



KAPITAŁ LUDZKI  
NARODOWA STRATEGIA SPÓJNOŚCI

IBE  *entuzjaści  
edukacji*

UNIA EUROPEJSKA  
EUROPEJSKI  
FUNDUSZ SPOŁECZNY



Analizy IBE/5/2015

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# **EARLY ENTRY – EARLY EXIT? EDUCATION'S IMPACT ON BEING ACTIVE IN THE LABOUR MARKET OF POLES 50+**

Warsaw, June 2015

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*Publikacja powstała w ramach projektu badawczego Uwarunkowania decyzji edukacyjnych realizowanego przez Instytut Badań Edukacyjnych wspólnie ze Szkołą Główną Handlową. Badanie w terenie zostało wykonane przez konsorcjum składające się z Millward Brown oraz PBS spółka z o.o.*

*Badanie jest prowadzone w ramach projektu systemowego pod nazwą Badanie jakości i efektywności edukacji oraz instytucjonalizacja zaplecza badawczego współfinansowanego ze środków Europejskiego Funduszu Społecznego w ramach Programu Operacyjnego Kapitał Ludzki.*

*Egzemplarz bezpłatny*

## Summary

Poland is an interesting case in Europe in terms of low employment of 50+, which defines the country as an early exit culture. In this paper, detailed retrospective data from the project *Determinants of Educational Decisions - Household Panel Study* (DED-HPS) are used to check the relation between the level of education and time of entering the labour market and inactivity versus activity of older generation 50+. The results based on the analysis of logistic regression show that the formal education level was an important predictor of inactivity while people with primary or secondary education are more likely to become inactive at older age than those with tertiary education. Participation in non-formal education significantly decreases chances of early retirement with a stronger effect for men. Odds of being inactive at older age are much higher for those who are disabled and longer tenure decreases odds of inactivity at older age. Including Interactions as an explanatory variable did not change the overall interpretation of the results.

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# 1. Introduction

Older workers represent an increasing share of the European labour force due to demographic trends of at least the last half century. The trend will continue in future, although at a different pace in different countries. According to the Eurostat projections the share of people between 50 and 74 in the population aged 20-74 will increase from current 41,5 per cent to 46 per cent in 2050<sup>1</sup>.

Many countries have introduced policies that focus on prolonging working life, and they involve changes in social security systems, health care systems, disability prevention schemes, lifelong learning initiatives, and support for age management policies in firms (see e.g. Field et al., 2013; OECD, 2013; Ervik and Lindén, 2013). However, European countries are still characterised by a large heterogeneity in terms of labour market activity of older workers. In Sweden, about 82 per cent of persons aged 55-59 were employed in 2013, while for example in Greece, only 46 per cent of this age group was working, and the average for the European Union was 65 per cent. The employment rate of 60-64 reached 16 per cent in Hungary (the lowest value), and 65 per cent in Sweden (the highest value), with the average of 34 per cent for the EU-28<sup>2</sup>.

On the other end of age distributions younger Europeans tend to stay in formal education longer but also with a discrepancy between countries. According to literature, this heterogeneity in the integration of youth in the workforce might be explained by various individual, institutional and structural factors (Müller and Gangl, 2003; Saar et al., 2008).

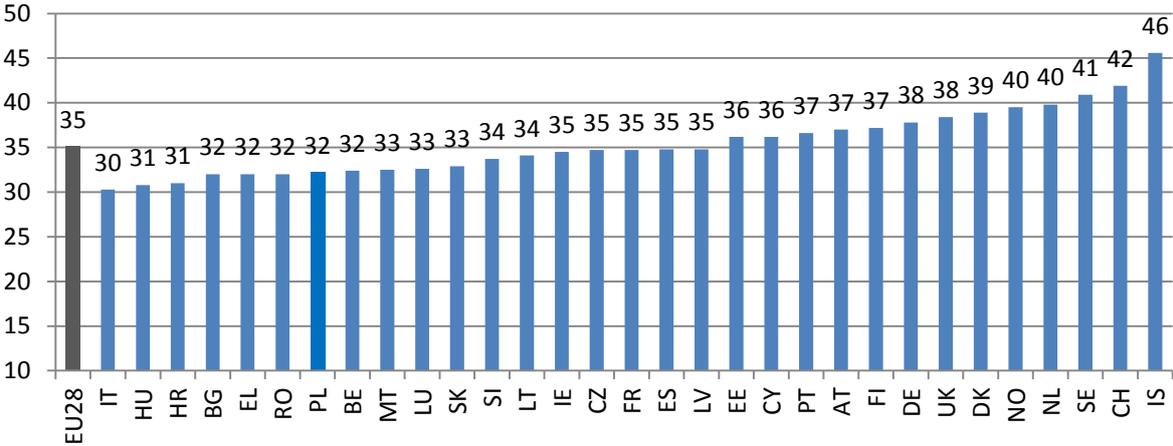
Altogether, decisions on when to enter labour market and when to leave it influence the duration of individual working life that is as short as 30 years in Italy and over 40 years in Sweden, Switzerland or Iceland (Fig. 1).

