The Effects of Macro-Societal Configurations on the Timing of "Involuntary" and "Voluntary" Early Retirement in Enlarged Europe

1. Introduction

The trend towards earlier retirement has been one of the most important labour market developments in the past fifty years. It has been analysed by Kohli et al. 1991, OECD 2006, Eurostat 2006, Ebbinghaus 2006 based on national labour force studies; further evidence from longitudinal nation-specific survey data has been provided by various research consortia (e.g. Blossfeld 2006, Gruber and Wise 2004). Steep drops in fertility combined with an increase in longevity are prompting European Commision and many European Union governments to view ageing as a major policy dimension reflected in its current strategy, Europe 2020 and in the European Year of Active Ageing and Solidarity Between the Generations (European Commission 2011; Desjardins and Warnke 2012; EEO 2012; Eesti 2020). Population projections suggest that the population of older persons in the EU-27 will increase to such an extent that there will be fewer than two persons of working age for each person aged 65 or more by the year 2050 (Eurostat 2012). Raising the employment rate among older workers is now one of the key policies to achieve pension system sustainability across Europe. The main strategies at the national level have been closing down early retirement pathways and increasing the official retirement age. In some countries (for instance: Germany, Netherlands, Estonia), early retirement trend has recently started to reverse. However, late career workers labour force participation continues to remains well below that of early- or mid-career employees. At the same time, research results point to significant differences between different types of societies (Hofäcker 2010, Hofäcker & Pollnerová 2006, Täht, Saar & Unt 2011,Unt & Hofäcker, 2013).

The aim of the article is to study the impact of cross-nationally varying macro-societal configurations on "involuntary" and "voluntary" early retirement patterns in enlarged Europe.

2. General theoretical background of the project

Given the high societal significance of the early retirement trend, there have been numerous scientific attempts to identify nation-specific institutional drivers of this trend and of its surprising persistence

over time (e.g. Kohli et al. 1991, Blossfeld et al. 2006, Ebbinghaus 2006). Most generally, older workers' participation in the labour force may be regarded as the outcome of their rational decisions at a given age to either remain in the labour force or to withdraw from it and exit into a permanent state of inactivity, i.e., retirement. Previous research has shown that such decisions depend on a variety of factors, including country-specific institutional frameworks, workplace conditions and an individual's characteristics and ability (e.g. Clemens and Himmelreicher 2008; Hofäcker 2010). Retirement decisions thus are never entirely determined by country-specific factors, but may vary *intra*nationally (depending on, for example, firm-level context and individual human capital attainment). Nonetheless, contextual conditions at the national level represent influential determinants of individual retirement transitions as they define the structural (or cultural) opportunities and constraints under which these transitions take place. By 'setting the scene' for individuals to make their decisions regarding retirement and employment, contextual conditions thus represent a key component for a successful reversal of early retirement.

Much of these attempts can be categorized under the concepts of 'push' and 'pull factors' (e.g. Ebbinghaus 2008). On the one hand, older workers were assumed to be – based on free choice – 'pulled' out of employment through generous financial incentives provided through either generous public pension systems (Gruber and Wise 1999, Blöndal and Scarpetta 1999) or other welfare state transfer programmes such as disability or unemployment insurance (Guillemard 1991). Quite frequently, however, these exit incentives were accompanied by increasing differences between skill demands and qualification profiles in a tight and technologically rapidly changing labour market which increased firms desire to either dismiss older workers or to make them redundant through financial support for early exit. As redundant older workers frequently faced severe problems to re-enter employment, these difficulties effectively 'pushed' older workers out of employment.

