Well-being differences in old-age in Europe: the Active Ageing Index by cohorts

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Javier Olivera*

University of Luxembourg

Abstract

The goal of this paper is to study and explain the differences in wellbeing in old age across cohorts and countries in Europe. This is done with the replication of the Active Ageing Index for cohorts formed by age group, sex and country for 2012. The analysis is performed with different model regressions at the cohort level and introducing macro variables at the country level. In general, there is a gap in active ageing in detriment of females which is larger in older cohorts. In addition, wealth, equity and pension settings of the country are important predictors for better active ageing. Finally, it is found that the Social-Democratic welfare regime (Nordic countries) with its set of strong redistributive policies, is the most favourable system for active ageing.

Keywords: Active Ageing, Old age, Wellbeing, Cohorts, Europe, Welfare Regimes

*Correspondence: Javier Olivera, Institute for Research on Socio-Economic Inequality (IRSEI), University of Luxembourg. Route de Diekirch, L-7220 Walferdange, Luxembourg. Telf: +352 4666449422. E-mail: javier.olivera@uni.lu and javierolive@gmail.com

1. Introduction

The Active Ageing index (AAI) is a composite index that aggregates different dimensions of well-being of the elderly and is computed for each country in the EU-28. This index is aimed at measuring the active and healthy ageing experienced by the old individuals of a given country and period, and therefore it can compare the quality of ageing across countries and monitor its evolution over time. In this way, the AAI can be a useful tool to detect areas of active ageing where the elderly are lacking and promote an adequate policy response. The index was generated in the context of the 2012 European Year for Active Ageing and Solidarity between Generations, and is rooted in the concept of active ageing defined by the World Health Organization (2002): "Active ageing is the process of optimizing opportunities for health, participation and security in order to enhance quality of life as people age". More details on the methodology and results of the index are in Zaidi et al. (2013) and the site of the United Nations Economic Commission for Europe[1].

The AAI can be regarded as part of a broader family of composite indexes aimed at measuring multidimensional well-being in the society, such as the well-known Human Development Index. Although the AAI shares interesting properties with other related indexes of well-being, this still faces some of the common problems found in the elaboration of these indexes. Among these limitations are the choice of appropriate weights, indicators and dimensions, and the inability to assess individual heterogeneity in each indicator and dimension because of aggregation and the use of different databases. However, given the clear methods and nationally representative data sources employed to produce the AAI, the index can potentially be computed for distinctive groups of older individuals. Therefore, a key contribution of this paper will be the replication of the index for cohorts formed by age group, sex and country, and the study of wellbeing differences among these groups. In the case of the elderly population, differences among cohorts can be substantial. Some of the AAI outcomes, past experiences and

[1] See: http://www1.unece.org/stat/platform/display/AAI/Active+Ageing+Index+Home

expectations of the 55-59 years old persons can be very different from those aged 75+. Think, for example, on differences in schooling policies and pension participation and statutory rights among birth cohorts because of changes in social policies. Furthermore, it is likely that differences among birth cohorts can become more pronounced when the cohort is also disaggregated by sex. In addition, life expectancy is larger for younger cohorts and for females, and hence, active ageing indicators should be rightly assessed according to different groups and composition of old people[2].

In this paper, the AAI is fully replicated following the official methodology, no without some adjustments, and is computed for cohorts formed by sex, five age groups (55-59, 60-64, 65-69, 70-74, 75+) and 28 EU countries. This means that the total number of cohorts with AAI outcomes is 280 (=2x5x28). Another contribution of this paper is the study of the predictors of AAI outcomes with the implementation of a cross-country analysis. This analysis is made with regressions of the AAI outcomes on cohort identifying variables and relevant macro variables at the level of the country. The purpose is to uncover what drives differences across cohorts and countries in Europe. This is an important goal as the analysis can be informative for policy making and expand our understanding on active ageing in a comparative perspective. Indeed, this study finds important differences among cohorts in Europe. In general, females are behind males in active ageing and present a gap that grows in older cohorts. The regression analysis indicate that, in general, wealth, equity and pension settings of the country are important predictors for better active ageing. Regarding welfare state regimes in Europe, it is found that the Social-Democratic regime (Nordic countries) -with its strong redistributive policies- is the one that favour active ageing the most.

[2] According to 2012's figures extracted from Eurostat, the share of females aged 65 or older is 58% in EU-28 and the life expectancy of females and males aged 65 is 86.1 and 82.7, respectively.

The paper is organized as follows. The next section presents a description of the AAI and its decomposition by cohorts. Section 3 presents and discusses the results of the cohort analysis and the study of the predictors of the AAI. Finally, section 4 provides a conclusion.

2. The Active Ageing Index

The AAI includes 22 indicators grouped in 4 domains: i) employment, ii) participation in society, iii) independent, healthy and secure living, and iv) capacity and enabling environment for active ageing. Table 1 shows these domains, indicators, weights and data sources.

Table 1. Composition of Active Ageing Index

Domain	Indicator	Age group	Weight indicator	Weight domain	Data source	Adjustments
1. Employment	1.1 Employment rate 55-59	55-59	0.25	0.35	LFS, 2012	SILC-rev1, 2012 used
	1.2 Employment rate 60-64	60-64	0.25		LFS, 2012	Idem
	1.3 Employment rate 65-69	65-69	0.25		LFS, 2012	Idem
	1.4 Employment rate 70-74	70-74	0.25		LFS, 2012	Idem
2. Participation in society	2.1 Voluntary activities	55+	0.25	0.35	EQLS, 2012	
	2.2 Care to older children, grandchildren	55+	0.25		EQLS, 2012	
	2.3 Care to older adults	55+	0.3		EQLS, 2012	
	2.4 Political participation	55+	0.2		EQLS, 2012	
3. Independent, healthy and secure living	3.1 Physical exercise	55+	0.10	0.10	EQLS, 2012	
	3.2 Access to health and dental care	55+	0.20		SILC-rev1, 2012	
	3.3 Independent living arrangements	75+	0.20		SILC-rev1, 2012	
	3.4 Relative median income of 65+ relative to those aged below 65	65+	0.10		SILC-rev1, 2012	Relative median income of each cohort relative to those aged 25-54
	3.5 No poverty risk for older persons	65+	0.10		SILC-rev1, 2012	Done for each cohort
	3.6 No severe material deprivation rate	65+	0.10		SILC-rev1, 2012	Done for each cohort
	3.7 Physical safety	55+	0.10		ESS, 2012	
	3.8 Lifelong learning	55-74	0.10		LFS, 2012	Eurostat [trng_lfs_01]
4. Capacity and enabling environment for active ageing	4.1 Remaining life expectancy at age 55	55	0.33	0.20	EHLEIS, 2010	Eurostat 2012 [demo_mlexpec]
	4.2 Share of healthy life expectancy at age 65	55	0.23		EHLEIS, 2010	Eurostat 2012 [hlth_hlye]
	4.3 Mental well-being	55+	0.17		EQLS, 2012	
	4.4 Use of information and communications technology (ICT)	55-74	0.07		Eurostat, ICT Survey, 2012	
	4.5 Social connectedness	55+	0.13		ESS, 2012	
	4.6 Educational attainment	55-74	0.07		LFS, 2012	SILC-rev1, 2012 used

Acronyms: LFS: European Union Labour Force Survey; SILC: European Union Statistics on Income and Living Conditions; EQLS: European Quality of Life Survey; ESS: European Social Survey; EHLEIS: European Health and Life Expectancy Information System; ICT Survey: Community Survey on ICT Usage in Households and by Individuals.