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<sup>1</sup> Eurostat database, 2015, EUROPOP2013 basic scenario

<sup>2</sup> Eurostat database (2015).

**Figure 1.** Duration of working life indicator\* (DWL) in Europe in 2013.



\* DWL measures the number of years a person aged 15 is expected to be active in the labour market throughout entire life.

Source: Eurostat database (2015).

For a long time researchers have been seeking explanations why some people retire earlier than others (Kohli, 1991). This question is especially important if demographic forecasts cited above are adequate and future labour force will be older. Understanding interactions between various factors would enable politicians (decision makers) to implement policies and programmes successfully in order to increase labour market activity of older people.

The aim of this paper is to analyse interactions between labour market activity of older people in Poland, and their level of education with the sequence of formal education and employment at the beginning of their career. The main research question is whether educational and labour market activity at the early stage of adulthood (the first entry into the labour market) linked with non-formal and informal learning have an impact on retirement decisions.

Poland with the low employment rate of older workers (55 per cent for 50-59 and 24 per cent for 60-64) (Eurostat database, 2015) and a relatively shorter duration of working life indicator in relation to the EU average (32 years) is especially interesting, as it is considered to be the country of *early exit culture* (Anxo et al., 2012). However, in all papers known by us the early exit phenomena was not linked to the entry of the labour market and mostly due to the lack of longitudinal data in Poland. In this paper we would like to fill the gap to underline how older generation behaved at the beginning of their education career as well as at the end. For this purpose we shall use the unique source of retrospective survey data described below. Moreover, the literature on the Central and Eastern Europe countries does not exhaustively cover the links between various forms of educational activity and retirement.

The research hypotheses are as follows:

H1: The older cohorts (50+ in 2013) entered the labour market more often after the time of graduation from their formal education than cohorts younger than 50, which confirms a change in the labour market entry behaviour.

H2. The timing of retirement depends on one's individual educational activity of different forms, including participation in informal life-long learning.

H3. The time of the first entry in the labour market after completing formal education is correlated with labour market activity at the age 50+.

In analyses described in this paper we used a microdataset collected in 2013 under the project *Determinants of Educational Decisions – Household Panel Study* (DED-HPS). The sample size for analyses of the labour market entry was  $N = 37,215$  and for labour market exit  $N = 15,822$  persons. An individual questionnaire included some retrospective questions which enabled to use information about entry and exit from the labour market for the purpose of our analysis.

We used individual data from the retrospective part of the survey: *Determinants of Educational Decisions – Household Panel Study* (1<sup>st</sup> Wave, 2013). Respondents were born between 1947 and 1997. The survey was based on the address sampling framework used by the Central Statistical Office. The sampling procedure was controlled with the probability of selection of address and respondent to obtain a probability sample. The survey with the main member of the household at a selected address was conducted using face-to face method (and both ways of asking questions were applied: CAPI or PAPI). Other household members filled in the questionnaires with or without help of the interviewer. As a result 43,985 persons born between 1947 and 1997 were interviewed, and included in the analysis. Appropriate weights were applied taking into account various probability of selection as it was a complex sample design, non-response and post-stratification. All results presented in this paper have been weighted.

The remaining sections of the paper have been organized as follows: After this introduction, a short literature review is presented. Then, the empirical analyses of the entry into the labour market by various cohorts and then exit from the labour market are described and discussed. Conclusions include main results, discussion of the results, and possible further research.

