

CURRENT DETERMINANTS OF EARLY RETIREMENT AMONG BLUE COLLAR WORKERS IN POLAND

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Abstract

Background: The current demographic trend in Poland indicates a progressive ageing process, which will result in a decreased number of persons at the age of work capability. Thus it is essential to find out the reasons for the diminished occupational activity of elderly workers. The aim of the project was to identify the factors that significantly contribute to early retirement during the period of socioeconomic transformation in Poland. **Materials and Methods:** The analysis concerned 637 workers, aged over 45 years, but before reaching the age of retirement (60 years for women and 65 years for men) who were employed in selected industrial enterprises at technological or production-related departments. The study group was recruited from the population of former workers who quit their employment between 1996 and 2000, before they reached the age of retirement. The reference population, matched for age (± 3 years) and gender, comprised workers at similar workposts. **Results:** The following groups of variables were found to be significant risk factors for early retirement: variables describing the conditions of work (piecework system, OR = 7.00, 95%CI: 2.01–24.37; heavy lifting at work OR = 2.24, 95%CI: 1.20–4.17) and variables related to the household characteristics (shortage of leisure time, OR = 1.87, 95%CI: 1.16–4.67), health condition (disability, OR = 1.87, 95%CI: 1.09–3.21; increased rate of sickness absence, OR = 2.20, 95%CI: 1.52–3.17), and alcohol abuse (OR = 3.19, 95%CI: 1.33–7.64). **Conclusions:** The data analysis revealed a spectrum of factors that either contribute to or decrease the risk for early retirement. These may be used as a reference in taking on activities aimed at preventing this adverse trend and stimulating occupational activity of elderly workers.

Key words:

Early retirement, Ageing workers, Disability to work

INTRODUCTION

The demographic processes that Poland, like many other European countries, has witnessed over the past few decades have brought about a significant increase in the proportion of elderly people in the general population. The prognosis for a demographic trend in Poland in the years to come is that the number of people at the age of work capability will substantially decrease after 2010. Further reduction in the country's workforce is likely to be caused by a continued decline in the occupational activity of the population, especially among workers approaching the age of retirement, which is one of the consequences of the

economic transformation processes initiated in the early 1990s. It is therefore, essential to identify the determinants of the decreased occupational activity of the elderly groups. A proper diagnosis of the underlying reasons will make it possible to undertake activities for extending the work capability of the elderly, which will be indispensable in view of the predicted socio-demographic tendency. The raising of the age, when the worker may retire is one of the possible ways to counteract the economic costs related to the ageing process [1,2].

In the highly developed countries, the proportion of people who are still employed at the age of 60–64 years

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has been decreasing dramatically and the mean age at retirement has gone down to mid fifties. This raises the question why so many workers decide to withdraw from occupational activity when they are in their fifties or early sixties, before they reach the statutory age of retirement. One of the possible reasons is the fact that employers tend to encourage older workers to retire early to give way to young workers who are just entering the labor market. This strategy is undertaken to prevent the growth of unemployment among young people, which has been noted in many EU countries. Effective as it is for this purpose, the implementation of the strategy adds to the problems of the ageing society [3,4].

In Poland, age at which workers may retire has been established to be 60 years for women and 65 years for men. For some professions, e.g., miners, teachers, the retirement age may be reduced. In 1981, the right to be granted a pension before one has reached retirement age was enacted. This applies to women (workers) who are 55 years of age and have an employment duration of 30 years as well as to men (workers) aged 60 years with 35 years of employment. In addition, some specific conditions have to be met, e.g., restructuring of the plant, harmful working conditions, etc.

The aim of the project was to identify the factors that significantly contribute to early retirement during the period of socioeconomic transformation in Poland.

MATERIALS AND METHODS

The study concerned workers over 45 years of age, but before reaching the age of retirement (60 years for women and 65 years for men) who were employed in selected industrial enterprises at technological or production-related departments. The enterprises to be covered by the analysis were located in the Łódź region, which has an average rate of economic activity. Information on the plants was obtained through the Internet search. Enrolment of plants for the project was based on their economic condition; the plants under restructuring, in which group layoffs were executed, were excluded from the analysis.

