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Late Careers in Europe:

Effects of Individual and Institutional Factors

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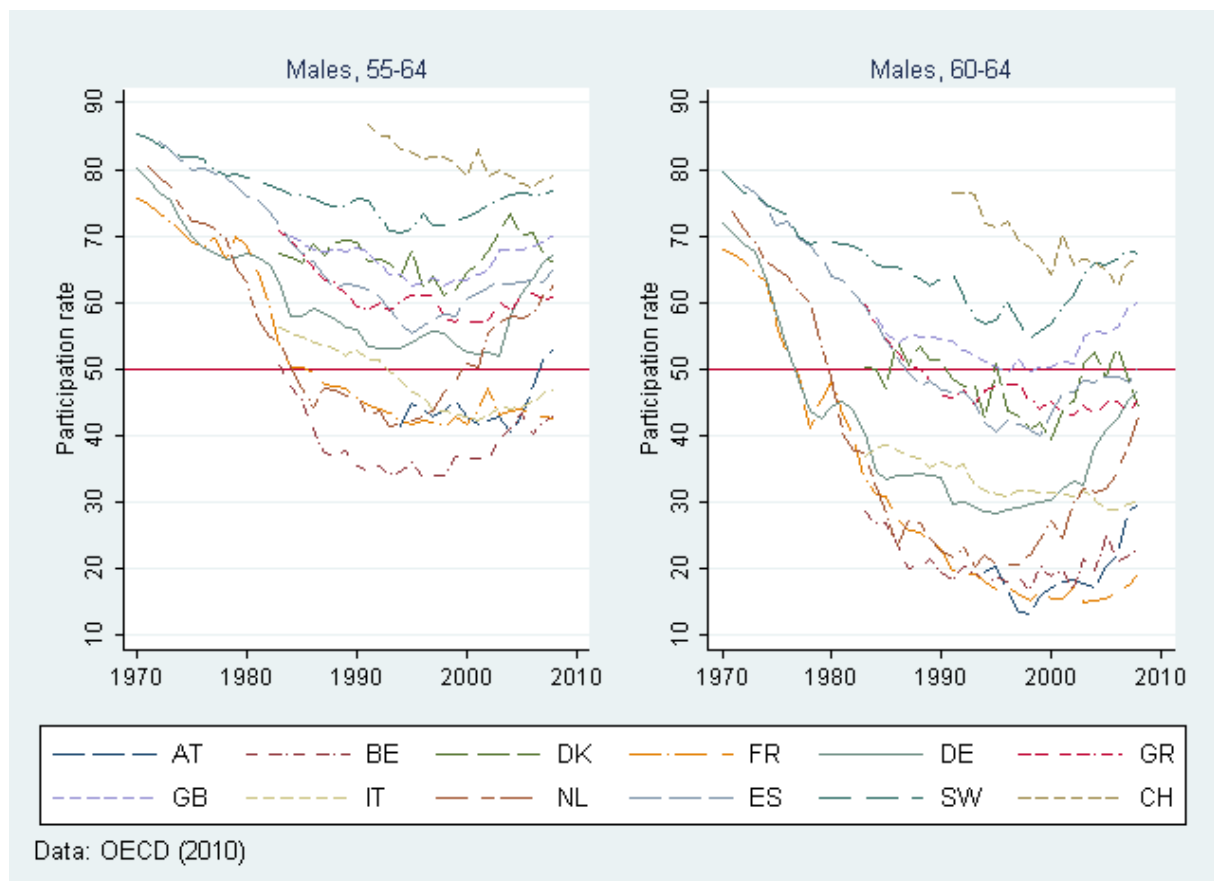
Abstract: In this paper, I estimated the effects of individual and institutional factors on labor participation and transition to inactivity for older males in eleven European countries, using the first two waves of SHARE. The application of multilevel methods allowed to estimate the share of variance in international late careers that can be attributed to country-specific factors and to quantify the relative impact of specific institutional backgrounds. The share of variance in labor participation and labor market exit among males aged 50+ that can be attributed to institutional characteristics is about 6 to 7%. About 67% of the regional variance in labor participation and 29% of the regional variance in labor exit in Europe can be attributed to measured country-specific factors, including institutional differences in pension systems and welfare arrangements, employment relation systems, education systems, and employment-sustaining active labor-market policies. Controlling additionally for individual heterogeneity provides an explanation for increases in regional variation to 87% for participation and to 48% for the transition to inactivity. Moreover, financial incentives to keep older males in the labor market are outweighed by the monetary incentives of the pension systems, and this applies to both employment maintenance and employment exit.

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1. Introduction

Labor markets in Europe are characterized by low employment and labor-force participation rates of older workers due to early withdrawal from work. Although a common trend towards higher employment and participation rates has been observed in the last decade, the average increase in employment (participation) among European men aged 55-64 from 48.6% (52.6%) in 1998 to 54.3% (57.2%) in 2008 and among men aged 60-64 from 32.9% (34.7%) to 39.2% (41.0%) during the same time, masks extremely heterogeneous cross-country situations (see Figure 1 for participation).

Figure 1: Labor participation rates of men aged 55-64 and 60-64 in selected European countries, 1970-2008



These variations have their origin in a number of different determinants. On the one hand, differences in labor force participation rates are seen as a demand deficiency of firms driven by economic constraints in times of economic downturns (Auer and Fortuny 2000; Dorn and Souza-Posa 2007). On the other hand, low participation rates are regarded as being determined by personal choices motivated by individual factors (health, education, family environment, etc.), social contexts (occupational activity, reward) as well as institutional

factors (pension and welfare system, employment relation systems, occupational systems, and employment sustaining policies) (Buchholz et al. 2006; Hofäcker 2010).

Much empirical research has been done so far on the macro relation between participation rates and welfare-state programs (Blöndal and Scarpetta 1999; Duval 2003; Gruber and Wise 1999a, 1999b, 2004, 2007) as well as on the individual determinants of labor participation in late life (e.g., Drobnič 2002; Blossfeld et al. 2006; Hofäcker 2010; Kalwij and Vermeulen 2007). However, neither the analysis based on individual data nor that based on macro data provide evidence on the causes of the international variation in the labor-force participation of the aged. Macro analysis always suffer from the problem of ecological fallacy: a relationship found when using macro data may be due to unmeasured factors. The welfare state approach (Esping-Andersen 1993, 1999) faces this problem too and, moreover, it masks some highly relevant differences within this typology (Börsch-Supan 2007). Thus, the application of the welfare state concept whilst not going deeper into the underlying details does not seem very promising. Differences found in the estimated coefficients based on individual data, e.g. for education or household income, are not necessarily due to institutional factors, even if anecdotic evidence is sometimes suggestive (Blossfeld et al. 2006). Research on the influence of institutional settings on individual employment, however, is rare and up to now has been providing only a partial analysis, based on the influence of selected social protection systems (see Debrand and Sirven 2009 for pension systems and employment protection). Not a single study has systematically connected the micro-patterns varying cross-nationally to country-specific institutional settings at the macro level in an adequate empirical way.

In order to address the different social protection systems separately, I use data from the first two waves of SHARE, complemented by aggregate data (official statistics from OECD and EUROSTAT) describing the pension systems and welfare arrangements, the employment relation systems, the education systems as well as employment-sustaining active labor-market policies. The first section of this article provides a review of empirical literature based on individual determinants (including household characteristics and workplace environment) and institutional factors. The second section provides a detailed presentation of the data, variables, and method of analysis. The results are presented and commented in section three. The paper concludes with a summary and an outlook on further research the research community may benefit from.