The precise definition and corresponding survey questions of each indicator used in the official methodology is available in Zaidi et al. (2013) and the website of the AAI[3]. Note that 9 out of 22 indicators are computed for the group of individuals aged 55+, but there are other indicators that correspond to other reference groups. For example, the indicators of financial security (3.4, 3.5 and 3.6) are measured for the population aged 65+, while the indicator of independent living (3.3) corresponds to individuals aged 75+. Other indicators are also capped at age 74. The heterogeneity in the age reference groups is, perhaps, a limitation at the moment of aggregating the indicators and should be reviewed. In any case, the replication of the AAI performed in this paper considers, first, a homogenous group of individuals aged 55+, and then five different age groups (55-59, 60-64, 65-64, 70-74 and 75+). The reproduction of the AAI in this paper has been done with the same data sources as in the official methodology, with the exception of the indicators from the employment domain and educational attainment (item 4.6) which use the SILC-rev1[4] instead of LFS data. Other adjustments are reported in the last column of Table 1. Due to all these adjustments, one should not expect identical results between the official AAI and the performed replication, although both indexes should be highly correlated. Table 2 reports the official results (version December 2014) computed for 2012 and the simulated results.

[3] See http://www1.unece.org/stat/platform/display/AAI/V.+Methodology
[4] This is the very last available revision of EU-SILC-2012 (01-Aug-2014).

Table 2. Computation results of the Active Ageing Index

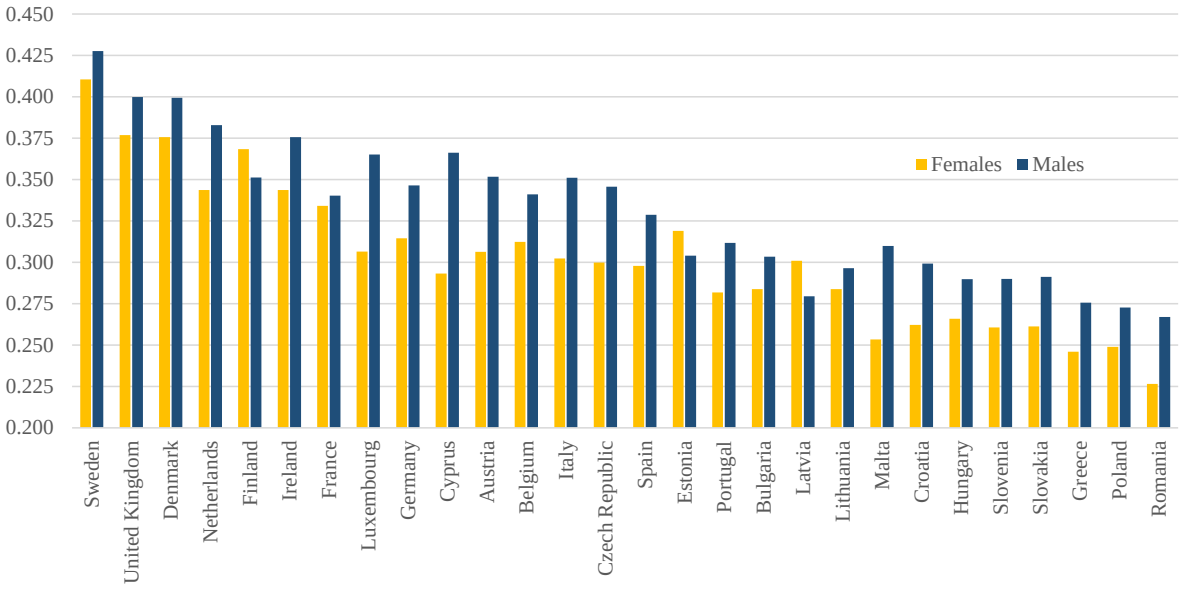
Country	AAI (official)		AAI		Diff	
	Index	Rank	Index	Rank	Index	Rank
Sweden	0.448	1	0.419	1	0.029	0
Denmark	0.405	2	0.387	3	0.018	-1
Netherlands	0.399	3	0.363	4	0.037	-1
Finland	0.396	4	0.360	5	0.036	-1
United Kingdom	0.392	5	0.388	2	0.004	3
Ireland	0.390	6	0.360	6	0.030	0
Germany	0.359	7	0.329	9	0.030	-2
Luxembourg	0.358	8	0.335	8	0.023	0
France	0.357	9	0.337	7	0.020	2
Austria	0.352	10	0.328	11	0.023	-1
Estonia	0.348	11	0.313	16	0.035	-5
Czech Republic	0.346	12	0.321	14	0.025	-2
Cyprus	0.344	13	0.329	10	0.016	3
Italy	0.340	14	0.326	13	0.015	1
Belgium	0.338	15	0.326	12	0.012	3
Portugal	0.336	16	0.296	17	0.040	-1
Spain	0.328	17	0.313	15	0.015	2
Malta	0.318	18	0.282	21	0.037	-3
Lithuania	0.317	19	0.288	20	0.029	-1
Latvia	0.316	20	0.292	19	0.024	1
Croatia	0.313	21	0.279	22	0.034	-1
Bulgaria	0.300	22	0.292	18	0.008	4
Slovenia	0.299	23	0.275	24	0.024	-1
Romania	0.297	24	0.246	28	0.051	-4
Hungary	0.286	25	0.276	23	0.010	2
Slovakia	0.285	26	0.274	25	0.011	1
Poland	0.282	27	0.260	27	0.022	0
Greece	0.277	28	0.260	26	0.017	2

The simulated index is lower than the official one in each country, although the correlation is very high at 0.97. The average gross value of the official index is 0.340, and that of the replication is 0.316, i.e. 7% lower. When inspecting within each domain, the main difference is observed in the employment domain which shows a drop of 17% in the simulated index with respect to the official value[5]. The inclusion of the group of persons aged 75+ in the simulated index is the main reason of this fall because they have a very low participation in employment. Sweden is the country with the highest performance in active ageing in both official and simulated indices, but the country with worst performance differs in both indices. Romania is at the bottom in the simulated index, while that Greece was placed at the bottom with the

[5] The average values in each domain (employment, participation, independent and capacity) of the official and simulated AAI are (0.279; 0.181; 0.706; 0.544) and (0.231; 0.176; 0.652; 0.542), respectively.

official index. Regarding the ranking, in 15 out 28 countries, the differences in ranks is 1 at most. In 6 countries, the difference in ranks is 2; and in 3 countries the difference in ranks is 3. Estonia is the country that presents the largest difference. The official figures rank Estonia in place 11 with an index of 0.348, while the simulated figures ranks this country 16 with an index of 0.313. The Spearman correlation of the ranks is very high as well at 0.965. In general, the replication of results is satisfactory and very close to what is observed with the official figures. From this point, any reference to the index in the paper will only correspond to the simulated results.

Figure1. The Active Ageing Index by sex

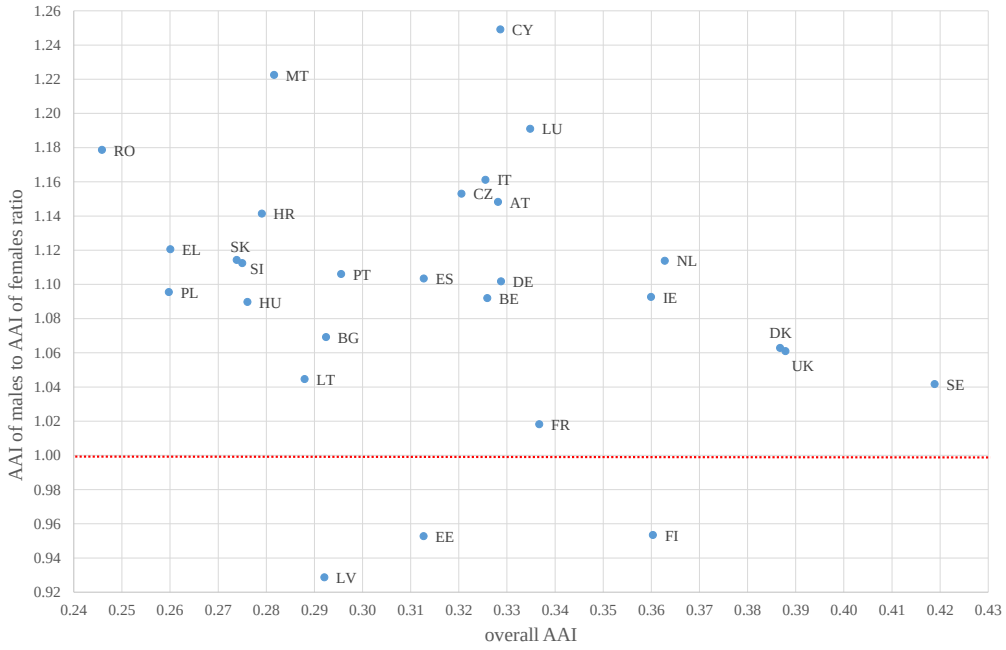


Note: the countries are placed according to their ranking in the overall AAI.