## 2. Literature review

A number of papers, contribute to the discussion on the transition from school to work with various interest in this phenomenon (Domański and Tomescu-Dubrow, 2008; Baranowska et al., 2011; Sikora and Prokopek, 2012), and links between education and the first job characteristics (Domański et al., 2012). Researchers usually analyse how the educational structure matches the occupational structure (Shavit and Muller, 1998). However, it is difficult to find many empirical analyses showing how the sequence between graduation from formal education and finding first employment is linked to the exit from the labour market. Some studies, cross-country ones in particular, offer further explanations. For instance Wolbers (2007) found that institutional differences in terms of the employment protection legislation and the vocational specificity of the education system impact cross-national differences in labour market entry patterns, while the impact of both these institutional features varies considerably due to the level of education. The type of job (part-time) can also have an impact on both entry and exit (Buddelmeyer, Mourre and Ward-Warmedinger, 2005). Scherer (2004) assessed the impact of different labour market structures on this allocation process for West Germany, the UK and Italy. As regards 'under-qualified' positions, the findings are not consistent with the stepping-stone hypothesis but provide some support for the entrapment hypothesis.<sup>3</sup>

Literature provides more information on the employment determinants at older age factors are identified that have an impact on the labour market exit or economic inactivity due to retirement. Most often these are incentives provided by social security systems which could act as „push” or „pull” factors for being in or out of the labour market, health status (subjective and objective, see Bound, 1991), preferences towards leisure versus higher income, or gender, which is related to the elasticity of labour supply (see Blöndal and Scarpetta, 1999; Duval, 2003). In their analysis based on data from Survey of Health, Ageing and Retirement (SHARE), Dal Bianco, Trevisian and Weber (2015) show that working conditions also have an important impact on the desire to retire as soon as possible and on transition from employment to full retirement.

Models of labour market exit often include the level of formal education as a significant factorexplaining the timing of retirement (see: Peracchi and Welch, 1994; Blondal and Scarpetta, 1999; or Kula 2007 and Ruzik, 2008 for Poland). They show that longer formal education usually means later retirement. There are several explanations of this effect: higher level of education often means higher expected earnings and lower chances to become unemployed, even in older age, better health (so lower disability rates) and higher general job satisfaction.

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<sup>3</sup> In the first hypothesis, it is assumed that non-optimal entry positions are transitional steps in the career trajectory and do not entail any negative consequences for the later career. The *stepping-stone* hypothesis not only denies the existence of negative consequences but also predicts that non-optimal entry positions will bring relative advantages for the subsequent career. On the other hand, the *'entrapment'* hypothesis assumes that unsuccessful entry has long-lasting negative consequences for the subsequent work history because workers are 'trapped' in their job or labour market segment (see more Scherer, 2004).

There are fewer items of literature on non-formal and informal education in connection with labour supply of older workers, although their number is growing. A study of Kristensen (2012) is an example of the analysis of impact of lifelong learning activities on earlier labour market exit. The author analyzed the impact of training co-financed with public funds in Germany. The results show only a small positive impact of life-long learning education on the decision to leave the labour market later, as one year of additional training increases the economic activity for up to one year. Thus (we may conclude that) training (in that under public funding) can increase productivity to change retirement behaviour and extend activity longer, however it is not enough and other measures are needed.

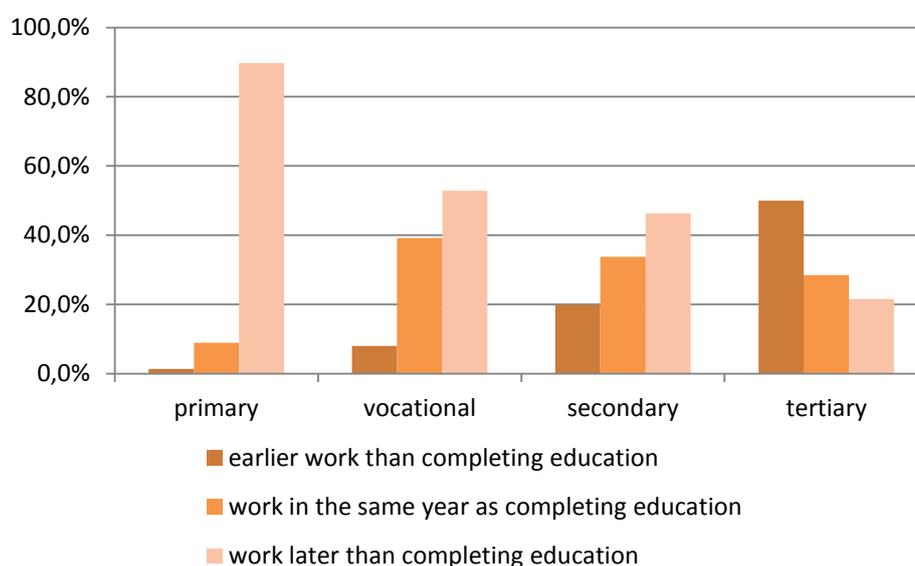
Xavier de Luna, Anders Stenberg and Olle Westerlund (2010) verified if training of employees in their prime-age could be beneficial for delaying the labour market exit close to the retirement age in Sweden. Authors show that additional investments in adult education did not have significant impact on retirement-related decision. One of the explanation of these results is that education during the working life significantly increases earnings, and due to the income effect it can also increase preferences towards leisure as well as limit the labour supply.