2. Theoretical considerations

Economic Theory of Retirement

The most influential theoretical approach in scientific debates about early retirement is the *Economic Theory of Retirement*. The key assumption of the economic approach is that older workers can be regarded as rational, utility-maximizing individuals who are trying to maximize their lifetime income and select their optimal retirement timing by considering the given financial opportunities and constraints. The economic theory traces the labor-market exit of older workers back to the financial incentives to retire built by public (early) pension systems and other welfare-state programs (Gruber and Wise 2002). Given these incentives and the fact that individuals generally tend to value leisure over work, it is expected that older workers leave the labor force at the earliest point in time, i.e. when pension payments compensate adequately for their potential labor income in case of continued employment (Gruber and Wise 2004.). Usually, this would be the mandatory pension age. However, in recent decades many governments have gradually enacted 'early retirement programs' that allow older workers to retire and receive pension benefits before mandatory retirement age. Older workers have thus tended to leave active employment even earlier (Duval 2003). Other pension systems allow older workers to exit the labor force and draw early pension benefits after a certain minimum number of contribution years has been reached (Blöndal and Scarpetta 1999).

In addition to explicit public (as well as occupation-based and private) pension programs, other welfare state arrangements, such as invalidity benefits or unemployment insurance, have an important impact on the employment of older people (Guillemard 1991). These programs often work as possible extensions of early retirement schemes, without explicitly being labeled as such (Buchholz et al. 2006).

The decrease in old age employment until the mid-1990s in many Western industrialized countries has been attributed largely to such options and incentives (Blöndal and Scarpetta 1998; Gruber and Wise 1998). Central and Southern European countries have high levels of wage replacement through public pensions and attractive early retirement schemes. These countries follow a policy of encouraging early retirement. The opposite applies to countries such as the United Kingdom and the United States. They have relatively low levels of pension benefits and offer only moderate incentives for early retirement or none at all. Pension

systems in Scandinavia occupy a position between the two groups just discussed. Scandinavian pensions are fairly generous, but mostly offer only very moderate early-retirement incentives. Instead, they have options for a more gradual entry into retirement in these countries (Blöndal and Scarpetta 1998; Gruber and Wise 1999, 2004).

Although the economic approach has pointed to a significant statistical association between public social security incentives and employment behavior, sociologists have criticized this view for its shortcomings. One major problem rests on the assumption that the transition from employment to economic inactivity is just modeled as a voluntary choice of individuals under given institutional conditions that provide incentives for or against labor-force withdrawal. By concentrating on the individual decision only, the approach takes a dedicated *labor-supply* view while largely neglecting the *labor-demand-side* (Auer and Fortuny 2000). It stands to reason that this one-sided focus on free individual choice and the institutional 'pull' factors that influence it does not adequately reflect the decision-making process of older workers. Dorn and Souza-Poza (2007) support this view. They show that in the majority of modern industrialized countries involuntary retirement is of significant importance for labor-force withdrawal processes and in some countries even accounts for the majority of actual retirement transitions.

Hence, it can be assumed that other factors constrain older workers' possibilities of continuing their employment career and 'push' them out of employment. The simultaneous existence of these 'push factors' turns the individual decision situation into a decision that is much less free and voluntary than the mere concentration on retirement incentives suggests (Kohli and Rein 1991). Thus, a comprehensive explanation of late careers needs to take both the labor supply and the labor demand side into consideration (Buchholz et al. 2006).

Political economy of the life course

A theoretical approach doing exactly this is the so-called *political economy of the life course*, which took theoretical concepts from comparative institutional research to the individual life course. In particular, life-course sociology benefited greatly from developments in the political sciences, particularly from Esping-Andersen's (1990, 1999) typology of different welfare-regimes and the industrial-relations-oriented perspective by Soskice (1999), Hall and Soskice (2001), and Ebbinghaus (2006). By systematically linking the macro and micro level, life course theory shows the manner in which country-specific institutional backgrounds differentially influence the structure of the life-course in modern societies (DiPrete 2002;

Leisering 2003; Mayer 2004). Moreover, this approach theoretically extended the focus of retirement research to a whole set of life-course policies influencing older workers' late careers and their exit from employment.

According to this approach, only focusing on the national pension systems would not be sufficient to explain why over the past centuries the share of older workforce has been decreasing in some countries more than in others. In addition to pension systems, which support early retirement more or less, some other institutions increase the possibility for older workers to continue working in times of structural changes in general. This includes the settlement of industrial relations, the flexible or inflexible education systems and occupational structures as well as employment promotion and occupational rehabilitation actions.

Countries also differ in the basic relationship between employers and employees and in the shift of market risks to employees (Soskice 1999; Ebbinghaus 2000, 2002). On the one hand, many European countries have relatively 'coordinated market economies' (Soskice 1999), where unions are strong and centralized procedures of negotiation are common. On the other, there are open employment relationships in countries such as the United States and contemporary United Kingdom that can be characterized as being decentralized, dualistic, and based on free market forces. In such 'uncoordinated market economies' (Soskice 1999), unions play only a rudimentary role, so that workers are relatively unprotected from market forces and depend on individual labor-market resources (such as human capital) (DiPrete et al. 1997). Coordinated and uncoordinated market economies strongly differ in the level of employment protection. While job protection is highly developed in countries that have strong unions, countries with uncoordinated economies see relatively low levels of job protection. From a theoretical perspective, there are no compelling reasons for strict employment protection legislation (EPL) to reduce average employment levels (for a different evaluation of the effect of EPL, see Buchholz et al. 2006). On the one side, EPL reduces the employers' propensity to hire, since they fear that such decisions will be difficult to reverse in the future, e.g. in case of a recession. On the other side, EPL prompts firms during downswings to keep more workers employed than they would have done otherwise. Therefore, EPL reduces both job creation and job destruction, so that the net effects on average employment and unemployment cannot be identified a priori. These two

mechanisms could in principle compensate each other, so that it leaves the average employment and unemployment levels unchanged from a laissez-faire situation.

Since the introduction of technology and automation in the working environment, the discrepancy between existing and required qualifications has been a problem especially for older workers. The chances for older workers to adapt their own qualification profile to new market demands significantly depends on national occupational structures. Countries that have a well-developed standardization and stratification of the education system and at the same time a weak infrastructure for lifelong learning (such as Germany, Spain, and Italy) systematically produce labor-market limitations for professions, preventing labor force to break away from their original professional careers in order to adapt to changes in the qualification requirements (Allmendinger 1989; Shavit and Müller 1998; Blossfeld and Stockmann 1999). In the above mentioned countries, adaption to technological and structural change is being compensated by retiring older workers and regenerating young workers with up-to-date qualifications rather than through re-qualification of the existing and also older work force (Blossfeld and Stockmann 1999; DiPrete et al. 1997; Buchholz et al. 2006).