The active ageing observed in males is higher than that in females for each country, except in Finland, Estonia and Latvia (see Figure 1). In average, the AAI is 0.303 for females and 0.331 for males, although there are important differences in some countries. Figure 2 is useful to observe the intensity of the gender gap in the quality of ageing in each country. The vertical axis shows the ratio of AAI of males to females, which indicates how much is the difference between the quality of ageing between males and females. Females of any country placed over the unity line are in worse situation with respect to males. For example, in Cyprus

and Malta, the active ageing of males is 25% and 22% larger than that of females. In Luxembourg, Romania, Italy and Czech Republic, males also report a high AAI, which is 15%-20% larger than the AAI of females. Although there is a negative relationship between the AAI male to female ratio (the gender gap) and the overall AAI, this is not a clear-cut relationship (correlation is -0.24) as one can observe countries simultaneously with high performance in the overall AAI and high gender gaps. For example, this is the case for Luxembourg, Austria and Italy.

Figure 2. Gender gap in the Active Ageing Index



There are also important differences by sex in each AAI domain. The results can be consulted in Table A1 and A2 in the Appendix.

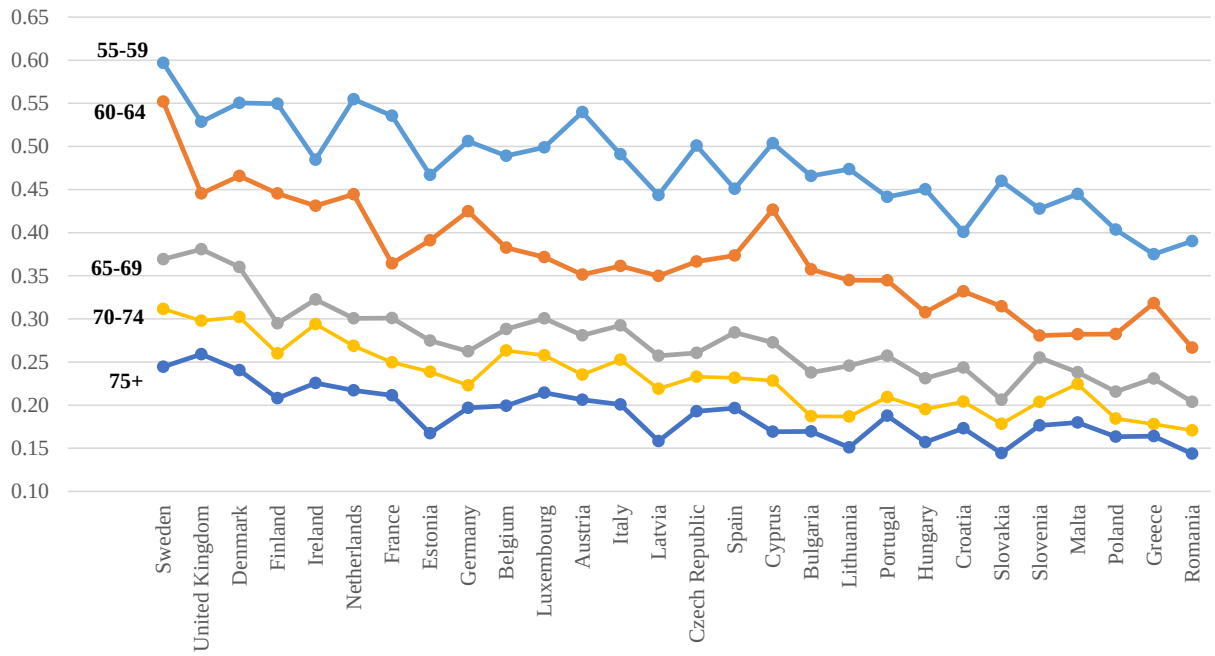
3. Analysis of cohorts

3.1 Disentangling the AAI

One of the first observed results when the AAI is broken by age group is a large heterogeneity in ageing quality experienced by each group in each country. Younger cohorts are

always better in every country, although the size of the inter-cohort difference greatly differs among countries (see Figure 3). The gross average AAI for the age groups 55-59, 60-64, 65-64, 70-74 and 75+ are 0.479, 0.371, 0.274, 0.232 and 0.19, respectively. A country that performs well in the AAI in a given age group can obtain a low AAI in another group. The ranking of countries for the oldest group (75+) is correlated at 0.75 with the ranking of countries for the youngest group (55-59). For example, Ireland is sixth with the overall indicator (and fourth for the groups older than 65) but it is placed only 14th for the 55-59 age group. An opposite case is Cyprus as the 55-59 age group ranks 9th, while the 75+ group ranks only 20th. Other countries with a high variation in their rankings per age group are Estonia, Lithuania, Slovenia, Germany and Austria. Table 3 reports the complete ranking.

Figure 3. The Active Ageing Index by age group



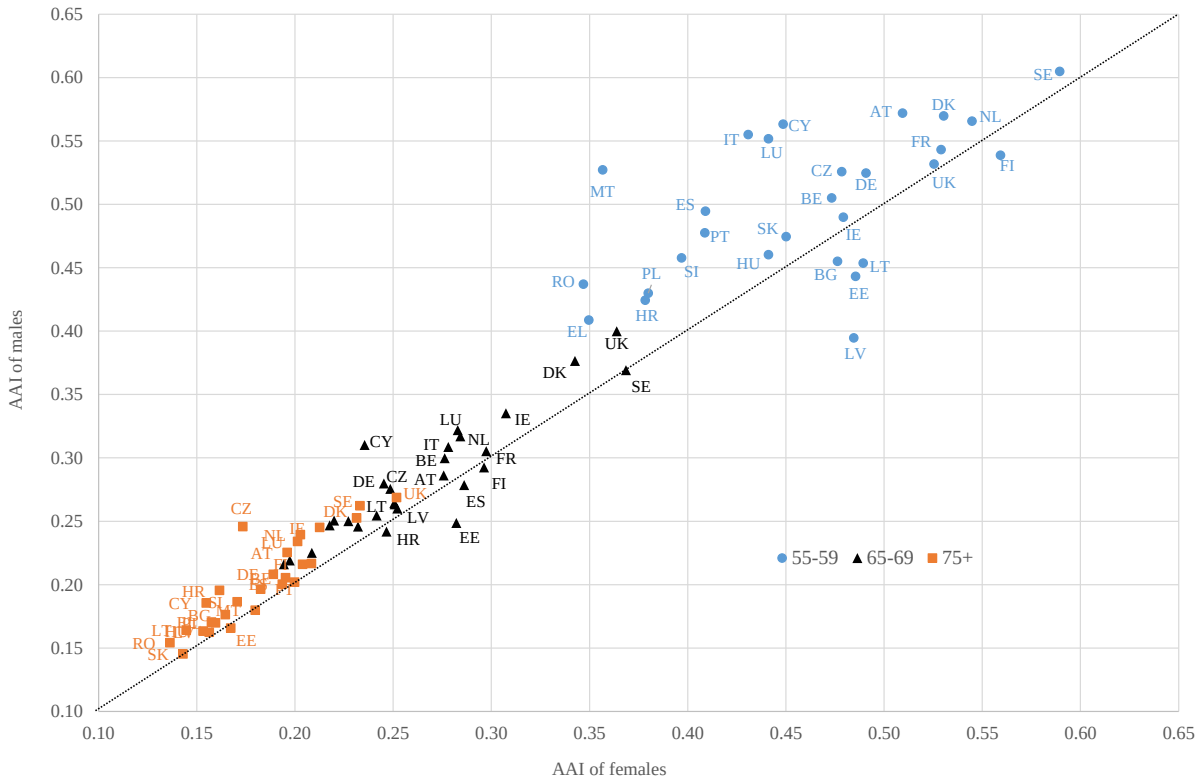
Note: the countries are placed according to their ranking in the overall AAI.