We focus our analysis of the early entry and early exit on a single country, i.e. Poland, for which a new dataset combining information on education and professional career has become available. It is an interesting country, also due to low employment rates of older workers comparing to other European countries (in 2013, the employment rate of 50-64 was equal to 50 per cent comparing to 59 per cent on average in the EU, Eurostat database, 2015). The analysis of one country also limits the potential impact of different (dis)incentives to retire in various pension systems. Separate models for men and women will be presented due to various legal options of leaving the labour market (e.g. standard retirement age was 60 for women and 65 for men). Labour market entry of 50+ will also be shown to verify if there are significant differences by gender in these two age groups. Additionally our analysis shows if and how time of finishing formal education linked with entry (earlier or later) the labour market has an impact on labour market exit behaviour (earlier or later than retirement age).

### 3. Formal education and first labour market entry

Before we analyse the behaviour of 50+ we will verify if the early entry into the labour market is typical for both younger and older generations of Poles and how it is related to the time of obtaining the highest level formal education. Figure 2 presents a relation between the start of the first job and time of completing the education by various education groups (treated as a sequence of three possibilities: work *before* completing education, work *in the same year* or in the maximum one year after obtaining the highest level of education, and work *after* (more than 2 years) completing education). This approach will be used in further analysis of exit of the labour market.

**Figure 2.** The first job and time of completing education by various groups of education.



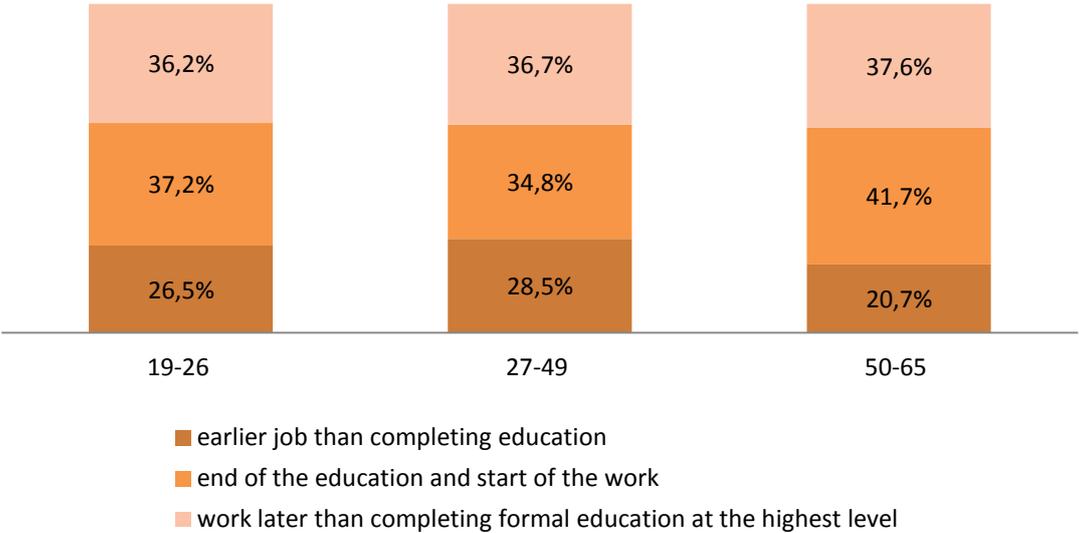
*Remark: excluding respondents who did not enter the labour market and who are still in formal education and excluding persons who did not remember when they enter the labour market (n = 37,215).*

*Source: own calculations based on DED-HPS data.*

Respondents with higher education usually start their economic activity earlier, i.e. before completing education, than those with primary education

Figure 3 presents the time of the first entry in the labour market by age groups. The sample was divided into those aged 50-65 in 2013 and younger. A majority of the older cohorts (50-65 years) entered the labour market in the same year when they completed their education or in the consecutive years (almost 80%).