Therefore, in recent literature including (Szinovacz, Davey 2005; Dorn, Sousa-Poza 2010; Radl 2013), an explicit distinction between "voluntary" and "involuntary" early retirement has been made. "Voluntary" early retirement is understood as a retirement that is caused by a relative preference for leisure versus the feasible alternative of continuing work. Conversely, "involuntary" early retirement refers to a retirement that results from a situation with no choice (job loss, health) or as a restricted

choice (care obligations) (see also Szinovacz, Davey 2005:37). Although there is evidence of the importance of the phenomenon of "involuntary" early retirement (e.g. Solinge, Henkens 2007, Henkens and van Dalen 2003) there is very limited empirical studies that document the extent and determinants of "involuntary" early retirement in a cross-national setting (exception Dorn, Spusa-Poza 2010 based on ISSP 1997 data from 15 OECD countries (no Central Eastern European countries were included)). Although the need for it has been acknowledged also inside the research community, for intance by Radl (2013:665) who analysis the effect of individual level determinants on early retirement. Thus, despite increasing political and scientific attention, systematic scientific evidence on cross-national variations & institutional determinants on "voluntary" and "involuntary" early retirement is much scarcer. This lack of knowledge is especially conspicuous in the case of the Eastern European countries that have joined the European Union relatively recently. Current project aims to fill this gap with the help of newly available database (see details below section 4).

3. The main goals of the research and work hypotheses

Research strategy aims to scrutinize the extent and determinants of "involuntary" early retirement in a cross-national setting. What will affect individual level outcomes in different countries? We would like to go beyond usual push-pull divide (social security and labour market) and explore in addition "stay factors", socio-demographic characteristics and age culture.

We expect that generous social security benefits can incentivize firms to reduce their workforce, leading to increase both, voluntary as well as involuntary early retirement. This might be especially true in countries which were strongly hit by the economic crisis starting in 2008. While the interplay of pull and push factors dominated retirement transitions from the 1970s to 1990s, policies aimed at keeping older workers in the labour force may have provided some additional 'stay factors' more recently. Such policies encompass various measures, including employment subsidies or lifelong learning programmes, which should to improve the employability of older workers and thus enhance their competitive labour market chances (see EEO 2012, Hofäcker 2012). Additionally, Engelhardt and Schmidt (2011) point out that not only explicit public policies but also basic socio-demographic characteristics of a country may significantly affect older workers' retirement behaviour. Rethinking

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the relationship between work and health is utmost importance if the effective age of retirement is to rise. This relationship appears to be most obvious for the length of (healthy) life expectancy. Workers in countries with lower overall health standards would find it difficult to continue working until a higher age due to incapacity. Furthermore, within country differences of health are also crucial: if aspects of employment detrimental to health are not reduced, active ageing will not be open to all on an equal basis, and physical and mental ageing for some will continue to precede chronological ageing (Walker and Maltby 2012). Finally, the lower a country's average (healthy) life expectancy, the more likely it would be that older workers will wish to exit from the labour force early in order to enjoy leisure time after their formal retirement (van Solinge and Henkens 2010). Engelhardt and Schmidt (2011) furthermore highlight that the overall educational profile of the older workforce may create differential conditions for choosing between early and late retirement as older workers with higher educational qualifications are better able to compete with younger cohorts for jobs. A higher share of higher qualifications among the older workforce thus should promote their labour force participation. Both the readiness and the ability of older workers to remain in employment may depend not only on the opportunities created through structural institutional characteristics but also on the 'age culture' prevalent in a country (Maltby et al. 2004). In a country with a distinct 'early exit culture', older workers may develop higher preferences for leaving employment prematurely than the ones in the countries with a 'late exit culture'. At the same time, an entrenched early exit culture may foster the development of 'ageist stereotypes' among employers that lower the likelihood of employing older workers (Conen et al. 2012, Schröder et al. 2009). Negative age stereotypes may detrimentally affect the likelihood of longer employment lives among the older workforce, thus being the very antithesis of active ageing (Walker and Maltby 2012). Thus, the analysis aims to establish whether between countries there are differences in individual choices or constrains (ie. voluntary vs involuntary) of early retirement due to nation-specific packages of social security, labour market, "stay policies", and socio-demographic characteristics.