Table 3. The Active Ageing Index by age group

Country	AAI						Ranking					
	55-59	60-64	65-69	70-74	75+	Total	55-59	60-64	65-69	70-74	75+	Total
Sweden	0.597	0.552	0.369	0.312	0.244	0.419	1	1	2	1	2	1
United Kingdom	0.529	0.445	0.381	0.298	0.259	0.388	7	3	1	3	1	2
Denmark	0.550	0.466	0.360	0.302	0.240	0.387	3	2	3	2	3	3
Finland	0.550	0.445	0.295	0.260	0.208	0.360	4	4	8	7	8	5
Ireland	0.484	0.431	0.322	0.294	0.226	0.360	14	6	4	4	4	6
Netherlands	0.555	0.444	0.300	0.269	0.217	0.363	2	5	7	5	5	4
France	0.536	0.364	0.301	0.250	0.211	0.337	6	14	5	10	7	7
Estonia	0.467	0.391	0.275	0.239	0.167	0.313	16	9	13	11	21	16
Germany	0.506	0.425	0.262	0.223	0.197	0.329	8	8	15	17	12	9
Belgium	0.489	0.382	0.288	0.263	0.199	0.326	13	10	10	6	11	12
Luxembourg	0.499	0.372	0.301	0.258	0.215	0.335	11	12	6	8	6	8
Austria	0.540	0.351	0.281	0.235	0.206	0.328	5	17	12	12	9	11
Italy	0.491	0.361	0.292	0.253	0.201	0.326	12	15	9	9	10	13
Latvia	0.444	0.350	0.257	0.219	0.158	0.292	22	18	17	18	24	19
Czech Republic	0.501	0.366	0.260	0.233	0.193	0.321	10	13	16	13	14	14
Spain	0.451	0.373	0.284	0.232	0.197	0.313	19	11	11	14	13	15
Cyprus	0.504	0.426	0.273	0.228	0.169	0.329	9	7	14	15	20	10
Bulgaria	0.466	0.357	0.238	0.187	0.170	0.292	17	16	23	23	19	18
Lithuania	0.474	0.345	0.246	0.187	0.151	0.288	15	19	20	24	26	20
Portugal	0.442	0.345	0.257	0.209	0.188	0.296	23	20	18	19	15	17
Hungary	0.450	0.307	0.231	0.195	0.157	0.276	20	24	24	22	25	23
Croatia	0.401	0.332	0.243	0.204	0.173	0.279	26	21	21	20	18	22
Slovakia	0.460	0.314	0.206	0.178	0.144	0.274	18	23	27	26	27	25
Slovenia	0.428	0.281	0.255	0.204	0.176	0.275	24	27	19	21	17	24
Malta	0.445	0.282	0.238	0.224	0.180	0.282	21	26	22	16	16	21
Poland	0.404	0.283	0.216	0.184	0.163	0.260	25	25	26	25	23	27
Greece	0.375	0.318	0.231	0.178	0.164	0.260	28	22	25	27	22	26
Romania	0.390	0.267	0.204	0.171	0.144	0.246	27	28	28	28	28	28

In some countries there are important gender gaps in the quality of ageing, which also differs by age group. The vertical axis of Figure 4 shows the AAI of males and the horizontal axis reports the AAI of females. Each point corresponds to the same country and age group. For comparison reasons only three age groups are depicted (55-59, 65-69 and 75+). Hence, the points located above the dashed line indicate that males are better off than females for a given country and age group. It seems that in general, females are worse off than males in the oldest group. At least, one can observe five countries in the youngest age group where females are better off (Finland, Lithuania, Estonia, Bulgaria and Latvia). Males and females aged 55-59 from UK and Ireland also show a very similar AAI. But, in the oldest group, only Estonia shows that females are better off than males.

Figure 4. Gender gap by age group in the Active Ageing Index



A way to observe the effect of each variable that identifies the cohort is to employ Ordinal Least Squares (OLS) and regress the cohort identifying variables on the AAI outcome. Recall that the sample is formed by 280 cohorts produced from 28 countries, two sexes and five age groups. The regressions use robust standard errors clustered at the country level and the following specification:

$$AAI_{i,j,c} = \alpha + \beta_1 sex_i + \beta_2 age_j + \beta_3 country_c + \varepsilon_{i,j,c} \quad (1)$$

The subscripts *i*, *j* and *c* refer to sex (1=female, 0=male), age group and country, respectively. The Ageing Active Index of a given cohort is $AAI_{i,j,c}$ and the rest of variables are dummies. The error term $\varepsilon_{i,j,c}$ is assumed to be normally distributed. An alternative model specification is given by equation 2. In this case, an interaction term between age group and sex

is added. The goal is to be able to observe differences in age groups that are sex specific. Given the preliminary graphical results one should expect larger gender gaps in older age groups.

$$AAI_{i,j,c} = \alpha + \beta_1 sex_i + \beta_2 age_j + \beta_3 (sex_i \times age_j) + \beta_4 country_c + \varepsilon_{i,j,c} \quad (2)$$

Table 4 reports the OLS results for the overall AAI and also for each domain. The first column corresponds to equation 1 and columns 2-6 correspond to equation 2. In model 1, being female is penalized with a drop of 0.026 (2.6 in a 0-100 scale, or 8.2% of the average AAI). In addition, the decreasing and significant coefficients of age groups indicate that younger age groups are better off than old age groups. For example, the cohort 55-59 has an AAI that is larger than that of the 75+ by 0.288 points in the AAI (this difference is 91% of the average AAI). The introduction of interaction terms between sex and age groups indicates that the sex penalty (against females) in the overall AAI increases with age. This can be more clearly observed in Table 5, which reports the predicted values of the AAI outcomes by sex and age group. Note that only the coefficients of the interactions of sex and groups 55-59 and 60-64 are statistically different from zero, confirming that sex has specific effects in these groups with respect to the reference group (individuals aged 75+).

Table 4. Ordinal Least Square regressions for the Active Ageing Index

Variable	(1)	(2)	(3)	(4)	(5)	(6)
	AAI	AAI	AAI.1 (employment)	AAI.2 (participation)	AAI.3 (independent)	AAI.4 (capacity)
female	-0.0260***	-0.0184***	-0.0122***	-0.0230***	-0.0375***	-0.0117*
	(0.0045)	(0.0031)	(0.0039)	(0.0082)	(0.0045)	(0.0059)
age 75+ (reference)						
age 70-74	0.0403***	0.0385***	0.0282***	0.0529***	0.0015	0.0496***
	(0.0034)	(0.0047)	(0.0048)	(0.0108)	(0.0046)	(0.0050)
age 65-69	0.0820***	0.0823***	0.1072***	0.0823***	-0.0187***	0.0891***
	(0.0039)	(0.0047)	(0.0121)	(0.0100)	(0.0049)	(0.0046)
age 60-64	0.1795***	0.1895***	0.4080***	0.0963***	-0.1153***	0.1228***
	(0.0093)	(0.0086)	(0.0254)	(0.0097)	(0.0041)	(0.0055)
age 55-59	0.2875***	0.2979***	0.6935***	0.1104***	-0.1202***	0.1429***
	(0.0074)	(0.0079)	(0.0180)	(0.0112)	(0.0049)	(0.0055)
age 70-74 x female		0.0036	-0.0106**	0.0158	0.0168***	0.0003
		(0.0053)	(0.0045)	(0.0125)	(0.0055)	(0.0050)
age 65-69 x female		-0.0006	-0.0377***	0.0227*	0.0365***	0.0050
		(0.0042)	(0.0082)	(0.0117)	(0.0049)	(0.0055)
age 60-64 x female		-0.0200***	-0.1276***	0.0489***	0.0675***	0.0041
		(0.0072)	(0.0211)	(0.0090)	(0.0063)	(0.0052)
age 55-59 x female		-0.0208*	-0.1291***	0.0523***	0.0346***	0.0130**
		(0.0114)	(0.0278)	(0.0126)	(0.0055)	(0.0061)
constant	0.2052***	0.2014***	0.0218**	0.1077***	0.7087***	0.4260***
	(0.0052)	(0.0042)	(0.0105)	(0.0068)	(0.0034)	(0.0042)
N	280	280	280	280	280	280
R^2	0.9463	0.9484	0.9306	0.8008	0.9604	0.9528

The top row indicates the dependent variable used in each model equation. Robust and clustered (by country) standard errors are given in parenthesis. * p<0.1 ** p<0.05 *** p<0.01. Each model includes dummies for countries.