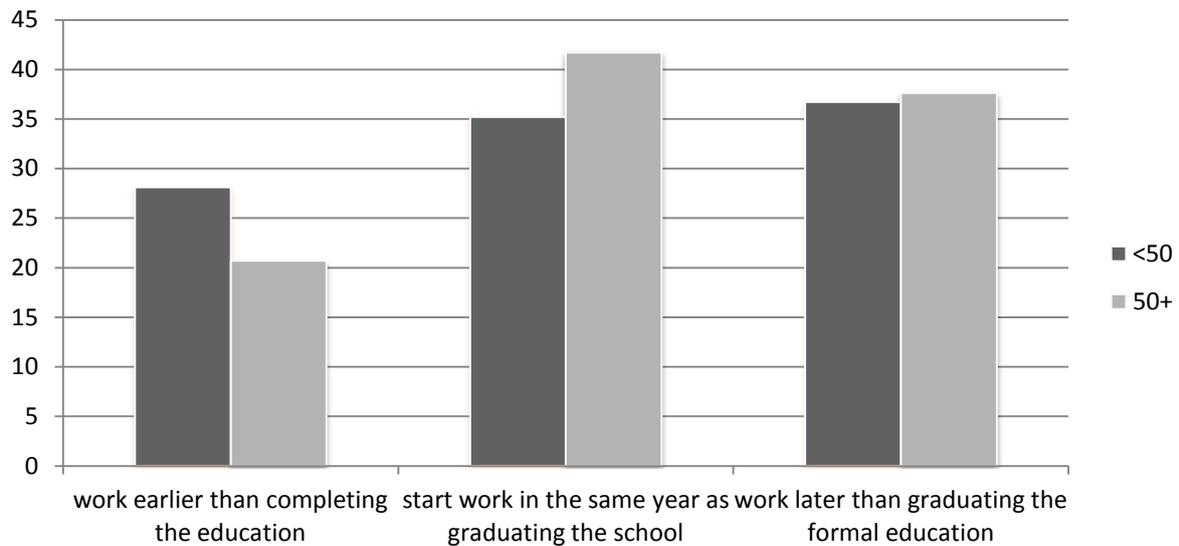
**Figure 3.** Labour market entry in relation to the end of formal education in various age groups.



*Remark: excluding respondents who did not enter the labour market and who are still in formal education (especially in age group 19-26) and excluding persons who did not remember when they entered the labour market.*  
*Source: own calculations based on DED-HPS data.*

In an analysis of the average age of entry the labour market it is observed that for the group of 50-65 the average was about 20.1 years (with a median of 19 years) while for the persons younger than 50 the age of entry the labour market was about 20.9 (median is equal to 20). Younger cohorts (without control of level of education) more often started work before completion of their formal education than the older group. In the whole sample 15-65 women entered labour market later, on average at the age of 21 in comparison to the age of 20 for men. In the past, more than 40% of 50+ managed to start working (the first job) in the same year of their graduation from any type of formal education while only about 35% of respondents younger than 50 had their first job upon completion of their education, and interestingly much more of the younger group worked before they completed education.

**Figure 4.** Share of persons 50-64 and less than 50 by their labour market entry in relation to the end of formal education



Differences between groups are statistically significant ( $p < 0,001$ ).

Source: own calculations based on DED-HPS data.

Formal education is of importance in terms of the labour market entry and it seems that the age is not significant. If a respondent completed primary education (regardless whether he/she belonged to 50-65 or 15-50 group), and his/her skills were not so demanded at the labour market, then he/she started the first work later than obtaining a specific level of education. On the other hand, in the group of tertiary education, more respondents started their first job before graduation. This trend is much more significant for the younger group.

**Table 1.** Relation between time of entering the labour market and completing the education by age and education.

	Primary		Vocational		Secondary		Tertiary	
	<50	50+	<50	50+	<50	50+	<50	50+
Work earlier than completing the education	1,4%	1,5%	10,5%	13,3%	22,8%	26,8%	52,5%	42,7%
Start work in the same year as the end of formal education	14,8%	13,2%	47,8%	51,6%	35,8%	44,7%	27,7%	40,4%
Start work later than the formal education	83,8%	85,4%	41,7%	35,1%	41,3%	28,5%	19,8%	16,9%

Differences between groups are statistically significant ( $p < 0,001$ ) with Bonferroni adjustment.