Finally, employment-sustaining active labor-market policies aim directly at employment maintenance and the re-integration of unemployed workers into employment. Policy may include measures as diverse as state supported and temporary jobs, limiting the duration of unemployment benefits and measures designed to re-train and re-integrate employees into the labor market (DiPrete et al. 1997). In general, these measures increase older employees' attachment to the labor market and ensure low rates of labor-force withdrawal before reaching the mandatory retirement age (Buchholz et al. 2006). Studies on the Scandinavian countries show that these policies lead to relatively high employment rates until retirement age. In Sweden, this pattern can be traced back to a labor-market policy that places much emphasis on full employment and uses a combination of different measures to keep employment high (Calmfors 1993). Countries such as Germany, the Netherlands, and Italy have fewer active labor-market policies to support re-entry into the labor market after job loss, in particular for the older workforce (Esping-Andersen 1999).

The variation in late careers due to institutional differences seen between countries is mirrored by variation across industries and individuals. The work context and individual

characteristics in particular, are important determinants of the labor participation of older workers.

Characteristics of the work context and the individual

An obvious aspect of the work context is the industry in which an individual is employed. Classical industries, such as manufacturing or textile, are more negatively affected by changing labor markets and they shrink all over Europe. Older employees in such sectors should therefore show a higher probability of entering early retirement than employees in growing economic sectors, such as the service sector (Buchholz et al. 2006).

Another important factor for late careers is firm size. As a consequence of the 'crisis of mass production' (Castells 2000), larger firms have to change their organizational structures, entailing a need for both staff reduction and relocation of work to outside supplier networks (Hofäcker 2010). In order to downsize and outsource, larger firms first have to reduce their staff, and older employees are especially affected by these decisions, because they often receive higher wages and their re-training is less profitable. Moreover, occupational pension schemes – often offered in larger firms – have equipped employers with an efficient tool to control the size and composition of their workforce by offering early retirement incentives to their employees. Thus, employees in large firms should have an increased probability of early retirement (Buchholz et al. 2006).

While industries or specific types of work are declining, individual occupation and qualification is of particular importance for late careers (Buchholz et al. 2006). Persons with low qualifications should be much more affected by economic restructuring processes and thus, they should have generally lower labor participation and retire earlier than highly qualified employees with better jobs.

In addition to qualification, labor-force status itself is crucial. As Blöndal and Scarpetta (1998) show, the self-employed have a very low likelihood of leaving the labor market early. Running one's own business often does not permit retirement. Moreover, empirical work demonstrates that health status, and more particularly the notion of disability, is an important variable in workforce participation (Currie and Madrian 1999).

Finally, effects of household composition and characteristics of the partner should be an important factor in labor participation and labor market exit. Research on 'coupled retirement' has shown that many couples 'coordinate' their retirement transition. Thus, the

influence of coupled retirement has to be considered explicitly (Drobnič 2002; Blöndal and Scarpetta 1998).

3. Data and methods

Individual Data

In order to study late careers, I use the first two waves (2004/05 and 2006/07) of the Survey of Health, Ageing, and Retirement in Europe (SHARE), which collects individual data on employment, health, and various socio-economic variables for persons aged 50+ across 14 European countries (Börsch-Supan and Jürges 2005).¹ The data of 11 countries that participated in both waves permit the identification of labor participation in 2004, transitions from work to retirement between 2004 and 2006, and the individual and contextual factors motivating these work-to-retirement transitions. In order to cover a broad age range at which late-career transitions can take place, I consider individuals aged 50 to 64 at the time of the first wave for analyses of labor participation as well as an age range from 50 to 61 years at the first wave for retirement analyses. For Austria and Italy, for example, it is known that the process of labor market withdrawal occasionally starts at this early age.

As the 11 countries show very different labor-force participation rates for women of these ages, I restrict my sample to an analysis of male late-career patterns. An additional analysis of women could, on the one hand, create sample-size problems particularly in conservative and in Southern European countries, where few older women work. On the other hand, these women would constitute a very selective group, which would limit the degree to which the results can be generalized to future generations. This age window and target group restricts the sample to 4,557 observations for the labor-participation analyses and to 2,739 observations for the analyses of transition to inactivity. The number of cases is further reduced, slightly, due to missing observations on relevant covariates.

In the following, I look at *labor participation* and *transitions into inactivity*, which are any transitions from a self-reported activity status within the labor force (employed, self-employed or unemployed) to inactivity (retired, permanently sick, disabled or homemaker)

¹ This paper uses data from SHARE release 2.3.0, as of November 13th 2009. SHARE data collection in 2004-2007 was primarily funded by the European Commission through its 5th and 6th framework programmes (project numbers QLK6-CT-2001-00360; RII-CT-2006-062193; CIT5-CT-2005-028857). Additional funding by the US National Institute on Aging (grant numbers U01 AG09740-13S2; P01 AG005842; P01 AG08291; P30 AG12815; Y1-AG-4553-01; OGHA 04-064; R21 AG025169) as well as by various national sources is gratefully acknowledged (see <http://www.share-project.org> for a full list of funding institutions).

between the first and second wave. Unlike looking at transitions from employment to non-employment, this type of analysis allows to investigate when individuals withdraw effectively from the labor force instead of looking at potentially temporary job losses.

As explanatory variables for the transition into inactivity I use a number of indicators representing the key factors at the micro-level. The means of these variables both in the labor participation and the labor market exit model are displayed in Table 1.

Table 1: Means of variables used in the analysis of labor participation and labor market exit

	Labor participation			Labor market exit				
	Participants	Non-participants	Total	In the labor market	Out of the labor market	Total		
<i>Individual characteristics</i>								
Age 50-52	0.268	0.048	***	0.193	0.333	0.084	***	0.293
Age 53-55	0.267	0.082	***	0.204	0.309	0.209	***	0.292
Age 56-58	0.235	0.183	***	0.217	0.240	0.339	***	0.256
Age 59-61	0.147	0.302	***	0.199	0.119	0.367	***	0.159
Age 62-64	0.084	0.386	***	0.187				
Primary education	0.332	0.460	***	0.375	0.316	0.369	*	0.325
Secondary education	0.375	0.336	**	0.361	0.383	0.372		0.381
Third-level education	0.293	0.205	***	0.263	0.301	0.259	+	0.294
Less than good health	0.126	0.297	***	0.184	0.114	0.202	***	0.128
<i>Household characteristics</i>								
Log(HH gross income)	10.578	10.259	***	10.469	10.608	10.424	***	10.578
Log(household size)	0.877	0.770	***	0.841	0.906	0.830	***	0.894
Partner employed	0.473	0.066	***	0.334	0.499	0.404	***	0.484
No partner	0.144	0.149		0.146	0.148	0.110	*	0.142
<i>Characteristics of (last) job</i>								
Self-employed					0.223	0.117	***	0.206
Unemployed					0.071	0.170	***	0.087
Tertiary sector					0.549	0.523	*	0.545
Public sector					0.279	0.310		0.284
1-24 employees					0.560	0.555		0.559
25-199 employees					0.272	0.250		0.268
200+ employees					0.168	0.195		0.173
Satisfied with job					0.863	0.739	***	0.843
Observations	2962	1532		4494	2265	436		2701

Notes: Means and observations refer to the full model where all observations with missing values are dropped; difference between the two groups significant at + p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Source: SHARE, Version 2.3.0; own calculations

As control variables I include dummy variables for both *age* and *subjective health*. Age is grouped into three-year intervals and subjective perception of respondents is differentiated by 'good or better' (0) and 'less than good' (1). Both variables can be considered to represent key factors that generally influence the likelihood of remaining employed or exiting the labor market beyond the hypothesized influence of human capital, workplace, and financial factors, and should therefore be included in the model. The highest level of general or higher education completed is used as a proxy variable for human capital characteristics, which allows the distinction between third-level education (ISCED codes 5 to 7), secondary-level education (ISCED 3 and 4) and less than secondary-level education (ISCED codes 0 to 2).