The major criteria for selecting the study group were disability pension and early retirement as the major causes of quitting work (between 1996 and 2000) before the age of retirement. For each subject, an age-matched (± 3 years) and gender-matched control, currently employed at a similar workpost, was recruited. The present report is confined only to the workers who have taken early retirement.

Since the control group comprised workers matched to both those on retirement and those on disability pension, the matching parameters, age and gender, were included in the analysis as the confounding variables.

To elicit the data for analysis, two research instruments have been developed:

- “Health-related and socioeconomic determinants of early retirement among workers at the age of work capability” – a questionnaire administered to individual subjects at their homes; completed by a researcher conducting the survey.
- Individual Sickness Absence Card (ISAC) – completed using the data from the workers’ personal files provided by the plant.

The questionnaire was constructed by a research team, including a sociologist. It was based on commonly used health questionnaires as well as on the findings of projects conducted by the Central Statistical Office and our own experience. The questionnaire comprised seven thematic groups and included 90 items altogether. The following categories were considered:

1. Personal data (gender, age, and education)
2. General characteristics of household
3. Economic activity of family members
4. Job characteristics
5. Economic condition of household
6. Health condition
7. Lifestyle factors

For each worker, the Individual Sickness Absence Card was completed by the personnel department staff in the plants covered by the study. ISAC included personal data, job description, employment period and reason for quitting job (for retired workers). The data on disability to work within the period under study (1996–2000) were

filled up in a table – every instance of work disability and the code of disease were recorded.

Logistic regression was used to assess the risk of early retirement. The multivariate model was constructed along the three-stage process. At stage I, for each risk factor, the risk for early retirement was calculated with the OR crude and adjusted for the worker's age, gender and duration of employment. Then the variables significantly modifying the risk were divided into groups according to the questionnaire data. At stage II, for each group containing more than one variable, the risk adjusted for age, gender, employment duration, and other variables in the group was calculated. The variables, for which the calculated risk differed at a statistically significant level, were classified for the multivariate analysis. At stage III, the multivariate model was fitted for the variables selected during the first two stages of the analysis.

For the sickness absence variable, two cumulated indices were calculated; both of them being weighted averages for the five years' period under study. The first index was based on the number of sick leaves, while the second one, on the duration of sickness absence. The weighted averages were determined in such a way so as to obtain the maximum fitting of the logistic regression model for early retirement. All the calculations were made using STATA 8 software package [5].

The multivariate analysis of the risk for early retirement took account of the variables classified into the following clusters:

A. Personal data: gender, age, duration of employment, marital status, education;

B. Job characteristics:

- general organization of work: system of work, remuneration, overtime and breaks at work,

- physical workload: strenuous posture at work, walking during a workshift, heavy lifting at work,

- self-assessment of working conditions: coping with physical work requirements, work-related fatigue, leisure time after work,

- exposure to occupational hazards: chemicals, industrial dust, high/low temperature, high air humidity, inappropriate lighting, noise and vibration;

C. Household characteristics: number of family members, number of persons receiving social security benefits, number of unemployed persons, economic condition, savings, self-assessment of monthly income;

D. Health condition: disease entities as reported by the worker, disability limiting the worker's capacity for work, sickness absence in terms of the duration and number of cases within a five-year period;

E. Lifestyle factors: smoking habit, alcohol consumption (beer, wine, spirits), problems related to alcohol abuse.

RESULTS

The analysis concerned 265 persons who retired early and 372 still working persons. Table 1 displays the distribution of subjects by their workplace. Most of the subjects (47%)

Table 1. Distribution of subjects by workplace

Workplace under study	Current workers		Retired workers	
	n	%	n	%
Dairy cooperative	60	16.1	31	11.7
Transportation company	30	8.1	24	9.0
Public transport company	181	48.7	117	44.2
Chemical plant	101	27.1	93	35.1
Total	372	100.0	265	100.0

n – number of workers.