Source: own calculations based on DED-HPS data

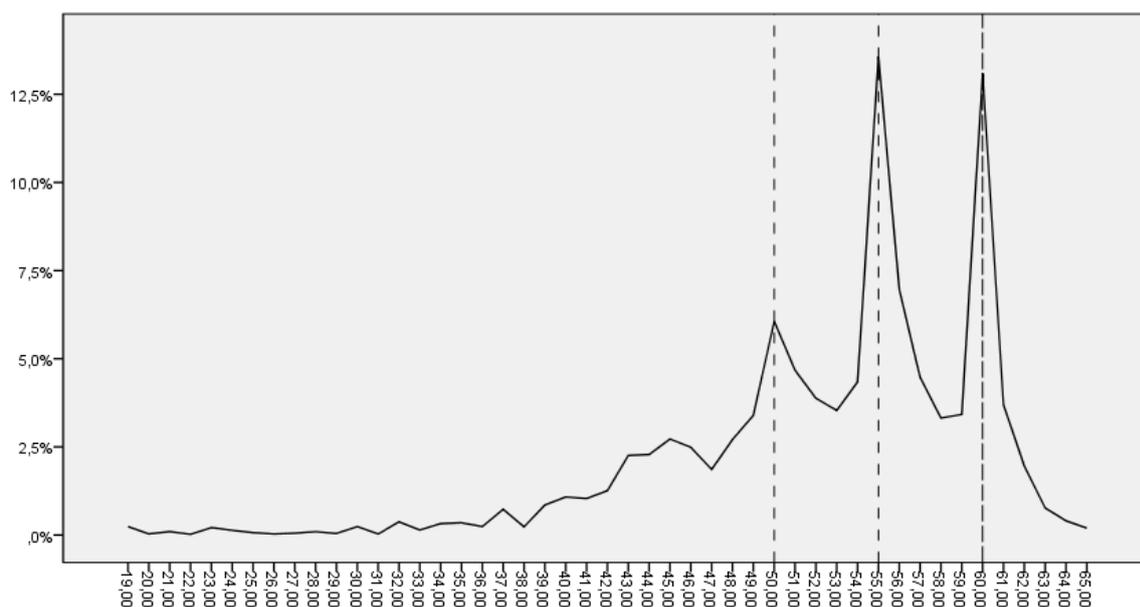
Thus in the past, *late entry* was more characteristic for the current age group 50+. People tend to complete their formal education first and then start looking for a job. For younger cohorts (those with tertiary education in particular) we found that another sequence is more popular, i.e. graduation is more often preceded by labour market experience. Based on these findings, the hypothesis H1 concerning the change in the labour market entry behaviour in Poland for 50+ could be confirmed if we compare older and younger cohorts, as 50+ usually experienced a later entry into the labour market.

## 4. Labour market exit and education

In this part of the paper we focus on hypotheses H2 and H3, i.e. the economic inactivity in the population aged 50-65 as well as link between activity/inactivity and the first entry in the labour market, or participation in non-formal and informal learning. We controlled for other factors usually presented in the literature on the labour supply at older age. The age of 50 years has been selected as the bottom line of the retirement age brackets. This decision is justified by the fact that in Poland among those who retired in 2012, majority (58% of men and 72% of women) were aged 60-64, and only 8% of men and 0.1% of women were below 50 (ZUS, 2013). Next, the results of the UDE study show that hazard rates/ frequencies of retirement considerably rises after reaching the age of 50 for all the cohorts observed in the study.

The ages of the highest retirement ages include 50, 55 and 60 (see Fig. 5). Despite the formal retirement age in Poland, until 2013, it was 60 for women and 65 for men, until the end of 2008 there were numerous possibilities to retire early. Early retirement (usually 5 or 10 years lower than the standard age) was granted to people working in hazardous or 'special' occupations or for those with a relatively long tenure. Teachers, miners and armed services could retire at any age, the only prerequisite was sufficiently long tenure.

**Figure 5.** Share of persons that retired in certain age among those already retired in 2013.



Source: own calculations based on retrospective information from the DED-HPS.