Information on the *size of the firm* is classified in large (more than 200 employees), medium-sized (25–199 employees) and small firms (fewer than 25 employees). However, information on firm size has been collected only for private sector employees. To account for this, I additionally introduce a dummy variable differentiating between *public* and *private sector* as well as *self-employment*. Moreover, *tertiary* and *non-tertiary sector* is explicitly controlled for. Finally, I use a dummy variable indicating whether the respondent is *satisfied with the job*.

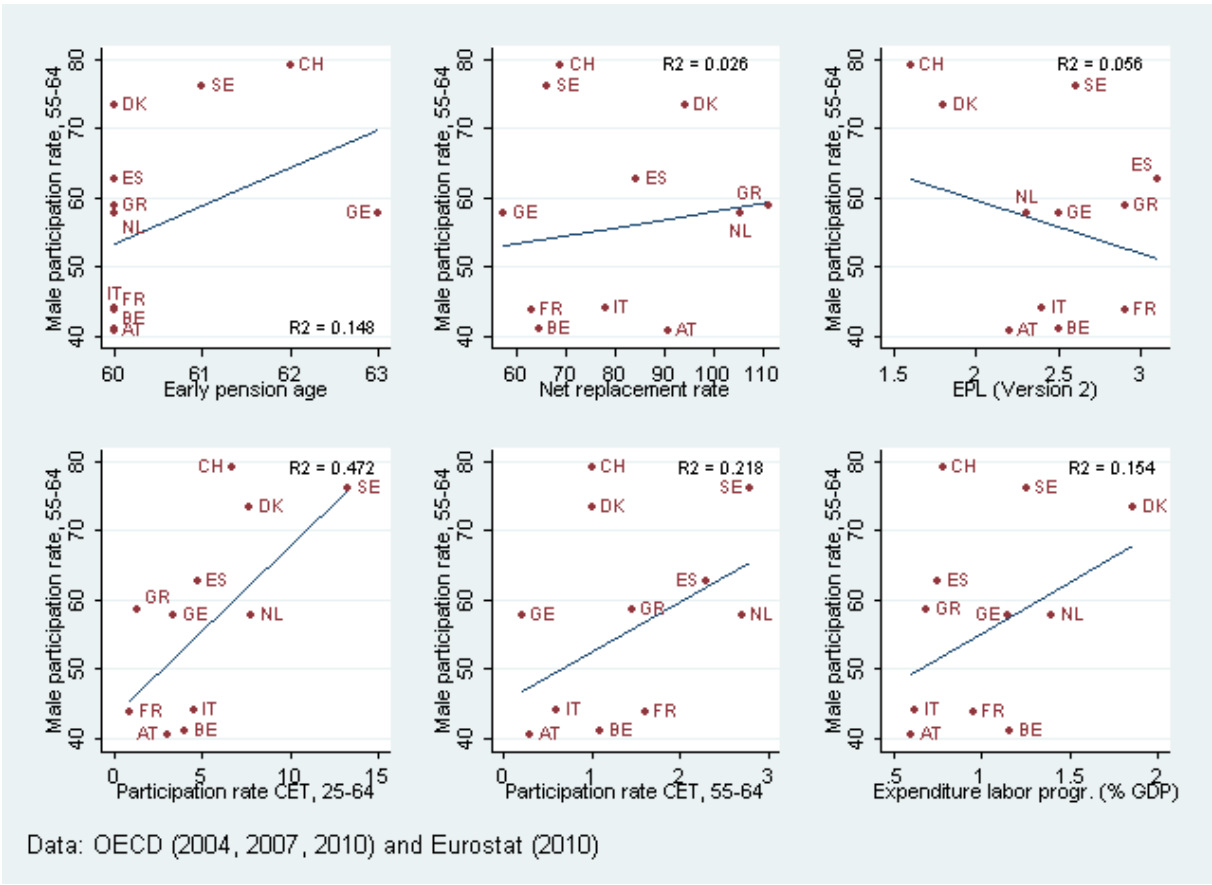
On the household level, imputed *total gross household income* divided by the purchasing power parity (ppp) is used (i.e. the nominal gross income) in logarithms, which is especially appropriate for comparisons of countries with different levels of income. To avoid assumptions about an equivalence scale, *household size* is additionally considered in logarithms. Moreover, the *presence of a partner* in the household and the *employment activity of the partner* are captured with two dummy variables.

Aggregate Data

Institutional variables describing the various dimensions of the welfare states (pension system, employment relation systems, occupational systems, and employment sustaining policies) are taken from the OECD and Eurostat and refer to the time of the first wave or, if not available, to the closest point in time of data availability. Figure 2 provides an overview on the relation between the institutional variables and the male participation-rate (55-64) for our SHARE countries in 2004.

Indicators for the pension system are the early pension age, the net replacement rate, and the implicit tax rates of employment. *Early pension age* is expected to be negatively correlated with employment and positively correlated with retirement (OECD 2007). *Net replacement rates* are defined as ‘the ratio of pension or early retirement benefits to earnings just prior to retiring’ already considering the tax treatment of benefits (OECD 2007). The higher the value of the replacement rate, the stronger the incentive to leave the labor-force before reaching mandatory retirement age. On the macro level, there is only a weak association for the SHARE countries (cf. Figure 2).

Figure 2: Participation rates of men aged 55-64 in 2004 and selected indicators of the pension, employment and education system in selected European countries



Indicators for employment sustaining policies are age- and sex-specific unemployment rates for the young (ages 25-34) and the old (ages 55-64) for 2004 as well as the *Employment Protection Legislation (EPL) Index*, a summary measure developed by the OECD to evaluate the overall strictness of employment regulations in modern industrialized societies. The EPL Index is based on several single indicators that can be summarized under three main sub-dimensions. The first dimension refers to strictness of employment protection for regular employment and includes measures of procedural inconveniences for employers when trying to dismiss employees, the respective notice and severance pay provisions, as well as standards and penalties for unfair dismissal. A second sub-dimension covers indicators representing regulation of temporary employment, consisting of measures of lawfulness and maximum duration of both fixed-term and temporary agency work. A third dimension describes the procedural steps and legal regulations regarding collective dismissals. Based on the weighted sum of these sub-dimensions, the OECD provides a summary index called EPL Index II. Index values generally range between a minimum value of 0, indicating very low or

no regulations, and a maximum value of 6, indicating an extremely strict level of regulation (OECD 2004: 117).

The education system is represented by the *participation rate of adult population aged 25-64 in continued education and training measures* (Eurostat 2010). A second measure captures the *participation rate of adult population aged 55-64 in continued education and training measures* (Eurostat 2010). These measures display aggregate individual behavior in a certain context and are not indicators of the system per se.

Finally, active labor-market policy is captured by the *public expenditure on active labor market programs as a percentage of GDP*, including public employment service and administration, training, employment incentives, supported employment and rehabilitation, direct job creation, start-up incentives, out-of-work income maintenance and support, and early retirement (OECD 2007). Unfortunately, detailed information on expenditure on early retirement is not available for several countries under investigation and could thus not be utilized.

