

*Welfare state institutions and
early retirement patterns in Europe:
A comparative analysis using the EU-SILC and the ECHP*

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Research questions

What is the impact of welfare state institutions (eligibility rules, generosity of SS) on early retirement behaviour in Europe?

Are the substantive results of the analysis using the ECHP for 1993-2001 comparable with those using EU-SILC for 2005-2006?

Is there reason to believe that the impact of the WS changed during the last decade (1996-2006)?

Data and sampling

European Community Household Panel (ECHP)

- years: 1996-1997;
- number of countries: 13;
- N= 25 417 transitions out of employment of senior workers 45+.

The European Union Statistics on Income and Living Conditions (EU-SILC):

- years: 2005-2006;
- number of countries: 26 (for comparative models - 13 countries);
- N= 19 931 transitions out of employment in 26 countries
(11 311 transitions in 13 countries).

Macrodata sources : OECD, EUROSTAT.

Methodology

- Cluster analysis using institutional factors (generosity and eligibility/flexibility of the system);
- Multinomial logistic regression models (discrete choice models taking into account the alternative paths out of the labour market).

Flexibility and generosity index

1. Flexibility index

$$FPI_p^{m,f} = \sum_{p=1}^n [\omega_1 (SRA^{m,f} - ERA_p^{m,f}) + \omega_2 (65 - SRA^{m,f}) + \omega_3 SYI_p^{m,f}] COV_p^{m,f}$$

where:

$FPI_p^{m,f}$ = flexibility index for first and second pillar by gender;

$SRA^{m,f}$ = statutory retirement age by gender;

$ERA_p^{m,f}$ = early retirement age by pillar and by gender;

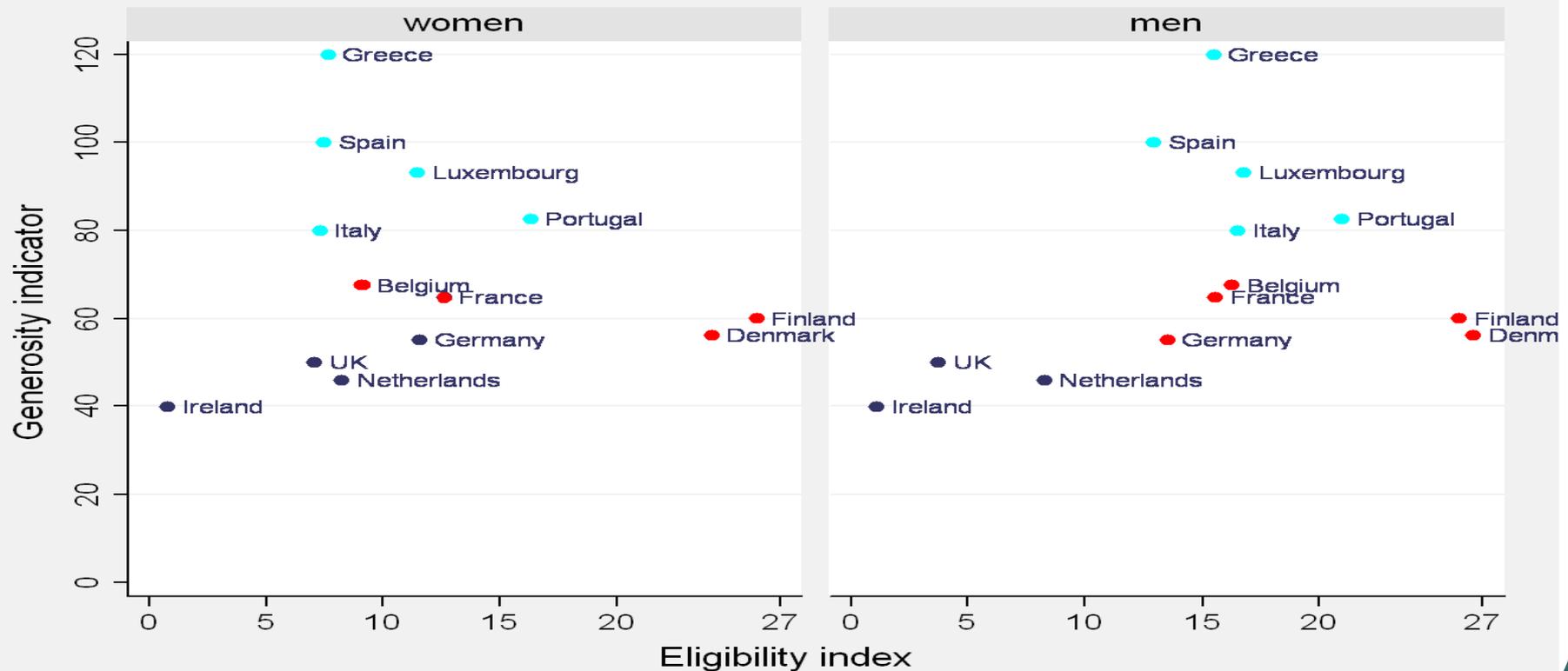
$SYI_p^{m,f}$ = score of minimum numbers of insured years by pillar and by gender

