1% of men and 38.7% of women.

Men from this group have first child earlier than in others groups it is with average age about 24.7. The same concerns women. They have the first child the fastest in all groups studied, i.e. around the age of 21.9.

In the same time women in this cluster work for the shortest time - 31 years, while men in this cluster worked for 10 years longer. Furthermore, women stop working earlier than men – on average at the age 53.1, while men finish employment around 57.4.

Fig. 4. Modal plot of states across the life course for women in clusters



Source: SHARELIFE data and own calculation in STATA.

The third cluster has number 2 and includes men and women who have no children. That is way its name is "No Children". This cluster is the smallest one both for men and women and counts 6.6% of men and 4.7% of women.

Men who belongs to this cluster retired after 41 years of working at the average age 58.3. Women stop working earlier than men – on average at the age 56.0 years after 36 years on market of work.

4. Conclusion

The main aim of this study has been to investigate life paths of pensioners who have achieved adequate pension benefits in the polish pension scheme.

First of all, the results show that around 50% of men and women in the sample have adequate retirement income. The second conclusion is that there are slightly significant differences between adequate retirement paths men and women. Men are working for longer time and entered retirement later than women. Furthermore, they have children later as well. The shift of the moment of implementation life events for men and women is about 4-5 years.

We found out that the most important factor which strongly differentiates population of pensioners for the adequacy of pension benefit is the number of children. There has been determined for research group three standard adequate trajectories. They are the same for men and women.

The results indicate that the most popular way leading to adequacy is having few children. Another way is connecting with having three or more children. The third one, the less popular, mean living without children.

The use of sequence analysis and cluster analysis has given us an in-sights into linkage between the level of pension benefits and the decisions made by every persons in the field od time of education, time spend in work, retirement age and the number of children.

References

Abbott A. (1990). A Primer on Sequence Methods, *Organization Science*, vol. 1, no. 4, 375–392.

Aisenbrey, S., & Fasang, A. F. (2010). New Life for Old Ideas: The "Second Wave" of Sequence Analysis Bringing the "Course" Back Into the Life Course. *Sociological Methods & Research*, 38(3), 420–462.

Borella, M., & Fornero, E. (2009). *Adequacy of Pension Systems in Europe: An analysis based on comprehensive replacement rates*.

Börsch-Supan, A. (2019). *Survey of Health, Ageing and Retirement in Europe (SHARE)*, Wave 7. Release version: 7.0.0. SHARE-ERIC. Data set. DOI: 10.6103/SHARE.w7.700.

Brzinsky-Fay, C., Kohler, U., & Luniak, M. (2006). Sequence analysis with Stata. *Stata Journal*, 6(4), 435–460.

Chybalski, F. (2016 b). The Multidimensional Efficiency of Pension System: Definition and Measurement in Cross-Country Studies. *Social Indicators Research*, 128(1), 15–34.

Czepulis-Rutkowska Z. (2000), *Systemy emerytalne a poziom zabezpieczenia materialnego emerytów*, Instytut Pracy i Spraw Socjalnych.

European Union (2018). *The 2018 Pension Adequacy Report: current and future income adequacy in old-age in the EU*, Vol.1.

Jajko-Siwek, A. (2018). Adequate retirement paths in defined contribution and defined benefits pension schemes. In: F. Chybalski, E. Marcinkiewicz (Ed.), *Contemporary problems of intergenerational relations and pension systems: a theoretical and empirical perspective* (pp. 98-109). Lodz: University of Technology Press.

Madero-Cabib, I., & Fasang, A. E. (2015). Gendered Work-Family Life Courses and Financial Well-being in Retirement. *Advances in Life Course Research*, 27(January), 43–60.

Möhring, K. (2016). Life Course Regimes in Europe: Individual Employment Histories in comparative and historical perspective. *Journal of European Social Policy*, 26(2), 124–139.

OECD (2018). *Gross pension replacement rates (indicator)*.

Palmer, B.A. (1989). Tax reform and retirement income replacement ratios. *The Journal of Risk and Insurance*, *56*(4), 702-725. doi: http://dx.doi.org/10.2307/253454

Palmer, B.A. (1994). Retirement income replacement ratios: An update. *Benefits Quarterly*, *10*(2), 59-75.

Ponomarenko, V. (2016). Cumulative disadvantages of non-employment and non-standard work for career patterns and subjective well-being in retirement. *Advances in Life Course Research*, 30, 133–148.

Szumlicz, T., & Żukowski, M. (Eds.). (2004). *Systemy emerytalne w krajach Unii Europejskiej*, Twigger.

ZUS (2019). Ważniejsze informacje z zakresu ubezpieczeń społecznych, Warszawa 2019.