## Model

The information collected in the survey allowed for a more detailed analysis for Poland in comparison to previous studies. It was due to availability of data on the individual types of educational activity and the moment of starting the first job. To fulfil the aim we estimated the logistic regression models in the form of:

$$\ln \frac{AR}{AA} = x^T \beta$$

where an odds ratio is a ratio of those who are inactive (moved from activity to retirement: A->R) to those who are still active in the labour market (working or actively looking for a job: A->A) and x is a vector of observable characteristics, i.e.:

- age groups: 50-54, 55-59, 60-65,
- highest level of formal education (primary, vocational secondary, secondary and tertiary),
- participation in non-formal education in the last 12 months,
- self-learning (informal) of any type,
- tenure in years,
- subjective health status, an answer to the question about any impairments lasting for at least 6 months that limit daily activities,
- if a person started regular work before completing the highest level of formal education, in the year of graduation or at least one year later, or 2 or more years after completing the highest level of formal education - (variable: edu\_work sequence),
- interactions between the level of formal education and the sequence of graduation and first work.

Age and tenure are variables that indirectly influence old-age pension entitlements: they might be a prerequisite for receiving old-age pension, pre-retirement allowance or pre-retirement benefit<sup>4</sup>. Tenure influences the level of pension. On average, men have longer tenure than women. In the age group 50-65, on average men have 32.5 years of work experience and women 28.3.

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<sup>4</sup> Pre-retirement allowance and benefit are social security transfers for people with relatively long tenure that are not yet entitled to an old-age pension and become unemployed due to e.g. bankruptcy of an employer.

**Table 2.** Frequencies of variables by gender in the analysed sample

		Women	Men
Formal education - highest level attained	Primary	16%	15%
	vocational secondary	28%	47%
	Secondary	33%	25%
	<b>Tertiary</b>	22%	13%
Age group	<b>50-54 yrs</b>	28%	29%
	55-59 yrs	34%	34%
	60-65 yrs	38%	37%
Disabilities limiting daily activities lasting for min. 6 months	Yes	15%	18%
	<b>No</b>	85%	82%
Non-formal education in previous 12 months	<b>No</b>	89%	91%
	Yes	11%	9%
Informal learning. Has a respondent declared any forms of own informal learning?	Yes	33%	31%
	<b>No</b>	67%	69%
Sequence of education and work	Work before completing education	20%	22%
	Work and graduation in the same year	41%	41%
	<b>Work 2 or more years after graduation</b>	39%	37%

Source: own calculations based on DED-HPS micro data

Remark: bold categories are reference categories in further logistic regression.

Separate models were estimated for men and women, due to institutional (legal) and cultural differences influencing economic activity of both genders, e.g. entitlement rules in the pension system or elasticity of labour supply (Ruzik-Sierdzińska et al, 2013). We used two variables separately to show interrelation between graduation after the highest attained level of formal education and starting first regular job, as described above. Results are presented in the table below.

**Table 3.** Results of estimation – dependent variable – log odds of economic inactivity.

	Women				Men				
	Model 1		Model 2		Model 3		Model 4		
	B	se	B	se	b	se	b	se	
<b>Age group</b>									
55-59	1,440	,003	1,444	,004	,767	,004	,765	,004	
60-65	3,497	,004	3,515	,004	2,698	,004	2,701	,004	
<b>Non-formal education</b>									
	-,898	,005	-,901	,005	-	,007	-	,007	
					1,260		1,257		
<b>Informal learning</b>									
	-,188	,003	-,183	,003	-,285	,003	-,284	,003	
<b>Formal education</b>									
primary	,440	,005			,468	,006			
vocational secondary	,613	,004			,610	,005			
secondary	,370	,004			,433	,005			
<b>Tenure</b>									
	-,051	,000	-,051	,000	-,079	,000	-,079	,000	
<b>Disability</b>									
	1,111	,004	1,099	,004	1,526	,004	1,532	,004	
<b>Edu_work sequence</b>									
Work before completing education	,393	,004			,422	,004			
Work and graduation in the same year	,280	,003			,416	,003			
<b>Interactions</b>									
before_primary			-	,047			1,339	,025	
			1,148						
before_voc secondary			,840	,010			1,251	,013	
before_secondary			1,219	,009			1,158	,012	
before_tertiary			,702	,009			,623	,013	
sameyear_primary			1,190	,012			1,438	,014	
sameyear_voc secondary			1,211	,009			1,234	,012	
sameyear_secondary			,827	,009			1,079	,012	
sameyear_tertiary			,587	,009			,815	,013	
after_primary			,693	,009			,651	,012	
after_voc secondary			,949	,009			,950	,012	
after_secondary			,636	,009			,650	,013	
<b>Constant</b>									
	-	,006	-	,009	-,321	,007	-,567	,013	
	1,191		1,452						
<b>Nagelkerke pseudo R sq</b>									
		0,430		0,433		0,367		0,368	
<b>N</b>									
	8,056		8,056		6,433		6,432		

Source: own calculations

The estimated parameters are significant at the significance level 0.01. Note – estimations on unweighted sample show that many of the interactions variables are insignificant.