$COV_p^{m,f}$ = coverage pension benefits by pillar and by gender.

ω_1^3 = weights.

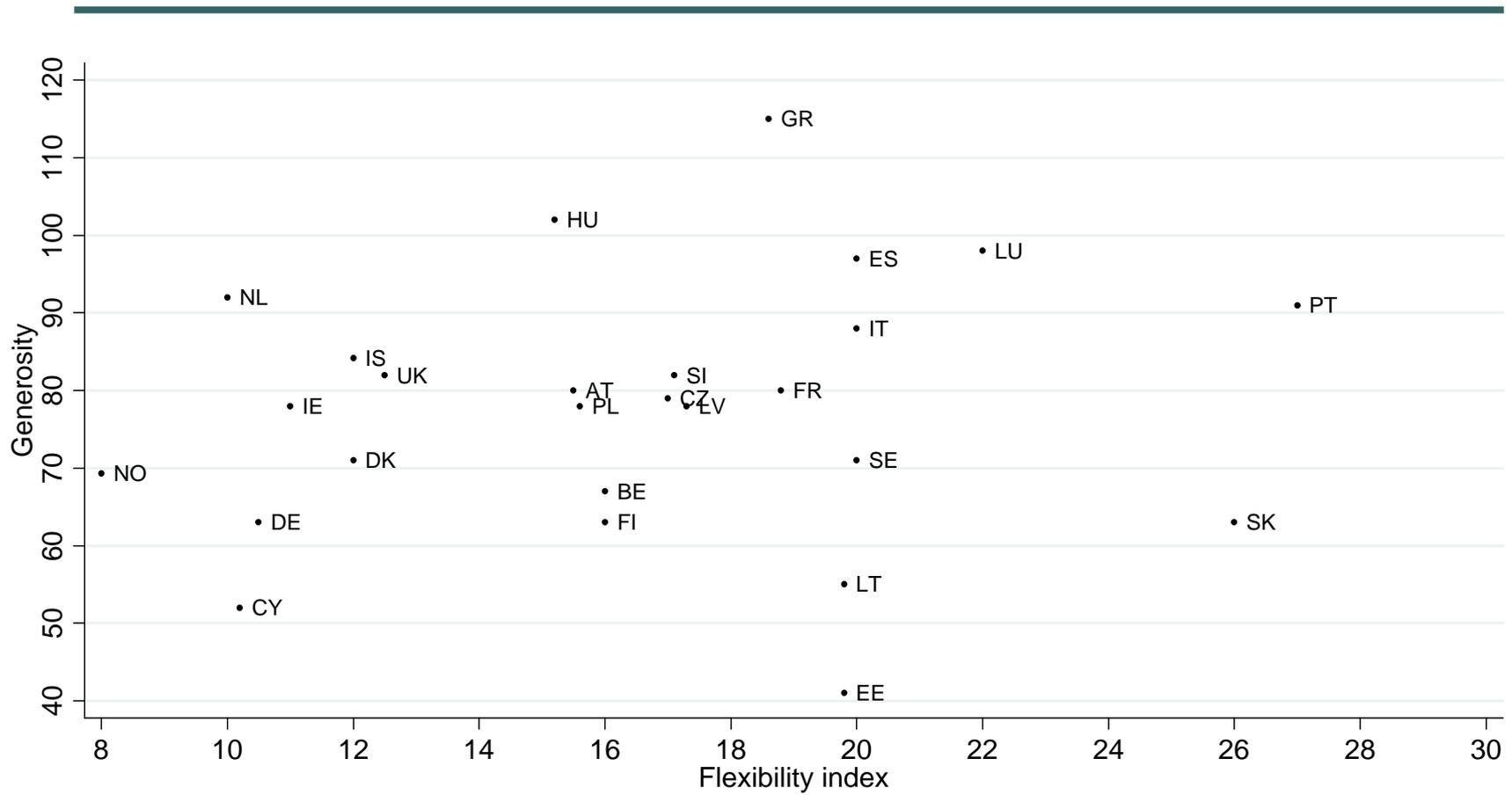
2. Generosity : replacement rates benefits (source: MISSOC)

