Active Aging and Wellbeing in a Cross-national Perspective

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ABSTRACT

As societies age, the well-being of the elderly increasingly becomes a priority and active aging a new challenge. Many studies focuses on individual determinants of wellbeing, while macro-studies usually emphasise a single macro dimension of active aging. A research linking the contextual level of Active Aging and a measure of individual wellbeing is necessary. In this paper we carried out a multilevel analysis on a subsample of 59,267 (50 and over) individuals from the SHARE survey (2015) living in 16 European countries. Individual wellbeing is measured by the composite indicator of CASP (Control, Autonomy, Self-Realization, Pleasure). As a country-level variable we rely on the UNECE Active Aging Indexes. Controlling for a large number of individual characteristics (Demographics, SES, Physical and mental status, Cognitive abilities, Social networks), our analysis shows that living in a context fostering active aging is positively correlated with high level of individual wellbeing other things being equal.

Keywords: Active aging, Older People's Wellbeing, SHARE survey, Europe, Multilevel Models.

1. Introduction

As societies age, the well-being of the elderly increasingly becomes a priority and a challenge. Until a few decades ago, old age was considered as a period of rest in an individual's life course, in a sort of slow disengagement from society (Boudiny 2013). However, together with the increase in life expectancy, both the time spent in good health and in retirement have increased considerably, and the meaning attributed to the concept of 'ageing' has deeply changed.

In the late 1990s the World Health Organisation adopted the notion of "active ageing" (Walker 2002; Boudiny 2013), considered as the process of optimizing opportunities for health, participation

and security, in order to enhance quality of life as people age. Thus, active ageing entails participation in socio-economic, cultural, and civic affairs, not just the ability to be physically active or to participate in the labour force. Allowing old people to realize their potential for physical, social, and mental well-being, while providing them with adequate protection and care, is a goal that policy makers should bear in mind, in order to extend healthy life expectancy and quality of life for ageing societies.

In such a context, measuring the quality of life of older people and identifying its determinants is a fundamental element, that could help in designing tailored policies for making aged people well-being increase all over Europe. Beyond understanding the micro-level elements influencing individual well-being, we want to "put individuals into contexts", and to investigate the role macro-level factors have in explaining individual wellbeing.

2. Background and hypotheses

Most of research on active ageing stresses the importance of individual determinants of wellbeing (as socioeconomic status, health status, participation in socially productive activities), and some scholars suggest that macro factors have also a role, for instance the welfare provisions and models (Niedzwiedz et al. 2014, Motel-Klingebiel et al. 2008, Conde-Sala et al. 2017, Esser and Palme 2010), as well as the level of socio-economic inequality (Mikucka et al. 2017; Roth et al. 2017; Niedzwieds et al. 2014), unemployment rate (Pittau et al. 2009; Di Tella et al. 2003), gender equality policies (Van Oyen et al. 2010, Högberg 2018, Palència et al., 2014), GDP (Degutis et al. 2010). However, in the quoted studies only single macro dimensions are generally considered, while a research linking the multiple macro-dimensions of active aging to the individual level of wellbeing is lacking.

We want to fill this gap, aware that both active ageing (as a macro-level element) and individual well-being are complex concepts, influenced and determined by several aspects, and that research results could be influenced by the type of dimension chosen for the analysis. Such a complexity, in its whole, has to be taken into account for a comprehensive analysis of the role macro-level factors play in shaping individual quality of life perception. The use of composite measures, both at the micro and macro-level, represents the novelty element of our research, and will allow us to coherently put individuals in contexts, thus offering a coherent framework for the results interpretation.

We chose as a macro-level composite indicator the Active Ageing Index (AAI), developed in 2012 by the European Centre for Social Welfare Policy and Research in Vienna (ECV) in close collaboration with the European Commission's DG for Employment Social Affairs and Inclusion

and the United Nations Economic Commission for Europe. To reflect the multidimensional concept of ageing, the AAI includes four domains. Each domain represents a different aspect of active and healthy ageing. The first three domains refer to the actual experiences of active ageing (employment, unpaid work/social participation, independent living), while the fourth domain captures the capacity for active ageing as determined by individual characteristics and environmental factors.