Method

In order to estimate the effects of the determinants of labor participation and transition to inactivity, I have to account for the hierarchical structure of the data: Subjects nested within the same country are expected to be more similar than subjects from different countries with regard to labor participation owing to shared environments. The observations may therefore not be assumed to be independent as required for simple regression or analysis of variance. Ignoring the multilevel structure of the data can result in biases in parameter as well as biases in their standard errors (Rabe-Hesketh and Skrondal 2005; Guo and Zhao 2000). One way of correcting for the clustering of observations is to use a robust variance estimator for clustered data. However, the interdependence between members of the same country can be modeled directly by introducing random effects for countries into the regression model. In this framework of multilevel modeling, the probability of labor participation and of transition to inactivity p_{ij} may be written as:

$$\log \left[\frac{p_{ij}}{1 - p_{ij}} \right] = \beta_0 + \beta_1 x_{1,ij} + \dots + \beta_k x_{k,ij} + u_j + v_{ij}.$$

The indices i and j denote subjects and countries, respectively, and k the number of observed individual or institutional explanatory variables x_{ij} . The random part consists of u_j ,

the country specific error term, and v_{ij} , the error term specific to the individual. The random country effect may be interpreted as the effect of any country-specific predictors that have not been controlled for (or even measured). These predictors may include shared environmental factors, including social contexts and norms. Similarly, the residual term for subjects within countries may be interpreted as the effect of characteristics specific to the individual, plus measurement error. Both error terms are assumed to be independently distributed also with regard to the covariates, with zero means and constant variances denoted σ_v^2 (within country variance) and σ_u^2 (between country variance). Adding the explanatory variables, measured both at the country and the individual level, will reduce the variance of the error terms, and therefore inform us about the importance of the country level variables in explaining the variation in the outcome variable.

The residual *intraclass correlation* ρ provides an alternative in assessing the importance of country level variables is through

$$\rho = \sigma_u^2 / [\sigma_u^2 + \sigma_v^2],$$

where $\sigma_v^2 = \pi^2/3$ in case of the logit model. The residual intra-class correlation (ICC) represents the ratio of the variance of the random effect u to the total variance, thus can be interpreted as the proportion of observed variation in the dependent variable that is accounted for by the country level. It's value decreases as the part of variance explained by the individual component is large. The percentage of variance attributable to individual-level characteristics is easily found according to $1 - \rho$.

4. Results

Labor Participation

Starting point of the multilevel analysis is an 'empty model' without any covariates. This model serves as a benchmark to test the explanatory power of the covariates when added to the analysis. Progressively, I include institutional and individual variables to assess how they affect the variation in labor participation. In order to compare the strength of the effect of covariates measured with different metrics, I present standardized coefficients. For each of the specifications, I report the estimated variances of the country-specific error term and the ICC coefficient. The estimated variances give us an idea to what extent country differences are explained by macro variables. Naturally, a sizeable reduction in the variance means that the macro variable is important in explaining country differences. In addition, the ICC

coefficient gives us an idea of how the variance for the country-level error term compares with the individual-level variance. In general, adding the macro variables that explain country differences, the ICC coefficient goes down.

Table 2: Institutional determinants of labor participation of males aged 50-64 in wave 1

	M0	M1	M2	M3	M4	M5
Early pension age		0.630* (2.01)				0.686** (2.86)
Net replacement rate		0.358 (1.01)				0.256 (0.96)
Employment protection index			-0.195 (0.71)			-0.106 (0.36)
Pop. 25-64 in CET measures (%)				0.537 (1.57)		-0.016 (0.04)
Pop. 55-64 in CET measures (%)				0.137 (0.43)		0.547 (1.42)
Public exp. labor market programs					0.471+ (1.75)	0.267 (1.18)
Between country variance	0.247** (-3.08)	0.178*** (-3.75)	0.237** (-3.18)	0.168*** (-3.84)	0.189*** (-3.59)	0.082*** (-5.05)
Intra-class correlation	0.070	0.051	0.067	0.049	0.054	0.024
Explained country variance		0.282	0.040	0.319	0.238	0.668
<i>BIC</i>	5682.8	5696.2	5690.7	5695.7	5688.5	5722.2
Observations	4557	4557	4557	4557	4557	4557

Notes: Standardized beta coefficients; Absolute *t* statistics in parentheses; + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
Data: SHARE, Version 2.3.0; own calculations

Model 0 in Table 2 shows the results. The intraclass correlation ρ measures the share of variation in the dependent variable attributable to unobserved country-level characteristics. In the empty model without covariates, the ICC amounts 0.07. Thus, only about 7% of the variance in the propensity of labor participation in Europe can be attributed to unobserved country-specific factors (Model 1)

The significant effect shows that the higher the early retirement age, the more likely employment. Concerning the net replacement rate, I do not find any effect significantly different from zero. The same holds true for the indicator from the employment system (Model 2) and the education system (Model 3). Concerning active labor market policies, labor participation increases significantly with the expenditures as percentage of GDP (Model 4).

Controlling for indicators from the pension system (Model 1), the estimated variance of the country-specific error term amounts to 0.18, which is significantly different from zero and smaller than in the model without covariates. Using the country variances of both models, I can compute the explained context-level variance according to the ‘proportional reduction of error’ logic by dividing the difference of the country-level variances between Model 2 and the conditional model by the variance of Model 2 ($0.247 - 0.178/0.247=0.282$). Thus, around

28% of the regional variance is explained by the indicators of the pension system. In case of employment relation systems, the amount of variance explained is only 4%. Concerning the education system and active labor market policy, explained variance increases to 32% and 24, respectively.

Table 3: Individual and institutional determinants of labor participation of males aged 50-64 in wave 1