Table 2. Distribution of subjects and the odds ratio of early retirement by age, gender and duration of employment

Variables	Current workers		Retired workers		OR (95%CI)*
	n	%	n	%	
Gender					
males	257	69.1	158	59.6	1.00
females	115	30.9	107	40.4	1.51 (1.09–2.10)**
Age (years)					
45–49	70	18.8	55	20.7	1.00
50–54	143	38.4	52	19.6	0.46 (0.29–0.74)**
55–59	139	37.4	105	39.6	0.96 (0.62–1.48)
60–	20	5.4	53	20.0	3.35 (1.80–6.25)**
Duration of employment (years)					
–34	166	44.6	77	29.1	0.87 (0.59–1.28)
35–39	142	38.2	76	28.7	1.00
40–	64	17.2	112	42.3	3.25 (2.15–4.92)**

* OR (95% CI) – crude odds ratio and its 95% confidence interval;

** Statistically significant difference at $p = 0.05$; n – number of workers.



Table 3. Multivariate risk model of early retirement

Variables	Early retired workers		OR _s 95%CI*	
	n	%		
Education				
Primary, vocational	481	44	1.00	
Secondary, university	156	33	0.57	0.36–0.90**
Economic conditions of the household				
1 – basic needs satisfied (food and public utility charges)	161	57	1.00	
2 – as above and buying clothes and footwear	275	37	0.29	0.17–0.48**
3 – as above and buying commodities	201	35	0.28	0.17–0.48**
Subjective assessment of monthly income				
good	100	58	1.00	
fair	353	42	0.36	0.21–0.64**
bad	184	33	0.18	0.10–0.34**
Number of unemployed family members				
one-man household	43	51	1.16	0.53–2.53
no unemployed persons	401	46	1.00	
at least one person unemployed	193	31	0.53	0.34–0.83**
Duration of work as overtime				
no overtime work	505	42	1.00	
up to 6 months	77	35	0.45	0.23–0.89**
over 6 months	55	47	0.82	0.39–1.73
Work schedule				
regular day work	196	42	1.00	
shift work	441	41	0.71	0.46–1.11
Piecework				
No	612	40	1.00	
Yes	25	80	7.00	2.01–24.37**
Organization of breaks at work				
undefined number of breaks	179	44	1.00	
not more than one break	372	40	0.89	0.55–1.46
more than one break	86	47	1.20	0.65–2.22
Heavy lifting at work				
No	566	39	1.00	
Yes	71	60	2.24	1.20–4.17**
Subjective assessment of fatigue after work				
no fatigue	187	37	1.00	
moderate fatigue	276	39	1.17	0.73–1.88
heavy fatigue	174	51	1.62	0.94–2.80
Leisure time after work				
every day	449	38	1.00	
occasionally	132	46	1.36	0.84–2.21
none	56	63	2.33	1.16–4.67**
Exposure to low temperature				
No	585	40	1.00	
Yes	52	56	1.59	0.80–3.16
Exposure to whole-body vibration				
No	528	41	1.00	
Yes	109	45	1.35	0.78–2.32
Disability reducing capacity for work				
No	546	39	1.00	
Yes	91	58	1.87	1.09–3.21**
Smoking habit				
No	197	46	1.00	
Yes	440	40	0.77	0.51–1.17
Alcohol abuse problems				
No	600	40	1.00	
Yes	37	62	3.19	1.33–7.64**
Increase in sickness absence within a 5-year period				
cases of sickness absence – mean ratio	637	42	2.20	1.52–3.17*
days of sickness absence – mean ratio	637	42	0.85	0.63–1.16

* OR_s 95% CI – odds ratio adjusted for age, gender and duration of employment and its 95% confidence interval;

** Statistically significant difference at p = 0.05.

worked at a public transport company, followed by those who worked at a chemical plant (30%), a dairy cooperative (14%), and a transportation company (8%). Accordingly, the most prevalent professions included drivers, assembly workers, electricians, mechanics, machine operators and chemical processing operators.