4. Research data, variables and methodology

The data used in the current survey comes from the Survey of Health, Ageing and Retirement in Europe (SHARE). SHARE is a longitudinal, multidisciplinary and cross-national panel database of micro data on health, socio-economic status and social and family networks of more than 30,000 individuals aged 50 or over in Europe (Börsch-Supan et al. 2013; Malter & Börsch-Supan2013). In the current study we use mainly the data from 4th wave (2010), however when needed we also make reference to previous waves (2008, 2006, 2004). In the 4th wave of data collection participated 16 countries: Austria, Germany, Sweden, The Netherlands, Spain, Italy, France, Denmark, Switzerland, Belgium, Czech Republic, Poland, Hungary, Portugal, Slovenia and Estonia, whereas the latter four entered the project for the first time.

The target population of the baseline samples was all persons older than 50 years having their regular domicile in the respective country together with their current partners/spouses, independent of age. Thus, the sample for the first wave of data collection consisted of all persons born in 1954 or earlier and for the 4th wave respectively all persons born 1960 or earlier. The target population for the longitudinal survey consists of all original sample members who were interviewed in any previous wave of SHARE and their current partners or spouses (independent of age and independent of their participation in previous waves). In the current analysis we look at the transitions to voluntary or involuntary retirement that was not a retirement due to eligibility /private/occupational pension during the period of 2008 – 2011.

As the main method of analysis we apply multi-level multinomial logistic regression which allows us controlling for both individual and country-level characteristics in predicting the retirement type. The groups to be compared in the multinomial regression analysis are respectively those who opted for 'voluntary early retirement' or 'involuntary early retirement' compared to those who continued working before official retirement age. As 'voluntary (early) retirement' are defined cases where respondent: was offered an early retirement option/window with special incentives or bonus; retired at the same time as spouse or partner; did so in order to spend more time with family; retired earlier to enjoy life. As 'involuntary retirement' are defined cases where the respondent retired because was made redundant, due to own ill health, or due to ill health of relative or friend. In total we have in the analysis 16 countries and 17,133 individuals.

As individual level characteristics are include in the models: respondent's gender, highest attained level of education (respondent's age during retirement, highest attained level of education (primary or less, lower secondary, secondary and tertiary measured on ISCED-scale), marital status, employment type prior to retirement (self-employed, employed), occupational position before retirement (blue-collar, lower white-collar, higher white-collar), and respondent's age (age groups: 50-54, 55-60. 61-

65). As country-level variables we differentiate between push-, pull- and stay-factors, attitudes, and socio-demographic context factors. As push-factors are included in the models: 'change in unemployment rate between 2008 and 2011'; 'employment protection legislation for individual and additional provisions for collective dismissals 2008-2011'; and 'unemployment ratio of elderly to all working population'. As pull-factors are included in the models: 'public expenditure on passive labor market measure', 'old-age poverty risk', and 'pension replacement rate'. As stay factors are modeled: 'public expenditure on active labor market policies', 'share of part-time work among late-career workers'. As general attitude factors describing the perceptions on the role of elderly in the labor market are included: 'mean perception for when old age starts' and 'percentage of people perceiving older people positively'. As socio-demographic characteristics of the the country-context are included: 'higher education ratio', 'life expectancy' and 'healthy life expectancy'. The country-level macro-indicators are derived from various large scale macro-data sources such as Eurostat, OECD, MISSOC. The country-level indicators for attitudes are derived from Eurobarameter survey 378 'Active ageing' (fielded in late 2011). In the final model of individual and country-level characteristics are included only those country-level characteristics showing significant impact on early retirement type prediction.

At first, we present descriptive analysis of dependent variable and its covariance with country-level variables. Thereafter, we use two-level multinomial logistic regression analysis to test the importance of contextual variables for the risk of voluntary and involuntary early retirement. These models allow estimation of individual level effects at the same time with contextual effects (reference). As a first step of multilevel analysis, we analyse model without explanatory variables. This empty model enables to calculate intra-class correlation to assess how much of the total unexplained variance in the dependent variable is attributable to country level. Next, we include individual level characteristics.