The employment domain (third and second column in Table 4 and Table 5, respectively) shows a clear and even more pronounced penalty in detriment of females. This result is in line with the lower participation of females observed in the labour market. Although female participation rates have been increasing during the last years, the birth cohorts analysed with the AAI data are old (born in 1957 or earlier) and show, in general, a much lower participation rate. The domain of participation in society also shows a clear negative relationship with age, although the specific effects of sex are different for each age group. Table 5 reports that females of age group 55-59 and 60-64 show a higher participation in society than males of same age, but females also show a lower participation in society than males in the age group 70-74 and 75+. It seems

that after retirement, males catch up females in the activities measured in the domain of social participation (voluntary activities, care to older children and grandchildren, care to older adults, and political participation) which is in line with a higher rate of male labour participation before retirement and more disposable time after retirement. Contrary to the previous domains, the domain of independent, healthy and secure living shows a positive relationship with age[6]. The direction of this relationship is confirmed in each sex as well, and it seems that being a female is more penalized in older groups (see fourth column of Table 5). Regarding the domain of capacity and enabling environment for active ageing, the older the group the lower the score in this domain. The coefficients of the interaction effects are only statistically significant for the age group 55-59, so that it is not possible to establish specific effects by sex on age groups.

Table 5. Predicted Active Ageing Index per sex and age group (based on models 2-6)

Age group	AAI	AAI.1 (employment)	AAI.2 (participation)	AAI.3 (independent)	AAI.4 (capacity)
	Female				
age 75+	0.183	0.010	0.085	0.671	0.414
age 70-74	0.225	0.027	0.153	0.690	0.464
age 65-69	0.265	0.080	0.190	0.689	0.508
age 60-64	0.353	0.291	0.230	0.623	0.541
age 55-59	0.460	0.574	0.247	0.586	0.570
	Male				
age 75+	0.201	0.022	0.108	0.709	0.426
age 70-74	0.240	0.050	0.161	0.710	0.476
age 65-69	0.284	0.129	0.190	0.690	0.515
age 60-64	0.391	0.430	0.204	0.593	0.549
age 55-59	0.499	0.715	0.218	0.589	0.569
	Female - Male				
age 75+	-0.018	-0.012	-0.023	-0.038	-0.012
age 70-74	-0.015	-0.023	-0.007	-0.021	-0.011
age 65-69	-0.019	-0.049	0.000	-0.001	-0.007
age 60-64	-0.038	-0.139	0.026	0.030	-0.008
age 55-59	-0.039	-0.141	0.029	-0.003	0.001

The predicted values are computed with the results of models 2-6 from Table 4.

[6] This result is perhaps driven by the indicator 3.2 of Table 1, which measures the proportion of individuals living in single or couple households. It is much more common to observe older individuals living in these types of households.

3.2 Explaining country differences

It is expected that some specific effects of country variables will affect the wellbeing of the elderly because the age groups are embedded in a particular country. These are contextual variables with potential effects on the quality of ageing, which can also show important country variation. For example, the gross average of GDP per capita (in purchasing power standard prices) is 23,414 euros in EU-28 in 2012, but one can find countries such as Luxembourg with 67,100 euros per inhabitant or Bulgaria with 12,100 euros. Generosity of pensions and other variables related with pensions can also account for the ability of the elderly to age with quality. In a more general picture, it is possible that the type of welfare state in the country is an important determinant of the active ageing. In order to account for the effect of contextual variables on the AAI, the following specification is used in further OLS regression models:

$$AAI_{i,j,c} = \alpha + \beta_1 sex_i + \beta_2 age_j + \beta_3 X_c + \varepsilon_{i,j,c} \quad (3)$$

X_c is a set of macro variables at the country level that are potentially related with the AAI. These variables are the GDP per capita (in logs, annual, purchasing power standard prices), social protection expenditures in old age (as percentage of GDP), Gini index of equivalased disposable income (ranges from 0 to 100, where 0 indicates full equality and 100 indicates maximum inequality), pension per capita (in logs, annual, purchasing power standard prices), statutory average retirement age, percentage of population in eligible age covered by pensions, age dependency ratio (percentage of population aged 0-14 or 65+ over population aged 15-64), and the percentage of females in the population aged 55+. The variables correspond to 2012 and are drawn from Eurostar, except the retirement age and pension coverage which are drawn from the International Labour Organization. Table A3 in the Appendix shows the values of these variables per country.

Table 6. Ordinal Least Square regressions for the Active Ageing Index

Variable	(1)	(2)	(3)	(4)	(5)	(6)
	AAI	AAI	AAI	AAI	AAI	AAI
female	-0.0260***	-0.0260***	-0.0260***	-0.0260***	-0.0260***	-0.0260***
	(0.0043)	(0.0043)	(0.0043)	(0.0043)	(0.0043)	(0.0044)
age 75+ (reference)						
age 70-74	0.0403***	0.0403***	0.0403***	0.0403***	0.0403***	0.0403***
	(0.0032)	(0.0032)	(0.0032)	(0.0032)	(0.0032)	(0.0033)
age 65-69	0.0820***	0.0820***	0.0820***	0.0820***	0.0820***	0.0820***
	(0.0037)	(0.0037)	(0.0037)	(0.0037)	(0.0037)	(0.0038)
age 60-64	0.1795***	0.1795***	0.1795***	0.1795***	0.1795***	0.1795***
	(0.0089)	(0.0089)	(0.0089)	(0.0089)	(0.0089)	(0.0090)
age 55-59	0.2875***	0.2875***	0.2875***	0.2875***	0.2875***	0.2875***
	(0.0070)	(0.0070)	(0.0070)	(0.0070)	(0.0070)	(0.0071)
log gdp pc	0.0860***					0.0443**
	(0.0262)					(0.0162)
gini index		-0.0042*				-0.0010
		(0.0024)				(0.0017)
old age social protection exp.			0.0063*			-0.0015
			(0.0034)			(0.0020)
log pension pc				0.0432***		
				(0.0108)		
retirement age				0.0086**		0.0034
				(0.0037)		(0.0034)
pension coverage				0.0010**		0.0011**
				(0.0005)		(0.0004)
age dependency ratio					0.0053***	0.0043***
					(0.0013)	(0.0014)
share of 55+ females					-0.0063***	-0.0038*
					(0.0017)	(0.0021)
Constant	-0.6597**	0.3293***	0.1426***	-0.7709***	0.2981**	-0.5032*
	(0.2618)	(0.0719)	(0.0335)	(0.2237)	(0.1160)	(0.2592)
N	280	280	280	280	280	280
R^2	0.8753	0.8244	0.8309	0.8827	0.8803	0.9130

The top row indicates the dependent variable used in each model equation. Robust and clustered (by country) standard errors are given in parenthesis. * p<0.1 ** p<0.05 *** p<0.01.

Models 1-5 of Table 6 report the OLS estimates of equations that include one macro variable or a group of related macro variables at once, while that model 6 shows the results of a specification that includes all macro variables together. Country dummies cannot be introduced, otherwise the effect of the macro variable cannot be identified. The results are not completely unexpected and indicate that the elderly are able to age with more quality in countries that are

richer, more egalitarian and expend more in social protection for old age. It is worth to mention that in a recent review of social policy in developed countries, Marx et al. (2015) observe the significant role of pensions to reduce poverty and income inequality, so that higher social protection expenditure in old age (mostly composed by pensions) should improve the wellbeing of the elderly. The results for model 4 from Table 6 confirm the significant effects of pensions in determining the wellbeing of the elderly. Higher average pensions, pension coverage and statutory retirement age in a country are associated with a larger AAI. There are a number explanations why a higher legal retirement age has a positive effect on AAI. In general, pension systems with higher retirement ages can offer better pensions, which is the case in the EU-28 countries (the correlation between pension per capita and age retirement age is 0.514), and better pensions means better resources to fulfil more quality in ageing. In addition, a late retirement age means that the individual is active for more time in the labour market and hence can present a better performance in the domain of employment and independency.