The risk for early retirement, by personal variables, including age, gender and duration of employment is presented in Table 2. The data analysis indicated that the statistically significant risk mostly applied to women workers, and it was by 51% higher (OR = 1.51; 95%CI: 1.09–2.10) than for the male workers. This risk was found to be three times as high (OR = 3.35; 95%CI: 1.80–6.25) in workers aged over 60 years as in those from the 45–49 age group. A similar finding applied to workers with over 40 years of employment – the risk for early retirement in this population was more than three times higher (OR = 3.25; 95%CI: 2.15–4.92) than in the workers with the employment duration of 35–39 years. Consequently, the influence of age, gender and employment duration was considered in the multivariate analysis and ORs adjusted for these variables were calculated (Table 3).

The model included variables that contribute to both increasing and decreasing the risk for early retirement. The former group comprised the variables describing:

- work characteristics: the piecework system accounted for as high as a sevenfold increase (OR = 7.00; 95%CI: 2.01–24.37) in the risk; heavy lifting at work – over a twofold increase (OR = 2.24; 95%CI: 1.20–4.17); lack of leisure time after work – over a twofold increase as well (OR = 2.33; 95%CI: 1.16–4.67),
- health condition: the presence of any disability limiting one's capacity for work contributed to the increase in the risk for early retirement by 87% (OR = 1.87; 95%CI 1.09–3.21) while an increased frequency of sickness absence within the study period brought about a twofold increase in the risk (OR = 2.20; 95%CI: 1.52–3.17),
- problems related to alcohol abuse: this variable applied to a threefold increase in the risk for early retirement (OR = 3.19; 95% CI: 1.33–7.64).

A decrease in the risk for quitting work before the age of retirement was found to be significantly related to:

- the worker's education: for those with the secondary and college/university education, the risk was found to be lower by 40% (OR = 0.57; 95%CI: 0.36–0.90) than for workers reporting primary and vocational education,
- the economic condition of the household better than allowing the worker to satisfy the basic needs, in terms of food and public utility charges, corresponds to a 70% decrease (OR = 0.29; 95%CI: 0.17–0.48) in the risk for early retirement,
- self-assessment of monthly income: if the worker's assessment was poor, i.e. he/she perceived the level of his/her monthly income as low, the risk for early retirement also remained low (for the income level perceived as "medium" the OR = 0.36; 95%CI: 0.21–0.64, and that reported as "low" or "poor", OR = 0.18; 95%CI: 0.10–0.34),
- overtime work in the preceding year: when the total duration approximated six months, it was found to be related to an over 50% decrease in the risk for early retirement (OR = 0.45; 95%CI: 0.23–0.89),
- the presence of unemployed persons in the household significantly modified the risk for early retirement: a 50% decrease in the risk (OR = 0.53; 95%CI: 0.34–0.83) was found among workers reporting this condition.

DISCUSSION

The findings of the study on the factors determining the risk for early retirement in Poland under conditions of the socioeconomic transformation are consistent with the reports on similar projects conducted in the countries of Western Europe. Several reports demonstrated that the poor health condition of the workers was a significant determinant of early retirement. In our study, this factor was considered in terms of the disability to work as assessed by the worker. Like in the Finnish study, a low self-assessment of the health condition was found to be a strong predictor of quitting job before the age of retirement [6]. This mostly applied to such conditions as mental disorders, musculoskeletal diseases, and cardiovascular diseases. In the Irish construction industry, the major health causes of permanent disability, resulting in early



retirement included cardiovascular diseases and musculoskeletal diseases [7]. The highest proportion of workers quitting job before they reached 50 years of age was found among sheet metal workers, floor layers and electricians. The studies on middle-aged (over 55 years) population of the northern Finnish towns revealed better health condition and less disabilities in the group of workers willing to continue their professional activity than in those ready to retire. One may thus conclude that the health condition and work capability are the main factors determining the worker's decision whether to continue working or quit the job and retire [8]. Similar findings were obtained in a Swedish study on 264 male workers at a pulp and paper plant: health-related disability to work appeared to be the main predictor of early retirement (the analysis also covered the psychological and sociological factors) [9]. Other reports by the Finnish authors pointed to a "healthy worker effect" among the workers who decided to stay at work, while the workers who retired early were characterized by a "poor health condition" and low capacity for work [10]. The health situation of the study groups was also evaluated in terms of the temporary disability to work since the results of such an analysis could be predictive of early retirement for health-related reasons. The findings, discussed separately, revealed that in the study group the main health problems included cardiovascular diseases, musculoskeletal diseases and cancers [11]. The multivariate analysis of the risk for early retirement indicated the significance of an increased sickness absence (number of cases) within the five-year period under study. These findings are consistent with the data derived from the health insurance statistics in Germany, which revealed a similar correlation for the duration of sickness absence with respect to a period of 12–24 months preceding the retirement [12]. The age-related increase in the sickness absence, its total duration and structure by disease entities in the context of health causes of early retirement were also investigated in the Irish project concerning construction workers [7].