Three are the main research questions of this paper. We derive our hypothesis from the idea that personal experience is shaped by broader social, economic and political factors: it means that wellbeing is about personal processes, but that these personal processes are deeply intertwined with societal mechanisms. The concept of an overall correspondence between the whole and its parts is an integral part of our thinking about social facts. Applying this idea to the association between macro-level active ageing and quality of life in older ages, we propose the following research question:

Do older people living in contexts characterized by high levels of active ageing (measured through the Active Ageing Index) show a higher level of individual quality of life, other things been equal?

Beyond focusing on the AAI 'levels', we want to use also a dynamic perspective, thus focusing on how changes in the AAI measure over time could influence the perceived quality of life. Such an approach could contribute in understanding if the dynamic processes driving to changes in macro-level factors included in the AAI measure can help explaining cross-countries differences in the way old people consider their life. So, our second research question is:

Do changes in macro-level degree of active ageing (measured as changes in the AAI levels) play a role in explaining the way European people perceive their wellbeing?

Our third research hypothesis is built on a gender perspective. Gender differences in the experience of aging are becoming an issue of concern to policy makers around the world. The Plan of Action emanating from the 2nd World Assembly on Aging (WAA) held in Madrid in April 2002 explicitly advocates recognizing the differential impact of aging on women and men and ensuring that a gender perspective is integrated into all policies, programs, and legislation dealing with aging. The effects of policies directed towards older people are not gender neutral: they are likely to affect men and women differently; moreover they can contribute to either strengthening or weakening the link between gender and wellbeing.

To better understand gender differences in the quality of life of older persons, it necessary to examine the experiences of elderly men and women within the contexts in which they live. This

is the reason why beyond understanding if gender differences emerge when analysing the micro-level factor influencing elderly's well-being, we want to know if macro-level active-ageing contextual characteristics influence female and male individual well-being differently.
Moreover, we evaluate whether sex-specific macro-level indicators play a role in determining the individual well-being of the opposite sex individuals. Our third research question is the following:
Do AAI levels have a different impact on individual well-being depending on their sex? Do female AAI levels have an impact on individual well-being of old men, and vice versa?

3. Data and Methods

In order to answer the above described research questions we estimate multilevel regression models.

3.1 The dependent variable

We focus on a broad definition of quality of life in old age, capturing the multidimensional nature of such a concept. Specifically, we adopt the CASP-12 indicator (Wiggins et al., 2008), a revised 12-item version of CASP-19 scale introduced by Hyde et al. (2003). CASP is a theoretically grounded measure of quality of life in older age, based on a sociological conceptualisation drawn upon the "Theory of Human Need" (Higgs et al., 2003). It is composed of four subscales (Control, Autonomy, Self-realization, Pleasure) and results as the sum of individual assessment of twelve questions or statements on a four point Likert scale. In the 12 items version, the resulting score ranges from 12 to 48: the larger, the better quality of life, but no thresholds are so far introduced to discriminate between high and low quality of life (see an attempt provided by von dem Knesebeck et al., 2005).

3.2 Data sources

We use data drawn from the sixth wave of the Survey of Health, Ageing and Retirement in Europe (SHARE), collected in 2015 (Börsch-Supan 2017). See Börsch-Supan et al. (2013) for methodological details. SHARE is a panel survey that collects detailed cross-national information on health, socio-economic status and social and family networks of citizens aged 50 and over from a large set of European countries, ranging from the Scandinavian and Baltic area to Mediterranean nations.

SHARE introduced a 12-item version of the CASP scale that slightly differs from the original CASP-19 proposal (von dem Knesebeck et al. 2005). The psychometric properties of the SHARE version of the CASP-12 and its cross-cultural robustness, based on the fourth wave of SHARE, were investigated by Borrat-Besson et al. (2015): they found similar results in cross-country comparisons, with some problems for Italy and Portugal. The analysed sample is composed by 59.267 individuals, that is the total number of units for which the CASP-12 indicator may be constructed, living in 16 countries (Austria, Belgium, Croatia, Czech Republic, Denmark, Estonia, France, Germany, Greece, Italy, Luxembourg, Poland, Portugal, Slovenia, Spain and Sweden).

The average value of the CASP score is equal to 36.97 (±6.35 s.d.), while its median is equal to 38, slightly higher for men (the mean is 37.45 and the median 38) than for women (the mean is 36.61 and the median 37). However, as depicted by Figure 1, our sample shows a large cross-country heterogeneity, since the CASP score ranges from 31.84 in Greece to 41.37 in Denmark.