After that, we test different contextual level variables to find variables that explain the risk of voluntary and involuntary early retirement. We test country-level variables in five models that represent five dimensions: 1) push factors; 2) pull factors; 3) stay factors; 4) attitudes; 5) socio-demographic condition. Thereafter, we choose significant variables from these models. We assume that these variables represent analysed dimension. As a final step of analyses, we estimate general model that includes variables from different dimensions.

The improvement of models is tested with likelihood-ratio test (Raudenbush and Bryk 2002). Baseline comparison model is model with only individual-level variables. We estimated random-intercept multinomial multilevel models using general structural equitation modelling in Stata 13.

Results

Descriptive analysis

Figure 1 shows the percentage of people who have retired earlier because of voluntary or involuntary reasons compared to their peers who have stayed in the labour market. The rate of involuntary early retirement ranges from 1.1% in Netherlands to 8.3% in Portugal. There is low percentage of involuntary early retirement also in Poland, Switzerland and Italy. In addition to Portugal, other countries with high share of involuntary early retirement are Austria and Czech Republic. In contrast, 10.8% of people in the Netherlands have moved to voluntary early retirement while in Italy only 0.4% of the labour force have chosen voluntary to leave earlier from the labour market. All together, the percentage of people moving to early retirement is highest in Denmark (14.9%) and lowest in Italy (1.9%). However, it is important to note that we did not take into account people who are inactive.

Figure 1. The percentage of people who have retired earlier because of voluntary or involuntary reasons by country, proportion from the total workforce
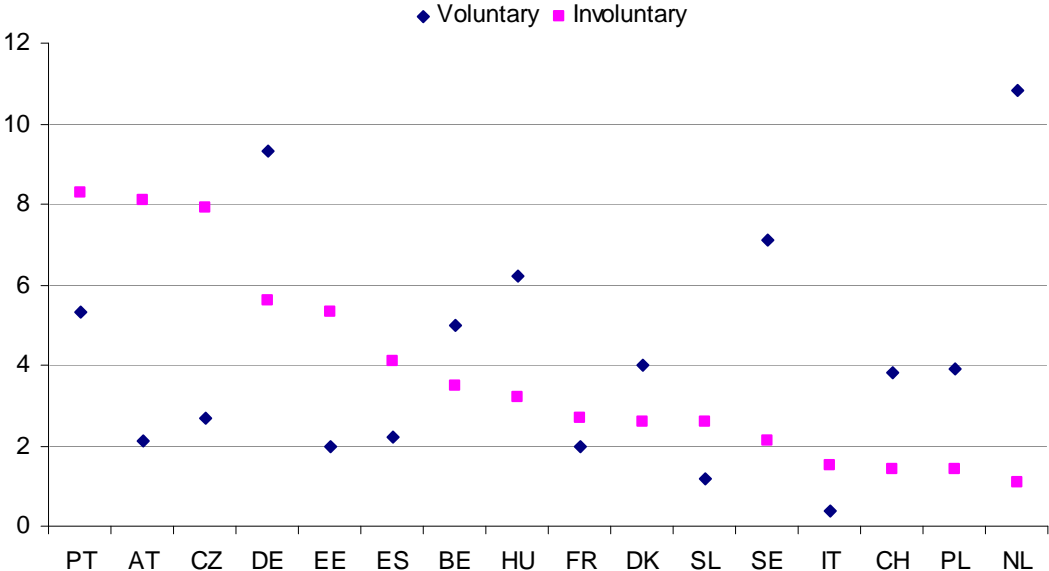
Figures showing covariance between dependent variable and country-level variables are on the presentation slides.