Two variables related to population composition are included in model 5 of Table 6. These are the age dependency ratio and the percentage of females in the population aged 55+. The age dependency ratio indicates the relative weight of inactive individuals (0-14 years and 65+ group) with respect to active individuals (aged 15-64) and is interpreted as a measure of the effort needed of the active population to support children and elderly. A straightforward explanation for obtaining a positive relationship between the dependency ratio and the AAI is that countries with higher dependency ratios have more elderly and higher life expectancy and hence their populations can be more active and healthier. The percentage of females in old age is negatively related with the AAI, which is in line with previous results on the gender gap in AAI in favour of males. It is worrying to observe a systematic female disadvantage in old age wellbeing. This disadvantages is, perhaps, consequence of less labour market participation and differential social protection. For example, the average of pension coverage is 98.3% for males and 83.5% for females within the population of eligible age; and labour market participation is

73.0% for males and 59.5% for females in the group aged 55-59. The last model of Table 6 includes all predictors and once, except the log of pension per capita which is highly correlated with GDP per capita (correlation is 0.86)[7].

Table 7. Ordinal Least Square regressions for each domain of the Active Ageing Index

Variable	(1)	(2)	(3)	(4)
	AAI.1 (employment)	AAI.2 (participation)	AAI.3 (independent)	AAI.4 (capacity)
female	-0.0732***	0.0049	-0.0064***	-0.0072
	(0.0088)	(0.0050)	(0.0022)	(0.0049)
age 75+ (reference)				
age 70-74	0.0229***	0.0608***	0.0098***	0.0498***
	(0.0040)	(0.0071)	(0.0030)	(0.0034)
age 65-69	0.0883***	0.0936***	-0.0005	0.0916***
	(0.0094)	(0.0060)	(0.0036)	(0.0033)
age 60-64	0.3442***	0.1207***	-0.0816***	0.1249***
	(0.0257)	(0.0071)	(0.0035)	(0.0046)
age 55-59	0.6289***	0.1366***	-0.1029***	0.1494***
	(0.0194)	(0.0076)	(0.0044)	(0.0052)
log gdp pc	0.0159	0.0556***	0.0484***	0.0723***
	(0.0348)	(0.0107)	(0.0137)	(0.0226)
gini index	0.0031	-0.0024**	-0.0070***	-0.0030
	(0.0037)	(0.0009)	(0.0013)	(0.0020)
old age social protection exp.	-0.0023	0.0006	-0.0009	-0.0041
	(0.0031)	(0.0027)	(0.0020)	(0.0036)
retirement age	0.0083	-0.0028	0.0019	0.0062*
	(0.0088)	(0.0022)	(0.0027)	(0.0035)
pension coverage	0.0032***	-0.0009**	0.0005	0.0011
	(0.0008)	(0.0004)	(0.0004)	(0.0007)
age dependency ratio	0.0033	0.0035***	0.0043***	0.0076***
	(0.0032)	(0.0009)	(0.0010)	(0.0015)
share of 55+ females	-0.0034	-0.0018	-0.0040**	-0.0081**
	(0.0047)	(0.0017)	(0.0017)	(0.0038)
Constant	-0.9667	-0.2178	0.2726	-0.5794
	(0.5729)	(0.1938)	(0.2171)	(0.4477)
N	280	280	280	280
R^2	0.8897	0.7108	0.8732	0.8439

The top row indicates the dependent variable used in each model equation. Robust and clustered (by country) standard errors are given in parenthesis. * p<0.1 ** p<0.05 *** p<0.01.

Table 7 reports the results of OLS regressions for each domain. The share of individuals in eligible age that receive pensions is the only statistically significant macro variable to explain

[7] The log of pension per capita is dropped from model 6 because this presents the largest contribution to the overall multicollinearity measured with the Variable Inflation Factor (VIF). The VIF of that variable is 15.74.

the employment domain. Given the debate of increasing income inequality in the world and its negative effects on social outcomes, it is interesting to observe that income inequality is significantly and negatively related with social participation and independence. This result is in line with the findings of Lancee and Van de Werfhorst (2012) who uncover a negative relationship between income inequality and civic and social life participation in a sample of 24 European countries. Thus, income inequality matters for the wellbeing in old-age. The results show that the share of elderly females is negatively and significantly associated only with the independence and capacity domains. Finally, the variables that affect more domains are the log of GDP per capita and the age dependency ratio (all domains, except employment).

Given the multiple effects of distinctive macro variables on the wellbeing of the elderly, it is worth to use a more aggregate variable that somewhat summarizes the features of a country that are relevant for the elderly. It is perhaps the set of variables related to benefits, social policy, generosity, health, pensions, tax structure, social trust, equality, etc. that matter for active ageing. This set can be reduced and operationalized with a classification of welfare states in Europe. There is a long tradition in studying and classifying welfare states in the political and social policy literature. On the basis of the revision of Fenger (2007), Kammer et al. (2012) and Sapir (2006), Table 8 proposes a classification of welfare regimes in EU-28.

Table 8. Welfare state regimen classification in EU-28

Social-Democratic	Southern	Liberal (Anglo-Saxon)	Conservative	Former USSR (Baltic)	Post-communist
Denmark	Greece	United Kingdom	Austria	Estonia	Bulgaria
Finland	Italy	Ireland	France	Latvia	Croatia
Sweden	Spain		Germany	Lithuania	Czech Rep.
	Portugal		Luxembourg		Hungary
	Malta		Belgium		Poland
	Cyprus		Netherlands		Slovakia
					Romania
					Slovenia

Table 9 reports the OLS estimates after including dummy variables for each welfare regimen, being the Post-Communism regimen the reference group. It seems clear that a welfare state like the Nordic countries –with high level of transfers, tax collection and equity- is the most favourable for active ageing. It is surprising to find the liberal regime (UK and Ireland) as the second best regime to develop good active ageing. This regime is characterized by means-tested benefits, low universal allowances and more income inequality. However, the results show that this regime favours, importantly, more employment and social participation in old age. The conservative type of welfare regimen is the third best regimen for active ageing. Then, it follows the Southern type and the former USSR countries (Baltic countries), being the Post-Communist block the least favourable for active ageing.

Table 9. Ordinal Least Square regressions for the AAI and the welfare state

Variable	(1)	(2)	(3)	(4)	(5)
	AAI	AAI.1 (employment)	AAI.2 (participation)	AAI.3 (independent)	AAI.4 (capacity)
female	-0.0260***	-0.0732***	0.0049	-0.0064***	-0.0072
	(0.0043)	(0.0087)	(0.0050)	(0.0022)	(0.0049)
age 75+ (reference)					
age 70-74	0.0403***	0.0229***	0.0608***	0.0098***	0.0498***
	(0.0032)	(0.0039)	(0.0070)	(0.0030)	(0.0034)
age 65-69	0.0820***	0.0883***	0.0936***	-0.0005	0.0916***
	(0.0037)	(0.0094)	(0.0059)	(0.0036)	(0.0033)
age 60-64	0.1795***	0.3442***	0.1207***	-0.0816***	0.1249***
	(0.0089)	(0.0256)	(0.0071)	(0.0035)	(0.0046)
age 55-59	0.2875***	0.6289***	0.1366***	-0.1029***	0.1494***
	(0.0071)	(0.0193)	(0.0076)	(0.0044)	(0.0051)
type: social-democratic	0.1129***	0.1332***	0.0618***	0.1168***	0.1649***
	(0.0177)	(0.0312)	(0.0113)	(0.0130)	(0.0292)
type: liberal (anglo-saxon)	0.0968***	0.1214**	0.0700***	0.0675***	0.1154***
	(0.0137)	(0.0465)	(0.0191)	(0.0134)	(0.0160)
type: conservative	0.0616***	0.0328	0.0586***	0.0738***	0.1110***
	(0.0095)	(0.0206)	(0.0147)	(0.0144)	(0.0184)
type: southern	0.0239*	0.0196	0.0342*	0.0021	0.0243
	(0.0131)	(0.0223)	(0.0173)	(0.0153)	(0.0220)
type: former USSR (baltic)	0.0197*	0.0885***	-0.0094	-0.0272	-0.0265
	(0.0102)	(0.0214)	(0.0113)	(0.0227)	(0.0179)
type: post-communist (reference)					
constant	0.1657***	0.0086	0.0633***	0.6625***	0.3717***
	(0.0091)	(0.0151)	(0.0109)	(0.0134)	(0.0150)
N	280	280	280	280	280
R^2	0.9168	0.8950	0.6492	0.8243	0.8166

The top row indicates the dependent variable used in each model equation. Robust and clustered (by country) standard errors are given in parenthesis. * p<0.1 ** p<0.05 *** p<0.01.