The individual variables used in this paper may be classified in 5 groups:

- *Demographic*: gender, age (in classes), household size, marital status, having children and/or grandchildren.
- *Socio-economic status*: education, occupational status, household income, real assets and financial assets (in quintiles), not seeing a doctor because of costs or waiting times.
- *Physical and mental status*: reporting at least one chronic diseases, such as heart attacks, high blood pressure, diabetes and so on, reporting at least one ADL/IADL limitation, reporting mobility or arm function limitation, being depressed according to the EURO-D scale.
- Cognitive abilities: results of the ten words list test, both immediate and delayed, and numeracy (math) score.
- Social networks: received or gave personal/practical help from person(s) outside the household, looking after grandchildren.

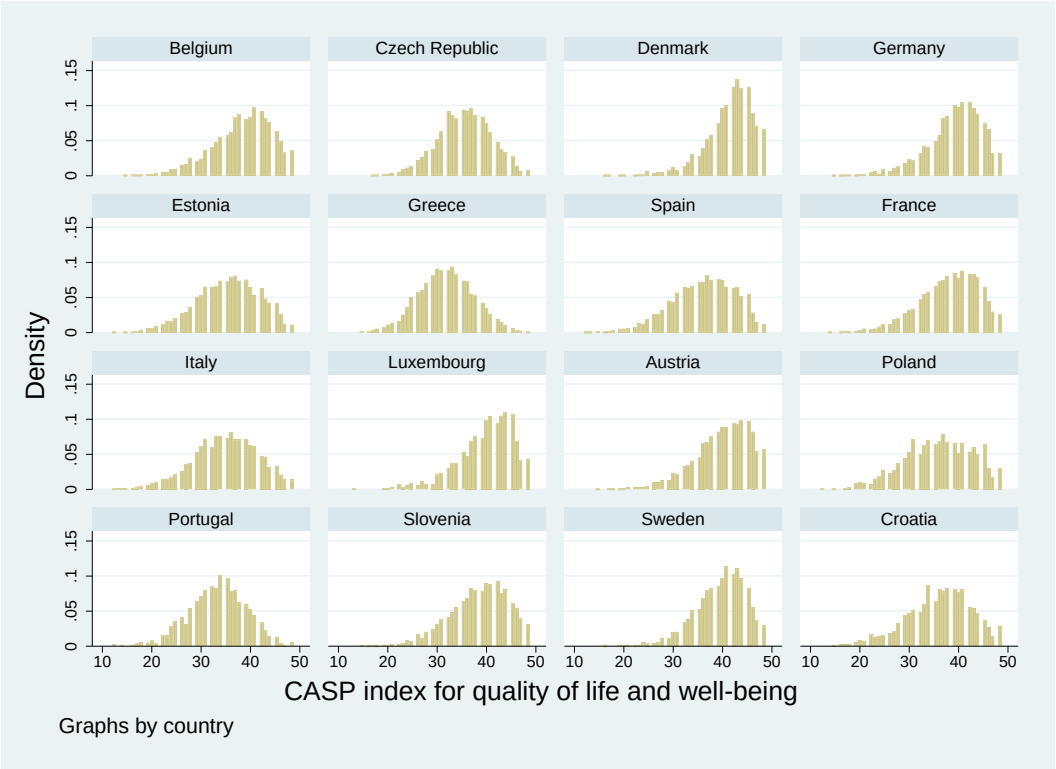

Figure 1: Distribution of the CASP indicator, by country

3.3 The statistical analysis

Other than standard descriptive analysis, we investigate the relationship between quality of life and a large set of variables by means of some multilevel analyses (Snijders and Bosker 2012), in particular estimating random slope models where the individual CASP-12 score is our dependent variable.

The novelty element of our research is that we use AAI (Active Ageing indices) as a level-2 variable, that is, as a macro-level indicator measuring, in a composite way, several aspects that could drive the way old people perceive their quality of life. As underlined by Motel-Klingebiel et al. (2009), "levels of quality of life are principally affected by welfare state arrangements while distributions and the relevant social structure indicators are only shaped by welfare regimes to a certain extent. Consequently, it can be said from a social policy perspective that a liberalisation of welfare systems may only partly lead to increased variation in quality of life and hence, in diversity and social inequality among older people" (page 76).

Therefore, we want to consider that countries differ in demographic characteristics (improvements in longevity), social norms (patterns of intergenerational transfers and contacts, gender norms), policy context (welfare state, pension systems, health care systems), and so on: these differences could help explaining cross-countries heterogeneity in perceived quality of life,

once controlling for individual characteristics. To this end, the use of AAI as a level-2 variable, both in its elementary components and as a whole, will allow us going in depth in investigating which macro-level factors foster/hinder elderlies' life quality.