Multilevel analysis

First, we calculated intra-class correlation based on empty model. The results show that 14% (voluntary early retirement) and 11% (involuntary early retirement) of the total variance is on the country level. Therefore, the risk of voluntary and involuntary early retirement varies between countries.

Table 1 shows the influence of different individual-level characteristics on the risk of voluntary and involuntary early retirement. The comparison group is people aged 50-64 who stay in the labour market (unemployed or employed). Results indicate that the risk of involuntary early retirement depends strongly on individual characteristics. This risk is higher for women than for men. People with secondary or tertiary education have lower risk of exiting labour market involuntary compared to people with low educational attainment. Occupational position also matters. The risk of early involuntary retirement is lower for white-collar workers than for blue-collars. In addition, people who are self-employed are less likely to leave labour market earlier. In contrast, the likelihood of early voluntary retirement is not depending on gender, educational attainment or occupational position. However, people who are married have higher risk of early voluntary retirement compared to others. Also self-employed are less likely to move voluntary to early retirement.

Table 1. The effect of individual-level characteristics on the risk of voluntary and involuntary early retirement compared to staying in labour force, unstandardised regression coefficients of multinomial multi-level logistic regression

	Model 1			
	Voluntary early retirement		Involuntary early retirement	
Constant	-2.085**	(0.215)	-1.419**	(0.232)
Men	-0.086	(0.090)	-0.287**	(0.086)
Education (ref. lower secondary or less)				
Secondary	-0.043	(0.117)	-0.286**	(0.102)
Tertiary	-0.163	(0.135)	-0.674**	(0.136)
Married	0.312**	(0.107)	-0.062	(0.090)
Self-employed	-0.564**	(0.142)	-0.644**	(0.141)
Occupational position (ref. blue-collar)				
Higher white-collar	0.059	(0.123)	-0.424**	(0.118)
Lower white-collar	-0.038	(0.120)	-0.344**	(0.106)
Age group (ref. 61-65)				
50-54 years old	-3.807**	(0.224)	-2.659**	(0.130)
55-60 years old	-1.628**	(0.095)	-1.460**	(0.091)
Unexplained variance at country level	0.391*	(0.166)	0.605*	(0.235)

Standard errors in parentheses
+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

The aim of our analysis is to find out whether early retirement depends on institutional characteristics and other country-specific conditions. The risk of voluntary and involuntary early retirement might be explained by different push, pull or stay factors as well as attitudes

and socio-demographic condition in the country. The next step of our analyses is to examine separately the models for these five dimensions.

Model 2 in Table 2 includes push factors: average unemployment ratio (ratio between total and old-age unemployment), change of unemployment rate and employment protection legislation index for individual and collective dismissals (EPL). Surprisingly, findings show no significant effect of push factors on involuntary early retirement. On the other hand, the movement to voluntary early retirement is to some extent explained by unemployment ratio in the country. The larger the difference between total and old-age unemployment, the less likely is the voluntary movement to early retirement compared to staying in the labour market as employed or unemployed. Thus, the push factors are not working in the way we expected. It is important to note that according to likelihood ratio test the model with push factors is not significantly better than model with only individual-level factors. However, unexplained country-level variance reduces somewhat in more complicated model.

Model 3 analyses the impact of pull dimension on early retirement (Table 2). We included variables indicating public expenditures for passive labour market programmes, retirement age (mean of early and regular retirement age), old-age poverty rate and pension replacement rate. Likelihood ratio test shows that model for pull dimension is significantly better than model with only individual-level variables. The results show that the increase of average retirement age in the country reduces the risk of moving to involuntary early retirement and increases the risk of voluntary retirement compared to staying in the labour market. /This finding is surprising and needs further examination/. However, other tested variables had no effect on the risk of early involuntary retirement. On the other hand, the likelihood of voluntary early retirement depends on old-age poverty risk: when poverty is larger people are less likely to move voluntary into early retirement.