4. Conclusions

This paper reports significant differences in the Active Ageing Index among cohorts of elderly in Europe. Therefore, it is important to consider subgroups of individuals when a composite index of wellbeing is computed. This practice can contribute to detect areas of active ageing where some groups of elderly are lacking and promote an adequate policy response. Several regression models indicate that, in general, wealth, equity and favourable pension characteristics of the country are important predictors for a better active ageing. Furthermore, it is worrying to observe a systematic female disadvantage in old age wellbeing, which is, perhaps, a consequence of less labour market participation and differential social protection. The review of anti-poverty policies in rich economies (mostly Europe) by Marx et al. (2015) reveals that the very old females are the ones at more risk of poverty because they have a higher life expectancy, less time expended in the labour market, fewer social security contributions and more probability of living alone. This paper also performs an evaluation of welfare regimes regarding its effects on prompting favourable active ageing. The results show that the Social-Democratic regime (Nordic countries), with its strong redistributive policies, is the most favourable for active ageing. In the other side of the ranking, the set of policies and characteristics of Post-Communist countries are the least favourable for active ageing. Interestingly, the Liberal regime (United Kingdom and Ireland) is importantly associated with better outcomes in employment and social participation in old age. Analysing the effects of welfare regimes on active ageing can be an important task for future research and improve our understanding of the relationship between policies and outcomes in old age.

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Appendix

Table A1. The Active Ageing Index by domain and sex

Country	WOMEN						MEN						TOTAL					
	Emp	Soc	Liv	Cap	AAI	Rank	Emp	Soc	Liv	Cap	AAI	Rank	Emp	Soc	Liv	Cap	AAI	Rank
Austria	0.158	0.188	0.704	0.573	0.306	12	0.244	0.224	0.695	0.593	0.352	8	0.201	0.204	0.701	0.582	0.328	11
Belgium	0.166	0.189	0.667	0.607	0.312	10	0.220	0.215	0.688	0.601	0.341	13	0.193	0.200	0.676	0.604	0.326	12
Bulgaria	0.218	0.128	0.573	0.526	0.284	18	0.264	0.125	0.612	0.530	0.303	19	0.239	0.127	0.590	0.526	0.292	18
Croatia	0.096	0.172	0.635	0.524	0.262	22	0.191	0.175	0.635	0.538	0.299	20	0.141	0.173	0.635	0.528	0.279	22
Cyprus	0.203	0.188	0.625	0.469	0.293	17	0.379	0.180	0.638	0.533	0.366	6	0.289	0.185	0.631	0.498	0.329	10
Czech Republic	0.180	0.173	0.651	0.555	0.300	15	0.295	0.197	0.649	0.543	0.346	12	0.233	0.183	0.651	0.548	0.321	14
Denmark	0.308	0.178	0.753	0.651	0.376	3	0.354	0.210	0.736	0.640	0.399	3	0.330	0.193	0.746	0.646	0.387	3
Estonia	0.312	0.137	0.620	0.499	0.319	8	0.318	0.121	0.616	0.443	0.304	18	0.314	0.131	0.618	0.476	0.313	16
Finland	0.267	0.226	0.734	0.612	0.368	4	0.254	0.206	0.732	0.585	0.351	9	0.260	0.217	0.733	0.599	0.360	5
France	0.210	0.207	0.688	0.597	0.334	7	0.214	0.226	0.703	0.580	0.340	14	0.211	0.215	0.695	0.589	0.337	7
Germany	0.251	0.135	0.677	0.557	0.314	9	0.314	0.154	0.693	0.565	0.346	11	0.280	0.144	0.685	0.560	0.329	9
Greece	0.119	0.157	0.596	0.448	0.246	27	0.220	0.122	0.592	0.483	0.276	26	0.167	0.141	0.594	0.464	0.260	26
Hungary	0.162	0.152	0.621	0.471	0.266	21	0.209	0.168	0.612	0.483	0.290	24	0.183	0.158	0.617	0.475	0.276	23
Ireland	0.192	0.255	0.675	0.599	0.344	5	0.307	0.232	0.676	0.596	0.376	5	0.249	0.245	0.676	0.598	0.360	6
Italy	0.145	0.237	0.633	0.525	0.302	13	0.272	0.236	0.639	0.546	0.351	10	0.206	0.237	0.637	0.534	0.326	13
Latvia	0.269	0.159	0.543	0.484	0.301	14	0.269	0.098	0.553	0.479	0.279	25	0.268	0.136	0.545	0.480	0.292	19
Lithuania	0.228	0.145	0.614	0.460	0.284	19	0.269	0.155	0.607	0.437	0.296	21	0.244	0.148	0.612	0.448	0.288	20
Luxembourg	0.148	0.180	0.690	0.615	0.306	11	0.215	0.261	0.691	0.647	0.365	7	0.181	0.218	0.692	0.630	0.335	8
Malta	0.084	0.174	0.639	0.495	0.253	25	0.237	0.183	0.629	0.498	0.310	17	0.161	0.179	0.634	0.496	0.282	21
Netherlands	0.227	0.202	0.719	0.607	0.344	6	0.293	0.234	0.729	0.628	0.383	4	0.260	0.217	0.725	0.616	0.363	4
Poland	0.129	0.132	0.598	0.488	0.249	26	0.237	0.105	0.595	0.468	0.273	27	0.178	0.121	0.596	0.478	0.260	27
Portugal	0.180	0.140	0.615	0.541	0.282	20	0.249	0.142	0.614	0.567	0.312	16	0.213	0.141	0.615	0.552	0.296	17
Romania	0.122	0.135	0.563	0.403	0.226	28	0.231	0.121	0.571	0.433	0.267	28	0.174	0.129	0.569	0.415	0.246	28
Slovakia	0.162	0.140	0.605	0.475	0.261	23	0.255	0.130	0.605	0.479	0.291	22	0.202	0.136	0.604	0.475	0.274	25
Slovenia	0.095	0.162	0.689	0.509	0.261	24	0.175	0.171	0.676	0.506	0.290	23	0.135	0.166	0.683	0.507	0.275	24
Spain	0.160	0.188	0.644	0.559	0.298	16	0.252	0.173	0.653	0.574	0.329	15	0.205	0.181	0.648	0.565	0.313	15
Sweden	0.357	0.210	0.745	0.688	0.410	1	0.392	0.222	0.741	0.693	0.428	1	0.374	0.216	0.745	0.690	0.419	1
United Kingdom	0.337	0.197	0.689	0.605	0.377	2	0.405	0.186	0.699	0.615	0.400	2	0.370	0.192	0.693	0.609	0.388	2