For each model, the Intraclass Correlation Coefficient (ICC) is used to evaluate the role of the AAI indicators in explaining the cross-country heterogeneity in quality of life. All statistical analyses were performed using Stata15 software.

4. Results

We estimate several multilevel models separated for men and women as reported in table 1, 2 and 3. In table 1 we show the individual level point estimates of model I including the total value of AAI2016, as a secondary level variable. Although we included a large set of individual-level variables, covering many domains of well-being: demographic characteristics, household composition, economic status, physical and mental health status, and cognitive abilities, as well as social networks, 15% of the variability in the perception of quality of life remains, probably linked to cross-country differentials (estimates not shown in the tables). When we include the global AAI (calculated for both sexes) as a second-level variables, the cross country variabilities decreases to 10.5% for men and 9.2% for women (table 1). This is an interesting result: despite most of individual level variable remains significantly correlated with the response variable, they do not encompass all the cross-country variability, which is conversely reduced using the AAI index. Not only the level of the Index is significantly correlated with the individual well-being, but also its variations (table 2, model II): an increase of the global AAI is correlated with an increase of the quality of life both for women and for men. In this case the interclass coefficient is further reduced to 8.2% for men and even more for women (6.9%).

A family of models tries to test gender differences as shown in table 2, where the estimates of the coefficient (and their variations) of each AAI calculated separately by gender have been reported for the same sex (model III and IV) and for the opposite sex (model V), controlling for the same individual variables of model I. First we found that the AAI calculated separately for each sex have almost the same effect in terms of magnitude and significance for men and women respectively (table 2, model III). The index seems to reduce more the residual cross country variability for men than for women. Another interesting gender difference is that individual quality of life of men is more sensitive to changes in the sex-specific AAI index than women's quality of life (the effect is not statistically significant) (Model IV). The idea that the level of women's quality of life is influenced by both men's AAI level and variation is corroborated by our results as reported

in table 2 (model V). In addition, it should be remarked that, among women, men's macro indicators reduces cross-country variability remarkably more than the female-specific AAI (model IV): 9.24 versus 4.25. Conversely men's quality of life is not correlated to the macro indicators calculated only among women, as neither level nor variation's estimates are significant (table 2, model V).

The focus of the estimates shown in table 3 is on the AAI's single domain and their variations, for both sexes (model VI), and separately for men and women, respectively on the same sex-specific AAI levels and variations (Model VIII) and on the opposite sex-specific AAI levels and variations (Model IX). It is interesting to remark that the only domain that proves to be significantly associated with individual's quality for life is the one related to independent, healthy and secure living, for both women and men (Model VI). The same holds when we calculate this domain separately for men and women (Model VII). As we include in the model the variations of the single domain calculated by each sex, we notice that the coefficient of the domain "independence" remains significant for both men and women, but not its variation. Conversely women and men's quality of life increases as the "employment" domain improves. Women's quality of life is also sensitive to variation in participation in society and in capacity, but in this latter case the sign is negative. In other words, an improvement of the capacity and enabling environment for active aging (calculated for women) seems detrimental for women's well-being (Model VIII). It is useful to remark that the above mentioned variation (calculated for women) seems to have the same negative impact also on men's quality of life. Women's wellbeing instead is sensitive to employment's variation among men (Table 3, Model IX).

Among the individual level demographic characteristics we notice that unexpectedly older age is not a strong covariate of quality of life per se, once we control for health status and economic variables, with the partial exception of very old women that appear less satisfied (table 1). Conversely living in a large family seems to be detrimental for the quality of life, but in this case it is possible that the relations can be interpreted in the other way round: those who have a lower level of wellbeing are more likely to live with other people. Living with a partner is beneficial compared to living alone both for men and women, but for the latter the relations is more statistically significant. Having children seems not to be correlated with higher wellbeing, while having at least a grandchild increase the quality of life of both grandfather and grandmother. It is interesting however that looking after grandchildren makes older women happier, while for men it is not significant. In addition women seems to be happier when they provide help outside the household, while for men this is uninfluential. Receiving practical help from outside the household is negatively correlated with quality of life among both men and women.