Model 4 includes factors that should encourage people to stay in the labour market (Table 2). We analysed public expenditures for active labour market programmes and the proportion of people aged 55-65 working part-time. Likelihood ratio test confirms that including stay factors improves our model somewhat compared to model with only individual-level characteristics. Findings indicate that the larger availability of part-time jobs in the country reduces the risk of involuntary early retirement. Surprisingly, active labour market policies

play no role for early retirement. The reason could be that these policies tend to be more targeted towards younger people and often lack special measures for old-age workers.

Table 2. The effect of country-level characteristics on the risk of voluntary and involuntary early retirement compared to staying in labour force, unstandardised regression coefficients of multinomial multi-level logistic regression

	Model 2: push factors				Model 3: pull factors				Model 4: stay factors			
	Voluntary early retirement		Involuntary early retirement		Voluntary early retirement		Involuntary early retirement		Voluntary early retirement		Involuntary early retirement	
Constant	-0.126	(1.275)	-0.875	(1.795)	-4.098	(2.640)	8.776**	(2.990)	-2.491**	(0.467)	-0.374	(0.511)
Push factors												
Unemployment change	-0.078	(0.048)	0.021	(0.073)								
EPL	0.048	(0.347)	-0.069	(0.515)								
Unemployment ratio	-1.322**	(0.512)	-0.300	(0.714)								
Pull factors												
Passive labour market measures					0.024	(0.070)	0.166	(0.254)				
Retirement age					0.218**	(0.022)	-0.083	(0.083)				
Old-age poverty risk					-0.040**	(0.006)	-0.010	(0.024)				
Pension replacement rate					-0.004+	(0.003)	-0.008	(0.011)				
Stay factors												
Active labour market policies									0.574	(0.396)	-0.225	(0.438)
Part time jobs 55-65									-0.005	(0.036)	-0.087*	(0.041)
Unexplained variance at country level	0.238*	(0.102)	0.595*	(0.231)	0.230*	(0.108)	0.309*	(0.130)	0.346*	(0.148)	0.432*	(0.172)

Note: Individual-level variables are included in all models.

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

Attitudes towards older people are included into Model 5 (Table 3). We tested two country-level dimensions: perception of when old age starts and the percentage of people who perceive older people positively in society. Results show that the later the perceived start of old age, the smaller the risk of involuntary early retirement. Thus, attitudes in society are somewhat relevant for movement to involuntary early retirement. However, it is important to note that although adding these variables into model somewhat decreases the unexplained variance at the country level, the likelihood ratio test indicates that model is not improving significantly compared to simpler model.

The last dimension we test is a model with socio-demographic conditions (Model 6 in Table 3). This is captured by healthy life expectancy, average life expectancy and the ratio of older to younger workers with tertiary degree. Results show that longer life expectancy or healthy life expectancy reduces the likelihood to move to early retirement. In contrast, the higher education ratio has no effect. Although unexplained variance at the country level decreases compared to simpler model, likelihood ratio test shows that improvement is not statistically significant.

Table 3. The effect of country-level characteristics on the risk of voluntary and involuntary early retirement compared to staying in labour force, unstandardised regression coefficients of multinomial multi-level logistic regression

	Model 5: attitudes				Model 6: socio-demographic conditions			
	Voluntary early retirement		Involuntary early retirement		Voluntary early retirement		Involuntary early retirement	
Constant	-0.590	(3.501)	5.784	(3.950)	2.367	(2.414)	2.910	(2.674)
Attitudes								
Perception: when old age starts	-0.019	(0.063)	-0.117+	(0.071)				
% perceiving older people positively	-0.004	(0.017)	0.006	(0.019)				
Socio-demographic conditions								
Higher education ratio					-0.087	(0.300)	-0.089	(0.342)
Life expectancy					-0.072+	(0.043)	-0.036	(0.048)
Healthy life expectancy					-0.006	(0.015)	-0.040*	(0.017)
Unexplained variance at country level	0.380*	(0.160)	0.480*	(0.190)	0.317*	(0.135)	0.400*	(0.161)