	M6	M7	M8	M9	M10	M11	M12
Age 53-55	-0.377** (2.76)	-0.263+ (1.82)	-0.263+ (1.82)	-0.262+ (1.82)	-0.263+ (1.82)	-0.262+ (1.82)	-0.263+ (1.83)
Age 56-58	-1.320*** (10.31)	-1.114*** (8.21)	-1.111*** (8.19)	-1.113*** (8.20)	-1.115*** (8.22)	-1.113*** (8.20)	-1.115*** (8.22)
Age 59-61	-2.182*** (17.65)	-1.907*** (14.40)	-1.906*** (14.39)	-1.906*** (14.39)	-1.906*** (14.40)	-1.905*** (14.38)	-1.903*** (14.38)
Age 62-64	-2.901*** (23.00)	-2.545*** (18.77)	-2.547*** (18.78)	-2.545*** (18.76)	-2.544*** (18.76)	-2.544*** (18.76)	-2.545*** (18.78)
Secondary education	0.248** (2.59)	0.244* (2.35)	0.220* (2.11)	0.241* (2.32)	0.249* (2.40)	0.240* (2.31)	0.225* (2.17)
Third-level education	0.482*** (4.98)	0.369*** (3.45)	0.351*** (3.28)	0.368*** (3.44)	0.373*** (3.49)	0.365*** (3.41)	0.349*** (3.26)
Less than good health	-0.940*** (11.86)	-0.920*** (10.79)	-0.927*** (10.88)	-0.920*** (10.79)	-0.916*** (10.76)	-0.921*** (10.80)	-0.927*** (10.90)
Log(HH gross income)		0.235* (2.53)	0.234* (2.52)	0.234* (2.51)	0.228* (2.45)	0.233* (2.50)	0.217* (2.33)
Log(household size)		0.312* (2.42)	0.324* (2.52)	0.316* (2.44)	0.323* (2.51)	0.319* (2.47)	0.351** (2.72)
Partner employed		2.277*** (18.79)	2.280*** (18.81)	2.277*** (18.79)	2.275*** (18.79)	2.275*** (18.78)	2.283*** (18.85)
No partner		0.604*** (5.19)	0.612*** (5.26)	0.606*** (5.20)	0.609*** (5.23)	0.607*** (5.21)	0.630*** (5.39)
Early pension age			0.927** (3.19)				0.985*** (5.12)
Net replacement rate			0.506 (1.56)				0.494* (2.37)
Employment protection index				-0.141 (0.46)			0.148 (0.60)
Pop. 25-64 in CET measures (%)					0.656 + (1.75)		0.395 (1.25)
Pop. 55-64 in CET measures (%)					0.072 (0.21)		0.317 (1.01)
Public exp. labor market programs						0.303 (0.93)	0.051 (0.27)
Between country variance	0.365* (2.23)	0.294** (2.64)	0.140*** (3.91)	0.289** (2.69)	0.195*** (3.41)	0.269*** (2.80)	0.039*** (4.55)
Intra-class correlation	0.100	0.082	0.041	0.081	0.056	0.076	0.012
Explained country variance			0.522	0.016	0.336	0.084	0.866
BIC	4345.6	3843.8	3853.3	3852.0	3856.5	3851.3	3876.9
Observations	4516	4494	4494	4494	4494	4494	4494

Notes: Standardized beta coefficients; Absolute *t* statistics in parentheses; + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
Data: SHARE, Version 2.3.0; own calculations

Controlling additionally for individual heterogeneity, the amount of variance explained by indicators of the pension system increases to 52% (Table 3, Model 6). Regarding employment relation systems, the amount of variance explained under control of individual heterogeneity is reduced to 2% (Model 7). Concerning the education system and active labor market policy, explained variance increases slightly to 34% (Model 8) and remains at 24%

(Model 9). Thus, the relative amount of money spent on labor-market policy seems to be less decisive compared to the impact of the pension system on the labor-participation of elderly men in Europe. Most important, however, seems to be the education system. Controlling for all institutional indicators in the Summary Model 5, explained variance on the country level increases to 67% and 87% under additional control of individual heterogeneity (Model 10). Thus, the very high proportion of regional variance in labor participation in Europe can be explained by the different early retirement age schemes, the implicit tax rates, the share of adult and elderly population in CET measures as well as the public expenditure in active labor-market programs.

Concerning the covariates at the individual level, the estimated standardized coefficients show the expected effects and remain rather similar for the different model specifications. This also applies when the country-level variables are added. As predicted, the likelihood of being part of the active labor force decreases significantly with age, increases with higher education, and it is reduced in case of less than good health (Model 6). Additional consideration of the household context shows an increased probability of labor participation for persons in high income households and in larger households (Model 7). With an employed partner, labor participation is significantly increased and this also hold true when no partner is present (Model 8).

Transition to Inactivity

Tables 4 and 5 present results from the multilevel logistic regression analysis of men's transition into inactivity. As most employment exits take place well before formal retirement ages, I restrict my following analyses to men aged 50-61 in the first wave of the data.

As the empty model shows, about 5.7% of the variation in the transition to inactivity in Europe can be explained by institutional factors (Table 4, Model 0). Thus, about 94% of observed variation in the dependent variable is attributable to individual-level characteristics. Controlling for indicators from the pension system, the estimated country variance amounts to 0.17 (Model 1). About 16% of the regional variance in transition to retirement is explained by the indicators of the pension system. Regarding employment relation systems, education systems and active labor-market policies, the amount of variance explained is only 1% (Model 2), 3% (Model 3) and 2% (Model 4), respectively. Thus,

neither the relative amount spent in the labor market nor employment relation systems nor education systems contribute much to keeping elderly people in Europe in the labor-market.

Table 4: Institutional determinants of labor market exit of males aged 50-61 in wave 2

	M0	M1	M2	M3	M4	M5
Early pension age		-0.580 (1.37)				-0.677 (1.58)
Net replacement rate		-0.442 (0.93)				-0.462 (0.96)
Employment protection index			-0.070 (0.20)			-0.113 (0.21)
Pop. 25-64 in CET measures (%)				-0.113 (0.22)		-0.187 (0.26)
Pop. 55-64 in CET measures (%)				-0.137 (0.30)		-0.246 (0.37)
Public exp. labor market programs					0.170 (0.46)	0.313 (0.78)
Between country variance	0.198** (3.15)	0.166*** (-3.45)	0.196** (-3.15)	0.192** (-3.20)	0.193** (-3.18)	0.141*** (-3.67)
Intra-class correlation	0.057	0.048	0.056	0.055	0.055	0.041
Explained country variance		0.159	0.010	0.030	0.022	0.286
<i>BIC</i>	2406.7	2420.7	2414.6	2422.3	2414.4	2450.9
Observations	2739	2739	2739	2739	2739	2739

Notes: Standardized beta coefficients; Absolute *t* statistics in parentheses; + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
Data: SHARE, Version 2.3.0; own calculations

The control variables largely show the expected effects (Table 5). In the countries under study, the likelihood of leaving the active labor force predictably increases significantly with age and in case of less than good health, and it is significantly reduced with third level education compared to lower than secondary education (Model 6). As to the household, the probability of labor market exit is significantly decreased for respondents belonging to high income households (Model 7). With an employed partner or when no partner is present, the respondents' transition to inactivity is significantly reduced. Concerning job characteristics, employment exit is significantly less likely for self-employed men as it is for men satisfied with their job (Model 8). No significant effects are found for firm size, the public sector, and the tertiary sector, though the sign of the sector effects are according to our expectations. Controlling for individual heterogeneity, the amount of variance explained by indicators of the pension system increases from 16% (Table 4, Model 1) to 29% (Table 5, Model 9). Regarding employment relation systems, the amount of variance explained is reduced to 0% when controlling for individual heterogeneity (Model 10). The explained variance for the education system and active labor market policy increases slightly to 8% (Model 11) and remains at 9% (Model 12).