Not surprisingly education is a relevant covariate of wellbeing and remains positively correlated, even when we control for many economic variables, as household income, real assets and household financial assets. Results confirm that better economic conditions are always positively and significantly correlated with higher level of CASP. While having problems to be visited by a doctor both for economic reasons and waiting times is negatively associated with wellbeing.

The presence of most chronic disease is detrimental for quality of life, as expected, with the only exception of cataracts (for men) and fractures (for both sexes). At the same time having either an ADL or an IADL limitation or any mobility or arm function limitation is negatively associated with CASP. The negative correlation is even greater in magnitude for depression. Older people showing their cognitive ability intact appears to be significantly happier than the others.

5. Discussion

This paper investigates the role of contextual correlates of individual's quality of life, testing the AAI calculated by the UN. Result seems to corroborate the hypothesis that the context matters and cannot be ignored in the analysis. This confirm other results found in the literature on the importance of the macro factors on individual's wellbeing and support the idea that using macro indicators in multilevel analysis increase the explaining potential of the study. \

The novelty of this paper to measure contextual variables by the AAI index seems fruitful: the index and it variations prove to be good indicators to capture unexplained cross-country variability whose level is almost halved when we consider Global AAI and its variation for both men and women. Results support the hypothesis that AAI indexes are good measures of the contextual level of quality of life for both old men and women: living in a context fostering active aging is positively correlated with high level of individual wellbeing other things being equal. Policy makers should be therefore encouraged to invest in active aging, not only to face population aging at societal level, but also because it is positively correlated with individual level of wellbeing.

It should be remarked however that when we try to isolate the correlation between each single dimension of active aging and individual quality of life, the only domain that matters is "Independent, health and secure living", for both men and women. This is a clear indication that the single dimension of this domain should be specifically supported with targeted policies. At the same time, we suggest to the UN to evaluate the possibility to increase the explicit weight for the above domain (just 10%) given its robust correlation with old people's quality of life.

Finally, our results evidence that any positive variation of the AAI on the whole is linked to a higher level of individual's wellbeing. In this sense, any further improvement in active aging could be beneficial on the whole for old men and women. Men's quality of life seems affected more by variation in men's employment level, and a public investment in this direction would be beneficial also for women. While women's wellbeing is sensitive to variations of more domains and therefore policy makers should support many aspects of active aging to improve women's quality of life.

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Table 1: Point estimates of the model with the total value of AAI 2016 (Model I)

Group	Variable	Point estimates	
		Men	Women
DEMO	Age class (ref. Up to 55):		
	56-60	0.034	- 0.161
	61-65	0.145	- 0.079
	66-70	0.246	- 0.050
	71-75	0.036	- 0.036
	76-80	- 0.094	- 0.252*
	81-85	- 0.192	- 0.132
	86 or older	- 0.156	- 0.343*
	Household size	- 0.143 ***	- 0.138 ***
	Marital status (ref. Being single):		
	Having a partner living in the hh	0.172 *	0.230 ***
	Having a partner living outside the hh	0.177	0.118
	Having at least 1 child	- 0.074	0.112
	Having at least one grandchild	0.289 ***	0.151 **
ECONOMIC STATUS	Education (ref. Low):		
	Medium	0.331 ***	0.252 ***
	High	0.312 ***	0.182 **
	Occupational status (ref. Retired):		
	Being worker	0.173 *	- 0.113
	Being homemaker	- 1.535 **	- 0.231 ***
	Other job status	- 0.808 ***	- 0.814 ***
	Household income (ref. 1st quintile):		
	2nd quintile	0.327 ***	0.303 ***
	3rd quintile	0.475 ***	0.335 ***
	4th quintile	0.625 ***	0.565 ***
	5th quintile	1.094 ***	0.924 ***
	Household real assets (ref. 1st quintile):		
	2nd quintile	0.100	0.239 ***
	3rd quintile	0.413 ***	0.496 ***
	4th quintile	0.710 ***	0.656 ***
	5th quintile	1.047 ***	1.095 ***
	Household financial assets (ref. 1st quintile):		
	2nd quintile	0.811 ***	0.503 ***
	3rd quintile	1.179 ***	0.800 ***
	4th quintile	1.441 ***	1.152 ***
	5th quintile	1.478 ***	1.387 ***
	Not seeing doctor due to costs	- 1.412 ***	- 1.383 ***
	Not seeing doctor due to waiting times	- 0.780 ***	- 0.448 ***

Note: *** = 1%; ** = 5%; * = 10%

Table 1 (continued): Point estimates of the model with the total value of AAI 2016 (Model I)