In our study, the multivariate analysis of the risk factors for early retirement pointed to the highest influence of the variables describing the organization and conditions of

work. The only exception was the shiftwork system, which is believed by some authors to have an adverse effect on health, especially of elderly workers [13]. We did not find this variable to be a significant risk factor of early retirement. The influence of other variables directly or indirectly related to working conditions such as the piecework system, overtime work, heavy lifting at work or self-assessment of fatigue after workday and amount of leisure time, has been confirmed mainly in the Finnish study [14], which has so far been the most comprehensive evaluation of the risk factors of early retirement due to disability to work. The most important finding of this investigation is the strong correlation found between poor health condition of the workers and quitting job, which was also revealed in our study. In the present multivariate risk model, the socioeconomic variables that significantly modified the risk of early retirement comprised the economic condition of the household and economic activity of household members (number of unemployed persons). Some of the relationships, e.g., between the number of unemployed family members or poor economic condition of household and decreased risk for early retirement, are consistent with the findings of other studies [14,15]. The lifestyle factors, which have been frequently analyzed in the context of their negative influence on health condition, are tobacco smoking and alcohol abuse. Some authors have documented the effect of smoking on capability for work [14,16]. In our project, we did not find any positive results with respect to the influence of smoking on the risk for early retirement, but we did obtain a significantly increased risk with respect to the problems related to alcohol abuse.

To complete the discussion on the determinants of early retirement, one should consider the legal background of this process under conditions of the socioeconomic transformation in Poland. Until the end of 1997, the right to earlier retirement also applied to workers at plants subjected to restructuring or liquidation, i.e. the reason for early retirement related to the plant's economic condition. This law concerned the workers who might not yet reach the age of retirement but who had completed the required period of employment (35 years for women workers and

40 years for men workers). From January 1, 1998, the workers dismissed from work for reasons related to the plant's condition who met the requirement of employment duration, or both age and employment duration, have acquired the right to pre-retirement benefits.

In our study, we regarded the instance of quitting job before the age of retirement as the early retirement, regardless of the amount of benefit received. In the questionnaire on the determinants of early retirement, we included the question on the reasons for quitting job. Almost half of the respondents (46%) reported workpost restructuring as the major reason; 31% – work-related fatigue, and 10% – bad health condition. The reasons related to the plant's economic condition thus contributed significantly to the workers' decision to quit their job before the age of retirement. On the other hand, such a situation prompted plant managers to review and modify the employment strategy.

CONCLUSIONS

The multivariate analysis yielded a number of factors determining the risk for early retirement among workers employed at technological and production-related departments. The outcomes of this study indicate a necessity for undertaking relevant preventive measures to enhance (continued) occupational activity of elderly workers. It seems that such actions as an improvement of work organization and working conditions, mostly through elimination of piecework systems, reduction of physical workload or exposure to some occupational hazards, would significantly contribute to decreasing the tendency for early retirement.

The determinants modifying the risk of quitting job before the age of retirement are the variables that pertain to a higher standard of living, including education, economic condition of the household, leisure time after work, and reduced alcohol consumption. An increasing number of cases of work disability during a period of several years preceding the date of early retirement is a significant predictor of the worker's health condition. Accordingly, no health parameters indicating the increased prevalence of

certain symptoms with increasing age should be ignored. This entails the need to adjust working conditions to capacity for work of elderly workers.

The practical implication of the study is the need to adopt job changing or even retraining as a principle of work organization designed for workers who have reached the age of 45 years in order to sustain their occupational activity and prevent early retirement.

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