Table 5: Individual and institutional determinants of labor market exit of males aged 50-61 in wave 2

	M6	M7	M8	M9	M10	M11	M12	M13
Age 53-55	1.170*** (4.66)	1.051*** (4.11)	1.073*** (4.18)	1.070*** (4.16)	1.073*** (4.18)	1.071*** (4.17)	1.074*** (4.18)	1.075*** (4.18)
Age 56-58	2.116*** (9.15)	1.983*** (8.41)	2.004*** (8.41)	2.002*** (8.40)	2.004*** (8.41)	2.005*** (8.41)	2.005*** (8.41)	2.010*** (8.43)
Age 59-61	2.743*** (13.56)	2.574*** (12.39)	2.645*** (12.53)	2.646*** (12.53)	2.645*** (12.53)	2.647*** (12.54)	2.645*** (12.53)	2.653*** (12.57)
Secondary education	-0.217 (1.16)	-0.192 (1.00)	-0.206 (1.06)	-0.178 (0.91)	-0.206 (1.06)	-0.212 (1.09)	-0.209 (1.08)	-0.209 (1.07)
Third-level education	-0.433** (2.27)	-0.304 (1.53)	-0.319 (1.54)	-0.297 (1.43)	-0.319 (1.54)	-0.325 (1.57)	-0.322 (1.55)	-0.325 (1.57)
Less than good health	0.459*** (3.35)	0.402** (2.86)	0.335* (2.33)	0.346* (2.40)	0.335* (2.33)	0.332* (2.31)	0.335* (2.33)	0.341* (2.37)
Log(HH gross income)		-0.505** (3.11)	-0.385* (2.22)	-0.372* (2.14)	-0.385* (2.22)	-0.375* (2.15)	-0.390* (2.24)	-0.374* (2.15)
Log(Household size)		-0.636** (2.71)	-0.596* (2.51)	-0.615** (2.59)	-0.596* (2.50)	-0.608* (2.55)	-0.589* (2.47)	-0.601* (2.52)
Partner employed		-0.485** (2.88)	-0.414* (2.34)	-0.418* (2.37)	-0.414* (2.34)	-0.415* (2.35)	-0.416* (2.35)	-0.432* (2.43)
No partner		-1.114*** (4.75)	-1.06*** (4.49)	-1.078*** (4.54)	-1.066*** (4.49)	-1.071*** (4.51)	-1.065*** (4.48)	-1.078*** (4.54)
Self-employed			-0.726*** (3.29)	-0.732*** (3.32)	-0.726*** (3.29)	-0.735*** (3.33)	-0.723** (3.27)	-0.737*** (3.34)
Unemployed			-0.011 (0.06)	-0.004 (0.02)	-0.011 (0.06)	-0.011 (0.06)	-0.012 (0.06)	-0.012 (0.06)
Tertiary sector			-0.182 (1.03)	-0.186 (1.06)	-0.182 (1.03)	-0.181 (1.03)	-0.182 (1.03)	-0.192 (1.09)
Public sector			0.280 (1.50)	0.282 (1.51)	0.280 (1.50)	0.282 (1.51)	0.281 (1.50)	0.291 (1.55)
25-199 employees			-0.094 (0.49)	-0.096 (0.50)	-0.094 (0.49)	-0.095 (0.50)	-0.094 (0.50)	-0.105 (0.55)
200+ employees			0.256 (1.43)	0.258 (1.44)	0.256 (1.43)	0.252 (1.41)	0.257 (1.44)	0.247 (1.38)
Satisfied with job			-0.576** (3.10)	-0.573** (3.08)	-0.576** (3.09)	-0.571** (3.07)	-0.576** (3.10)	-0.566** (3.04)
Early pension age				-0.974+ (1.95)				-1.058* (2.23)
Net replacement rate				-0.554 (0.99)				-0.569 (1.07)
Employment protection index					0.006 (0.01)			-0.148 (0.24)
Pop. 25-64 in CET measures (%)						-0.465 (0.74)		-0.512 (0.64)
Pop. 55-64 in CET measures (%)						-0.088 (0.16)		-0.332 (0.44)
Public exp. labor market programs							0.172 (0.36)	0.480 (1.07)
Between country variance	0.379* (1.98)	0.388+ (1.93)	0.324* (2.24)	0.231** (2.82)	0.324* (2.24)	0.294* (2.41)	0.320* (2.27)	0.169** (3.28)
Intra-class correlation	0.103	0.105	0.090	0.066	0.090	0.082	0.089	0.049
Explained country variance				0.287	0.000	0.092	0.012	0.476
BIC	2126.9	2111.6	2126.0	2138.5	2133.9	2140.9	2133.8	2167.1
Observations	2713	2701	2701	2701	2701	2701	2701	2701

Notes: Standardized beta coefficients; Absolute t statistics in parentheses; + p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Data: SHARE, Version 2.3.0; own calculations

Controlling all institutional indicators (Model 7), the explained variance on the country level is about 29%, respectively 48% under additional control of individual heterogeneity (Model 13). Thus, about one third of the regional variance in labor market exit in Europe can be explained by the different early retirement age schemes, the implicit tax rates, the shares of adult and elderly population in CET measures as well as public expenditure in active labor

market programs, although the single estimated coefficients are not significantly different from zero. The relative amount spent on labor market policy seems to be less decisive compared to the pension system in keeping elderly men in Europe in the labor-market.

5. Discussion

In this paper, I estimated the effects of individual, contextual, and institutional factors on labor participation and transition to inactivity for older people in 11 European countries, using the first two waves of SHARE. The application of multilevel methods allowed to estimate the share of variance in late careers that can be attributed to country-specific factors and to quantify the relative impact of specific institutional backgrounds.

The share of variance in labor participation and labor-market exit that can be attributed to institutional characteristics is small (7% and 5.7%). About 67% of the regional variance of labor participation and 29% of the regional variance in labor exit in Europe are the result of measured country-specific factors, including institutional differences in pension systems and welfare arrangements, employment relation systems, education systems, and employment-sustaining active labor-market policies. Controlling additionally for individual heterogeneity explained regional variation increases to 87% for participation and 48% for the transition to inactivity. The unexplained regional variance of 23% in labor participation and of 52% in labor exit may be due to unmeasured institutional differences and/or cultural differences in, for instance, employment preferences in the late employment career.

Moreover, my results demonstrate that the pension system, the employment system, the education system, and active labor-market policy have different effects on labor participation and labor exit. Controlling for individual heterogeneity, the early pension age has a significant effect on the probability of participation and employment exit. The share of population participating in CET measures is significantly correlated with labor participation but not with transition to retirement. Moreover, financial incentives to keep older people in the labor market are outweighed by the monetary incentives of the pension systems both in case of employment maintenance and employment exit.

Given these result, additional measures to increase labor participation of the older generations should not only consist of financial incentives. As the empirical analyses have shown, the education system – in particular lifelong learning – is an important factor in the

international variance in labor participation. Thus, actual reforms of the pension system should be supplemented by lifelong learning and by a broad application of further training, which should not be restricted to specific groups, such as the aged unemployed.

However, to increase confidence in the measures suggested, additional research should be done. Firstly, a replication of the present study using different international comparable micro data such as the European Community Household Panel (ECHP) and the European Survey of Income and Living Conditions (EU-SILC) could test the reliability of my results. Moreover, additional analyses should be done with refined macro measures for the pension system, the education system, the employment system, and for active labor market policy. An interesting question, for instance, would be whether internal training operates differently from external training. A detailed analysis of the dimensions of the Employment Protection Legislation Index would probably provide deeper insights into the specific ways in which employment protection operates. Thus, more macro data need to be collected to learn more about the institutional effects on late careers.