Figure 1 : Flexibility and generosity of the social security system by country and gender (1997)



Graphs by gender

Figure 2 : Flexibility and generosity of the social security system by country (2006)



We have estimated several models using ECHP and EU-SILC:

models	control variables	institutional indicators	regimes dummies
Basic model	✓		
Institutional model	✓	✓	
Welfare state regimes model	✓		✓

Table 1: Summary models ECHP (1996-1997)

models	predictors	early-retirement (β)	disability (β)	unemployment (β)	inactivity (β)	
1. Basic model (Pseudo R ² = 0.164)	age	0.764*	0.410	0.402*	-0.486*	
	age2	-0.005	-0.003	-0.004*	0.005*	
	cohover55	0.217	-0.016	0.592***	0.520**	
	gender	0.343**	-0.031	0.215**	-0.880***	
	couple	-0.088	-0.055	-0.111	0.428***	
	partner_retired	0.387**	0.346	0.292	0.201	
	partner_inactive	0.095	0.333**	0.031	0.284*	
	nchild	-0.132	-0.166	-0.094	-0.120	
	health_status	0.058	1.236***	0.245**	0.313***	
	secondary_ed	0.021	0.069	0.106	-0.200*	
	high_ed.	-0.427*	0.083	0.124	0.240	
	permanent_contract	-0.402	-0.571**	-1.574***	-1.080***	
	working hours	-0.033***	-0.022***	0.000	-0.027***	
	personal labour income(000)	0.011***	-0.094***	-0.082***	-0.107***	
	other hh labour income(000)	-0.017	-0.000	0.001	0.001	
	hh non labour income(00)	-0.000	0.001***	0.000	-0.000	
	public sector	0.060	-0.542**	-0.854***	-0.722***	
	trade	-0.231*	-0.191	-0.210**	-0.153	
	prim	-0.223	-0.464	-0.817***	-0.105	
	GDPth	0.037	0.064	0.065	0.001	
	unempl_rate	-0.003	0.064	0.054***	0.016	
	Constant		-30.126***	-20.581**	-13.921***	10.192
	2. Institutional model (Pseudo R ² = 0.171)	(+control variables)				
rr pensions		0.023***	-0.032**	0.003	-0.008	
rr unemployment		-0.017**	-0.013	0.010	-0.000	
	flexibility	-0.001	0.020	-0.010	-0.008	
3. Welfare state regimes model (corporatist ref.) (Pseudo R ² = 0.174)	(+control variables)					
	social_democrat	-0.852***	1.020***	-0.316	-0.375	
	southern	0.527***	-0.996**	-0.942**	-0.321***	
	liberal	-0.230	0.227	-0.850***	0.135	

Note:

N= 25417

* p<0.10, ** p<0.05, *** p<0.01

(Std. Err. adjusted for 13 clusters in countries)

Table 2: Summary models EU-SILC (2005-2006)

models	predictors	early-retirement (β)	disability (β)	unemployment (β)	inactivity (β)
1. Basic model (Pseudo $R^2 = 0.181$)	age	0.897**	0.345	-0.413	0.053
	age2	-0.006	-0.003	0.005	0.000
	cohover55	0.328	0.175	-0.390*	0.040
	gender	0.333***	-0.281	-0.221*	-1.202***
	married_cohabiting	0.056	0.406	-0.249**	-0.093
	nrchildren	1.050*	0.927	0.363	0.626
	seclev_ed	-0.191	-0.037	-0.295*	-0.048
	high_ed	-0.367**	-0.233	-0.623**	-0.640***
	bad_health	0.324***	1.007***	0.296**	0.377***
	partner_inactive	-0.061	-0.109	0.371**	0.512**
	hhsiz	-0.068	-0.119	0.039	0.081
	hours_worked	-0.010	-0.007	0.007	-0.041***
	permanent_contract	-0.143	-0.592**	-1.723***	-1.241***
	pub_sect_prof	0.624***	-0.778***	-0.428	-0.832***
	service_trade	0.361*	-0.469**	-0.248	-0.233
	industry	0.362	-0.182	0.119	0.305
	eqpers_labinc00	-0.501***	-0.862***	-0.658***	-0.507***
	eqother_hh_labinc00	-0.075***	-0.211***	-0.116***	-0.083
	eqhh_nonlabinc00	-0.038	0.001	-0.457***	-0.112
	unempl50_64	-0.093***	0.132***	0.065	-0.081***
GDP_00	0.001	0.002***	-0.000	-0.001	
Constant		-33.049***	-13.527	8.351	-2.748
2. Institutional model (Pseudo $R^2 = 0.191$)	(+control variables)				
	rr_pensions	0.018**	0.010	0.020**	0.027***
	rr_unemployment	-0.009*	0.022***	0.018***	-0.003
	flexibility	-0.017	-0.020	0.038**	0.018
3. Welfare state regimes model (corporatist ref.) (Pseudo $R^2 = 0.189$)	(+control variables)				
	liberal	-1.097**	1.098***	-0.047	-0.128
	social_democrat	-0.620	0.843***	0.600	0.171
	Southern	-0.468	0.027	0.347	1.128***