Table A2. The Active Ageing Index by age group and sex

Country	WOMEN						MEN						TOTAL					
	55-59	60-64	65-69	70-74	75+	Total	55-59	60-64	65-69	70-74	75+	Total	55-59	60-64	65-69	70-74	75+	Total
Austria	0.509	0.308	0.276	0.226	0.196	0.306	0.572	0.393	0.286	0.245	0.225	0.352	0.540	0.351	0.281	0.235	0.206	0.328
Belgium	0.473	0.365	0.276	0.247	0.195	0.312	0.505	0.401	0.300	0.282	0.205	0.341	0.489	0.382	0.288	0.263	0.199	0.326
Bulgaria	0.476	0.327	0.227	0.178	0.165	0.284	0.455	0.394	0.250	0.200	0.176	0.303	0.466	0.357	0.238	0.187	0.170	0.292
Cyprus	0.449	0.369	0.236	0.211	0.155	0.293	0.563	0.484	0.310	0.246	0.186	0.366	0.504	0.426	0.273	0.228	0.169	0.329
Czech Republic	0.478	0.322	0.248	0.234	0.173	0.300	0.526	0.419	0.276	0.233	0.246	0.346	0.501	0.366	0.260	0.233	0.193	0.321
Germany	0.491	0.412	0.245	0.212	0.189	0.314	0.525	0.443	0.280	0.236	0.208	0.346	0.506	0.425	0.262	0.223	0.197	0.329
Denmark	0.530	0.466	0.343	0.299	0.231	0.376	0.570	0.465	0.376	0.308	0.253	0.399	0.550	0.466	0.360	0.302	0.240	0.387
Estonia	0.486	0.407	0.282	0.237	0.167	0.319	0.443	0.374	0.249	0.241	0.166	0.304	0.467	0.391	0.275	0.239	0.167	0.313
Greece	0.350	0.301	0.218	0.172	0.157	0.246	0.409	0.336	0.247	0.186	0.171	0.276	0.375	0.318	0.231	0.178	0.164	0.260
Spain	0.409	0.358	0.286	0.224	0.194	0.298	0.495	0.393	0.279	0.241	0.200	0.329	0.451	0.373	0.284	0.232	0.197	0.313
Finland	0.559	0.475	0.296	0.273	0.204	0.368	0.539	0.414	0.292	0.241	0.216	0.351	0.550	0.445	0.295	0.260	0.208	0.360
France	0.529	0.372	0.297	0.253	0.208	0.334	0.543	0.356	0.305	0.246	0.217	0.340	0.536	0.364	0.301	0.250	0.211	0.337
Croatia	0.378	0.298	0.247	0.199	0.162	0.262	0.424	0.374	0.242	0.209	0.195	0.299	0.401	0.332	0.243	0.204	0.173	0.279
Hungary	0.441	0.303	0.220	0.183	0.153	0.266	0.460	0.318	0.251	0.225	0.163	0.290	0.450	0.307	0.231	0.195	0.157	0.276
Ireland	0.479	0.409	0.307	0.266	0.213	0.344	0.490	0.452	0.335	0.326	0.245	0.376	0.484	0.431	0.322	0.294	0.226	0.360
Italy	0.431	0.343	0.278	0.238	0.200	0.302	0.555	0.380	0.309	0.269	0.202	0.351	0.491	0.361	0.292	0.253	0.201	0.326
Lithuania	0.489	0.328	0.242	0.182	0.145	0.284	0.454	0.368	0.255	0.193	0.164	0.296	0.474	0.345	0.246	0.187	0.151	0.288
Luxembourg	0.441	0.356	0.283	0.232	0.201	0.306	0.552	0.386	0.322	0.291	0.234	0.365	0.499	0.372	0.301	0.258	0.215	0.335
Latvia	0.485	0.354	0.251	0.229	0.156	0.301	0.395	0.344	0.263	0.199	0.163	0.279	0.444	0.350	0.257	0.219	0.158	0.292
Malta	0.357	0.246	0.232	0.210	0.180	0.253	0.527	0.321	0.246	0.243	0.180	0.310	0.445	0.282	0.238	0.224	0.180	0.282
Netherlands	0.545	0.404	0.284	0.274	0.203	0.344	0.566	0.484	0.317	0.263	0.240	0.383	0.555	0.444	0.300	0.269	0.217	0.363
Poland	0.380	0.258	0.209	0.186	0.160	0.249	0.430	0.312	0.225	0.180	0.170	0.273	0.404	0.283	0.216	0.184	0.163	0.260
Portugal	0.409	0.336	0.251	0.197	0.182	0.282	0.478	0.355	0.264	0.223	0.196	0.312	0.442	0.345	0.257	0.209	0.188	0.296
Romania	0.347	0.231	0.194	0.166	0.136	0.226	0.437	0.306	0.216	0.176	0.154	0.267	0.390	0.267	0.204	0.171	0.144	0.246
Sweden	0.589	0.548	0.369	0.310	0.233	0.410	0.605	0.556	0.369	0.313	0.262	0.428	0.597	0.552	0.369	0.312	0.244	0.419
Slovenia	0.397	0.258	0.252	0.200	0.171	0.261	0.458	0.306	0.260	0.207	0.186	0.290	0.428	0.281	0.255	0.204	0.176	0.275
Slovakia	0.450	0.288	0.197	0.168	0.143	0.261	0.475	0.352	0.219	0.192	0.145	0.291	0.460	0.314	0.206	0.178	0.144	0.274
United Kingdom	0.525	0.430	0.364	0.294	0.252	0.377	0.532	0.460	0.400	0.300	0.269	0.400	0.529	0.445	0.381	0.298	0.259	0.388

Table A3. Macro variables in EU-28 countries (2012)

Country	log of gdp per capita (in pps)	gini index	social protection expenditures in old age (%GDP)	log of pension per capita (in pps)	statutory average retirement age	pension coverage (% of elegible population)	age dependency ratio (%)	share of females in the 55+ population
Austria	10.41	27.60	13.00	8.51	62.50	85.60	47.83	55.44
Belgium	10.33	26.50	9.60	8.22	65.00	83.90	52.32	54.56
Bulgaria	9.40	33.60	7.50	6.98	61.50	97.45	47.54	56.59
Croatia	9.66	30.90	5.80	7.41	62.50	64.65	49.22	56.90
Cyprus	10.06	31.00	10.50	7.69	65.00	78.60	41.47	52.57
Czech Republic	9.94	24.90	9.30	7.66	61.45	100.00	44.65	55.78
Denmark	10.38	28.10	14.40	8.39	65.00	100.00	53.90	53.04
Estonia	9.81	32.50	6.70	7.28	62.00	98.00	49.74	62.28
Finland	10.29	25.90	11.50	8.23	65.00	100.00	52.90	54.77
France	10.23	30.50	12.90	8.37	60.00	100.00	55.54	55.42
Germany	10.36	28.30	9.40	8.31	65.00	100.00	51.20	54.61
Greece	9.88	34.30	15.40	8.14	62.50	77.30	52.33	54.27
Hungary	9.74	26.90	9.90	7.44	62.00	92.65	45.72	58.98
Ireland	10.40	29.90	6.40	7.68	65.00	83.15	50.32	52.34
Italy	10.15	31.90	15.30	8.36	62.50	84.60	53.48	55.40
Latvia	9.71	35.70	7.50	7.22	62.00	100.00	48.92	63.41
Lithuania	9.81	32.00	6.90	7.28	61.25	100.00	48.97	62.39
Luxembourg	11.11	28.00	6.70	8.67	65.00	78.20	45.14	53.51
Malta	10.00	27.10	8.70	7.65	60.50	64.75	45.37	53.47
Netherlands	10.39	25.40	11.30	8.37	65.00	100.00	50.49	53.06
Poland	9.75	30.90	8.70	7.63	62.50	97.45	40.68	57.42
Portugal	9.87	34.50	12.00	7.93	65.00	100.00	51.43	56.30
Romania	9.52	33.20	7.60	7.08	61.25	94.00	45.96	56.47
Slovakia	9.87	25.30	7.00	7.44	62.00	100.00	39.25	57.52
Slovenia	9.97	23.70	10.10	7.79	62.00	92.95	45.13	55.44
Spain	10.10	35.00	9.20	7.93	65.00	72.00	48.10	54.84
Sweden	10.38	24.80	12.40	8.23	65.00	100.00	55.10	52.91
United Kingdom	10.19	31.30	12.70	8.06	62.50	99.60	52.34	53.58
Total	10.06	29.63	9.94	7.86	63.07	90.89	48.75	55.83

Sources: Eurostat, and International Labour Organization for statutory retirement age and pension coverage.