Odds of inactivity increase with the age and it is rather obvious due to main reasons, such as institutional, entitlement rules for transfers from the old-age pension system that usually include minimum age.

Formal *education level* was another important predictor of inactivity in the described period in Poland. People with primary or secondary education are more likely to be inactive at older age than those with tertiary education. Higher activity of those with primary education in comparison to those with vocational secondary may constitute an outcome of these two phenomena. Firstly, the high share of people with primary education work in agriculture (14 per cent in the group of working people aged 50-65). Secondly, persons with vocational education often worked in industry, the sector which before 2009 offered many options of early retirement.

Participation in non-formal education significantly decreases chances of early retirement with a stronger effect for men. Interpretation of these results could be twofold. On the one hand, older people who plan to retire later, are more eager to invest in their own human capital as they can expect longer return (in the form of higher wages) to investment in education. On the other hand, demand for older workers participating in life-long learning is higher as their skills depreciate less. Informal learning is also a less stronger predictor of higher activity, although also significant. This result shows that inactivity in the labour market is often accompanied by educational inactivity of whatever form.

Odds of being inactive at older age is much higher for those who are disabled, which can be explained in two ways. If subjective disability is accompanied by a formally certified level of disability, then a person can be entitled to disability benefit which often leads to inactivity. On the other hand, declaring subjective disability can also justify unobserved preferences for early retirement, as suggested by the "justification hypothesis" (see e.g. Bound, 1991). That is consistent with findings of Brugiavini, Pasini and Peracchi (2008) based on SHARE data, comparable for a large set of countries. They show that employed persons 50+ tend to be healthier, although there are countries with a large number of retirees in very good health.

Longer tenure decreases odds of inactivity at older age. Thus people either retire at the lowest possible age and tenure or work long despite fulfilling the conditions. Variable identifying the sequence of work and completion of education provides an additional interpretation of results. For those who start work before completion of education, when we compare them to those who start job after, there is higher chance of becoming economically inactive earlier, so in this context the early entry confirms the thesis on early exit from the labour market of 50+. Similar conclusions could also be drawn for the group of those who start the job in the same year as graduation.

This finding was not fully confirmed when we used the interactions between the level of formal education and education-work sequence, as the model estimated on unweighted sample shows insignificance of many groups (mainly those for people with primary education).

It is worth underlining that the impact of different variables in the models is similar for women and men, which does not confirm differences by gender.

## 5. Conclusions

Our analysis showed that cohorts born between 1948 and 1963 and who entered labour market before the economic transformation, did it more often after the time of graduation from their formal education than younger cohorts (born after 1963). This finding confirmed a change in the labour market entry behaviour for those entering the labour market before (1989) and after the transition. That change could result from a change in the labour demand elasticity after the economic transformation (Basu et al., 2000), and due to the fact that the labour market experience was valued more in the market economy than in the centrally planned economy.

We also verified whether the time of the first entry into the labour market after completing formal education is correlated with the labour market activity in the cohorts aged 50-65, i.e. the majority of the retired. Analyses showed that the later entering employment usually means the later exit from the labour force.

Participation in non-formal education decreases the chance of early retirement, *ceteris paribus* thus policies aiming at increasing participation in life-long learning activities could be beneficial for the future labour force participation at older ages. Our analyses aimed to show the links between the education level, sequence of work, and education and labour market activity from a broader perspective, taking into consideration educational decisions made at different phases of adult life. Some findings briefly presented in the overview of the already known studies did not link entry with exit by education level, and even though we tried to fill this gap in our study, there is still a lot of unknown to confirm many of the hypotheses which could also be of interest in terms of the development of this paper. As example the non-linear effect of educational achievements on chances of obtaining employment and quality of the first job (Domański et al., 2013) and impact of education over the whole life-course for prospects of the occupation and followed by the exit the labour market should be considered. Additionally, the analysis could be extended to examine types of contracts concluded with not only young people (commencing their first job) (Baranowska et al., 2011), but also at the time of making the retirement-related decision, and by type of work (part – time or full-time), as in Buddelmeyer et. al., 2005. Even Scherer (2004) found no negative effects of the type of contract on later occupational positions in any of the analyzed countries.

## 6. References

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