Note:

N= 11311

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

(Std. Err. adjusted for 13 clusters in countries)

Table 3: Welfare state regimes model using *EU-SILC (corporatist ref.)*

predictor s	early-retirement (β)	disability (β)	unemployment (β)	inactivity (β)
age	0.658**	-0.021	-0.300	-0.167
age2	-0.004	0.001	0.003	0.002
cohover55	0.519***	0.164	-0.311*	0.215
gender	-0.165	-0.004	-0.195	-1.082***
married_cohabiting	0.150	0.157	-0.255**	-0.036
nrchildren	0.478	0.478	-0.011	1.365**
seclev_ed	-0.075	0.084	-0.181*	-0.123
high_ed	-0.326*	-0.218	-0.607***	-0.736***
bad_health	0.196**	1.333***	0.209***	0.218**
partner_inactive	-0.054	-0.166	0.329**	0.451***
hhsiz	-0.075*	-0.021	0.029	-0.012
hours_worked	-0.008	-0.028***	0.003	-0.045***
permanent_contract	-0.334*	-0.515***	-1.560***	-1.133***
pub_sect_prof	0.270	-0.635***	-0.749***	-0.691***
service_trade	0.264*	-0.385**	-0.325***	-0.152
industry	0.016	-0.077	-0.036	0.070
eqpers_labinc00	-0.559***	-0.741***	-0.748***	-0.545***
eqother_hh_labinc00	-0.054**	-0.171***	-0.076**	-0.067
eqhh_nonlabinc00	0.035	-0.119	-0.394***	-0.054
liberal	-0.502	0.397	-0.465**	-0.409*
social_dem	-0.734*	0.475*	0.131	-0.387
Southern	0.145	-0.489	-0.132	0.694**
Baltic	-0.590	-0.151	-0.090	0.076
Eastern	0.745*	-0.288	-0.447	-0.522**
unempl50_64	-0.039	0.032	0.004	-0.046*
GDP_00	0.000	0.000	-0.002	0.001
Constant	-26.623***	-2.035	7.388	3.117

Note:

Pseudo $R^2 = 0.187$

N = 19931

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

(Std. Err. adjusted for 26 clusters in country)

Conclusions & Discussions

- the generosity of the pension system has a positive effect on the early retirement decision using both databases while the eligibility/flexibility indicators do not seem to exert a significant impact on early retirement exit;
- the effects of the predictors on the various exit routes are similar using ECHP and SILC with one exception: personal labour income, but this could be due to the different ways in which income is measured in EU-SILC;
- in 2005/2006 the welfare state regime dummies present a mixed picture: some clusters (e.g. Southern) were maintained while other clusters contain countries from different regime types; compared with 1996-1997, the borders between regimes types became blurred;
- the Baltic and Eastern states tend to cluster together with some exceptions (HU, SK).

Problems encounter with EU-SILC:

- some variables (NACE, managerial position, size of the local unit-available only at cross-sectional level) and it was not possible to retrieve the information due to the different identification number;
- income measured different across countries –we used OECD database on taxes to transform brut into net income for countries in which only the first is available;
- many missing values due to the database design (register countries and selected respondents) e.g. health status-I used Coarsened Exact Matching (cem) technique to impute the missing values (see G. King at <http://gking.harvard.edu/cem/>);
- ISCO 4 digits not available (not possible to identify only those working in the public sector);
- longitudinal weights not usable for all countries.

Thank you!