Note: Individual-level variables are included in all models.
Standard errors in parentheses
$+ p < 0.10$, $* p < 0.05$, $** p < 0.01$

General model

Finally, we conduct a model which combines variables from different dimensions. We choose variables from previous models which had statistically significant influence on early retirement[1]. Therefore, the final model includes:

1) unemployment change and ratio (push factors);
2) retirement age and old-age poverty rate (pull factors)
3) part-time employment among 55-65 year old people (stay factor)
4) perception when old-age starts (attitudes)
5) life expectancy (socio-demographic conditions)

Table 4 presents the model with combined variables (Model 7). Findings show that both push factors affect movement to involuntary early retirement. This risk is lower when change in the unemployment between years 2009 and 2011 has been larger. Therefore the push factors work other direction than we predicted. It is difficult to explain this result but the unemployment rate of older workers might increase if people prefer to stay in the labour market as unemployed instead of retiring early. At the same time, the ratio between unemployment of elderly and overall labour force shows that if elderly face the same unemployment risk as all labour force, they are more likely pushed out of labour market involuntary. It can be interpreted also the other way that if elderly are more protected from unemployment risk then they are less likely push out of labour market involuntary.

Model 7 confirms that push factors affect involuntary early retirement even when other country-level characteristics are controlled. The higher the retirement age (average of early and regular retirement age), the smaller is the risk of involuntary early retirement. Contrary to model with only pull factors, the model with combined factors show that also old-age poverty rate has positive effect on movement to involuntary early retirement. This risk is higher when old-age poverty risk is higher. Therefore, high old-age poverty might work as a "stay" factor as people prolong their workcareer as long as possible.

The availability of part-time jobs for older people reduces the risk of involuntary early retirement even after controlling for possible pull and push factors (Table 4). However, the effect of attitudes on involuntary early retirement is changing its direction after controlling for

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[1] We decided to include also unemployment change as a control variable because it is a central importance to see its effect, even though it was not significant in Model 2. To reduce the number of parameters, we left out healthy life expectancy because its content is similar to general life expectancy.

all other relevant factors. /This tendency needs a further analysis./ On the other hand, longer life expectancy reduces the risk of involuntary early retirement which refers to a relevance of socio-economic characteristics also in labour market transitions.

In the model with combined variables, the likelihood of voluntary early retirement depends only on push factors and socio-economic conditions. The higher unemployment ratio favouring elderly in the labour market and longer life expectancy reduce the risk of voluntary early retirement.

Likelihood ratio test shows that Model 7 with combined country-level variables is significantly better than model with only individual-level variables. Compared to simpler model, the unexplained country-level variance in general model is decreased by 65% for voluntary early retirement and 89% for involuntary early retirement.

Table 4. The effect of country-level characteristics on the risk of voluntary and involuntary early retirement compared to staying in labour force, unstandardised regression coefficients of multinomial multi-level logistic regression

	Model 7			
	Voluntary early retirement		Involuntary early retirement	
Constant	0.522	(2.910)	10.52**	(2.187)
Unemployment change	-0.076	(0.062)	-0.133**	(0.049)
Unemployment ratio	-1.055*	(0.513)	-1.523**	(0.399)
Retirement age	-0.013	(0.038)	-0.190**	(0.029)
Old-age poverty risk	-0.020	(0.019)	0.046**	(0.016)
Part time jobs 55-64	-0.004	(0.040)	-0.149**	(0.034)
Perception: when old age starts	0.068	(0.056)	0.099*	(0.045)
Life expectancy	-0.075+	(0.043)	-0.061+	(0.033)
Unexplained variance at country level	0.136*	(0.065)	0.067+	(0.040)

Note: Individual-level variables are included in all models.
Standard errors in parentheses
$+ p < 0.10$, $* p < 0.05$, $** p < 0.01$