Group	Variable	Point estimates	
		Men	Women
PHYSICAL & MENTAL STATUS	Reported chronic disease:		
	A hearth attack	- 0.401 ***	- 0.419 ***
	High blood pressure	- 0.214 ***	- 0.185 ***
	High blood cholesterol	- 0.214 ***	- 0.106 *
	A stroke	- 0.567 ***	- 0.433 ***
	Diabetes	- 0.210 **	- 0.191 **
	Chronic lung disease	- 0.515 ***	- 0.228 **
	Cancer	- 0.534 ***	- 0.143
	Stomach ulcer	- 0.526 ***	- 0.304 **
	Cataracts	0.035	- 0.186 *
	Hip, femoral or other fractures	- 0.062	0.159
	Alzheimer or other affective disease	- 1.397 ***	- 1.648 ***
	Rheumatoid arthritis	- 0.507 ***	- 0.363 ***
	Osteoarthritis or other rheumatism	- 0.352 ***	- 0.309 ***
	Other diseases	- 0.472 ***	- 0.300 ***
	Having at least one ADL limitation	- 0.354 ***	- 0.160
	Having at least one IADL limitation	- 0.725 ***	- 0.941 ***
	Mobility or arm function limitation	- 0.490 ***	- 0.464 ***
	Being depressed (EURO-D scale)	- 3.888 ***	- 3.652 ***
COGNITIVE ABILITIES	Ten words list test – immediate	0.097 ***	0.108 ***
	Ten words list test – delayed	0.102 ***	0.082 ***
	Numeracy – math performance	0.205 ***	0.206 ***
SOCIAL NETWORKS	Looking after grandchildren	- 0.042	0.154 **
	Received practical help from outside hh	- 0.371 ***	- 0.156 **
	Gave practical help to outside hh	0.113	0.150 **
LEVEL-2	Global AAI	0.234 ***	0.268 ***
	Intercept	27.637 ***	27.079 ***
	Level-1 variance	20.700	21.447
	Level-2 variance	2.423	2.184
	ICC	10.48%	9.24%

Note: *** = 1%; ** = 5%; * = 10%

Table 2: Estimates of the level-2 variables based on the overall AAI 2016 indicators

AAI variable	**Model II**		**Model III**		**Model IV**		**Model V**	
	Men	Women	Men	Women	Men	Women	Men	Women
Global AAI	0.120	0.153 *						
Global AAI variation	2.032 **	2.043 **						
Men AAI			0.254 ***		0.129 *			0.164 ***
Men AAI variation					2.616 ***			2.644 ***
Women AAI				0.240 ***		0.184 **	0.153	
Women AAI variation						0.992	0.994	
ICC	8.18%	6.93%	10.27%	9.78%	5.57%	9.23%	10.36%	4.25%

Note: *** = 1%; ** = 5%; * = 10%

Table 3: Estimates of the level-2 variables based on the domain-specific AAI 2016 indicators

AAI variable	**Model VI**		**Model VII**		**Model VIII**		**Model IX**	
	Men	Women	Men	Women	Men	Women	Men	Women
Global AAI employment	-0.012	0.015						
Global AAI participation	0.082	0.069						
Global AAI independence	0.416 ***	0.363 ***						
Global AAI capacity	-0.115	-0.071						
Men AAI employment			-0.002		- 0.076			- 0.044
Men AAI participation			0.074		- 0.183			- 0.153
Men AAI independence			0.278 ***		0.291 ***			0.277 ***
Men AAI capacity			0.009		0.127			0.118
Men AAI employment variation					2.049 ***			1.737 **
Men AAI participation variation					0.923			1.065
Men AAI independence variation					- 0.478			- 0.670
Men AAI capacity variation					- 0.673			- 0.516
Women AAI employment				-0.011		- 0.051	- 0.069 **	
Women AAI participation				-0.088		- 0.072	- 0.058	
Women AAI independence				0.206 *		0.205 **	0.229 **	
Women AAI capacity				0.160		0.089	0.055	
Women AAI employment variation						2.555***	2.575 ***	
Women AAI participation variation						1.652 **	1.478 **	
Women AAI independence variation						- 1.004	- 0.687	
Women AAI capacity variation						-2.288 ***	-2.010 ***	
ICC	5.12%	5.55%	5.73%	5.93%	3.62%	2.38%	2.47%	4.17%

Note: *** = 1%; ** = 5%; * = 10%