References

- Allmendinger, J. (1989) Educational systems and labor market outcomes. *European Sociological Review* 5(3): 231-250.
- Auer, P. and M. Fortuny (2000) *Aging of the Labour Force in OECD Countries: Economic and Social Consequences*. ILO Employment Paper 2000/2, Geneva: International Labour Office.
- Blöndal, S. and S. Scarpetta (1998) The Retirement Decision in OECD Countries. OECD Working Paper No. 202, OECD Economics Department.
- Blöndal, S. and S. Scarpetta (1999) Early retirement in OECD countries: the role of social security systems. OECD
- Blossfeld, H.-P. and R. Stockmann (1998/99) Globalization and changes in vocational training systems in developing and advanced industrialized societies. *International Journal of Sociology*, I-III.
- Blossfeld, H.-P., S. Buchholz and D. Hofäcker (eds) (2006) *Globalization, Uncertainty and Late Careers in Society*. London and New York: Routledge.
- Börsch-Supan, A. (2007) European Welfare State Regimes and their Generosity towards the Elderly. MEA discussion paper 128.
- Börsch-Supan, A. and H. Jürges (eds) (2005) *The Survey of Health, Ageing and Retirement in Europe: Methodology*. Mannheim: Mannheim Research Institute for the Economics of Ageing (MEA).
- Buchholz, S., D. Hofäcker and H.-P. Blossfeld (2006) Globalization, accelerating social change and late careers: a theoretical framework. In H.-P. Blossfeld, S. Buchholz and D. Hofäcker (eds), *Globalization, Uncertainty and Late Careers in Society*. London and New York: Routledge, pp. 1–23.
- Calmfors, L. (1993) Lessons from the Macroeconomic experience of Sweden. *European Journal of Political Economy* 9: 25-72.
- Castells, M. (2000) *The Rise of the Network Society: The Information Age. Economy, Society and Culture*. Oxford: Blackwell Publishers.
- Currie, J. and B.C. Madrian (1999) Health, health insurance and the labor market. In O. Ashenfelter and D. Card (eds.), *Handbook of Labor Economics*. Amsterdam, North Holland, 3309-3416.
- Debrand, T. and N. Sirven (2009) What are the Motivations of Pathways to Retirement in Europe: Individual, Familial, Professional Situation or Social Protection Systems? IRDES, Document de travail working paper no. 28.
- DiPrete, T.A. (2002) Life course risks, mobility regimes and mobility consequences: a comparison of Sweden, Germany and the United States. *American Journal of Sociology* 108 (2): 267–309.
- DiPrete, T. A., de Graaf, P. M., Luijkx, R., Tahlin, M. and Blossfeld, H.-P. (1997) Collectivist versus Individualist Mobility Regimes? Structural Change and Job Mobility in Four Countries. *American Journal of Sociology* 103 (2): 318-358.

- Dorn, D. and A. Souza- Poza (2007) Voluntary and involuntary early retirement. An international analysis. IZA Discussion Paper No. 2714. Bonn.
- Drobnič, S. (2002) Retirement Timing in a Household Context. *International Journal of Sociology* 32 (2): 75-102.
- Duval, R. (2003) The Retirement Effects of Old-Age Pension and Early Retirement Schemes in OECD Countries. *OECD Economics Department Working Papers*, No. 370, OECD publishing.
- Ebbinghaus, B. (2000) When Labour and Capital Collude: The Varieties of Welfare Capitalism and Early Retirement in Europe, Japan and the USA. Working Paper PSGE, No. 00.4, Center for European Studies, Cambridge: Harvard University.
- Ebbinghaus, B. (2002) *Exit from Labor. Reforming Early Retirement and Social Partnership in Europe, Japan and the USA*. Cologne: University of Cologne.
- Ebbinghaus, B. (2006) *Reforming Early Retirement and Social Partnership in Europe, Japan and the USA*. Oxford: Oxford University Press.
- Esping-Andersen, G. (1993) Post-industrial class structures: An analytical framework. In G. Esping-Andersen (ed.), *Changing Classes*. London: Sage.
- Esping-Andersen, G. (1999) *Social Foundations of Postindustrial Economies*. Oxford: Oxford University Press.
- Eurostat (2010) <http://epp.eurostat.ec.europa.eu/portal/page/portal/education/data/database>
- Gruber, J. and D. Wise (1998) Social security and retirement: an international comparison. *American Economic Review* 88 (2): 158–63.
- Gruber, J. and D. Wise (1999a) Social security programs and retirement around the world. *Research in Labour Economics* 18 (1): 1–40.
- Gruber, J. and D. Wise (eds) (1999b) *Social Security and Retirement around the World*. Chicago: University of Chicago Press.
- Gruber, J. and D. Wise (2002) *Social Security Programs and Retirement around the World: Micro-Estimation*. NBER Working Paper No. 9407, Cambridge, MA: National Bureau of Economic Research.
- Gruber, J. and D. Wise (eds) (2004) *Social Security Programs and Retirement around the World: Micro- Estimation*. Conference Report, Cambridge, MA: National Bureau of Economic Research.
- Gruber, J. and D. Wise (eds) (2007) *Social Security Programs and Retirement around the World: Fiscal Implications of Reform*. Chicago: University of Chicago Press.
- Guillemard, A.-M. (1991) Die Destandardisierung des Lebenslaufs in den europäischen Wohlfahrtsstaaten. *Zeitschrift für Sozialreform* 37(2): 620-639.
- Guo, G. and Zhao, H. (2000) Multilevel Modeling for Binary Data. *Annual Review of Sociology* 26: 441–462.
- Hall, P.A. and D. Soskice (2001) An introduction to varieties of capitalism. In P.A. Hall and D. Soskice (eds), *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage*. Oxford: Oxford University Press, pp. 1–68.
- Hofäcker, D. (2010) *Older Workers in a Globalizing World*. Cheltenham, UK: Edward Elgar.

- Hofäcker, D. and S. Pollnerova (2006) Late careers and career exits: an international comparison of trends and institutional background patterns. In H.- P. Blossfeld, S. Buchholz and D. Hofäcker (eds), *Globalization, Uncertainty and Late Careers in Society*. London and New York: Routledge, pp. 25–53.
- Kalwij, A. and F. Vermeulen (2007) Health and Labour Force Participation of Older People in Europe: What Do Objective Health Indicators Add to the Analysis? *Health Economics* 17(5): 619-38.
- Kohli, M. and M. Rein (1991) The changing balance of work and retirement. In M. Kohli, M. Rein, A.- M. Guillemard and H. van Gunsteren (eds), *Time for Retirement: Comparative Studies of Early Exit from the Labour Force*. Cambridge: Cambridge University Press, pp. 1–35.
- Leisering, L. (2003) Government and the life course. In J.T. Mortimer and M.J. Shanahan (eds), *Handbook of the Life Course*. New York: Kluwer Academic/Plenum, 205–225.
- Mayer, K.U. (2004) Whose Lives? How History, Societies and Institutions Define and Shape Life Courses. *Research in Human Development* 1(3): 167-187.
- OECD (2007) www.oecd.org/els/employmentoutlook/2007
- OECD (2010) Labour Force Statistics, online <http://stats.oecd.org/wbos>.
- Rabe-Hesketh, S. and A. Skrondal (2005) *Multilevel and Longitudinal Modeling Using Stata*. College Station, TX: Stata Press.
- Shavit, Y. und M. Müller (1998) *From School to Work. A Comparative Study of Educational Qualifications and Occupational Destinations*. Oxford: Clarendon Press.
- Soskice, D. (1999) Divergent Production Regimes: Coordinated and Uncoordinated Market Economies in the 1980s and 1990s. In H. Kitschelt, P. Lange, G. Marks and J. D. Stephens (eds), *Continuity and Change in Contemporary Capitalism*. Cambridge: Cambridge University Press: 101-135.