

# Effect of volunteering and pensions on subjective wellbeing of elderly—are there cross-country differences?\*

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We investigate the effect of volunteering and pensions on subjective wellbeing (SWB) of elderly using wave 6 of Survey of Health, Aging and Retirement in Europe (SHARE). This is the first study to consider volunteering and pensions simultaneously as a determinant of SWB among elderly across countries. We find that the effect of volunteering on SWB varies widely across countries. In some countries both effects are comparable, in other countries pensions have larger effect on SWB. In general, effects are larger in South and East. High European pensions may be unsustainable in the long run—we argue that promotion of volunteering is one way to increase elderly subjective wellbeing amidst tightening budgets. The study is cross-sectional and correlational—we do not claim causality.

SUBJECTIVE WELLBEING (SWB), LIFE SATISFACTION, HAPPINESS, AGING, ELDERLY, VOLUNTEERING, SOCIAL TRANSFERS, SOCIAL CAPITAL, SURVEY OF HEALTH, AGING AND RETIREMENT IN EUROPE (SHARE)

Recent Okulicz-Kozaryn and Valente (2018) find spatial patterns in wellbeing across Europe with North and West being most satisfied and South and East least. There are spatial patterns in many predictors of SWB, e.g., Fuentes et al. (2017) find that the relationship between binge drinking and SWB is moderated by region. In present study we want to find out how the effect of volunteering and pensions on SWB vary across European countries.

We expect large cross-national differences: what works in one country may not work in another. Population aging in Europe is a fact, and governments already grapple with spending pressures and budget deficits. What is the best way to care about our seniors and ensure decent levels of wellbeing? We aim to help to answer this important question.

There have been many studies on cross-country differences in SWB (e.g., Ahuvia 2002, Veenhoven 2009, Helliwell et al. 2014) and about differences in volunteering (e.g., Haski-Leventhal 2009, Salamon et al. 2017, Wahrendorf et al. 2006), but no study on the varying effect of volunteering and pensions on SWB across countries. Among studies about volunteering across countries (Haski-Leventhal 2009, Hank and Erlinghagen 2005, Kohli et al. 2009, Hank and Erlinghagen 2009, Hank 2010, Huppert et al. 2008, Wahrendorf et al. 2006, Wahrendorf and Siegrist 2010, Wahrendorf et al. 2016), no study compares the effect of pensions and volunteering on SWB across countries.

## 1 Volunteering

Volunteering is simply an action for which the volunteer does not receive financial remuneration (Plagnol 2014).<sup>1</sup> Elders are often called “unused productive potential” that can be put into production through volunteering, a “productive aging strategy” (e.g., Wilson 2012b, Hank and Erlinghagen 2009). Volunteering is related to positive emotions and less depressive moods (Stavrova et al. 2013). As always in social science, relationships are complex. For instance, Choi’s environmental factors and structural factors such as region, urbanicity, religion, life styles and social roles affect volunteering (cited in Hank and Erlinghagen 2009). Here, we are simply interested in the effect of volunteering on SWB.

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<sup>1</sup>For elaboration and review of benefits of volunteering see Wilson (2012b), Anderson et al. (2014).

## 2 Pensions

Pensions are understudied and overlooked in SWB literature, which mainly focuses on income when it comes to study of remuneration-SWB nexus (e.g., Okulicz-Kozaryn and Mazelis 2016, Kahneman and Deaton 2010, Frijters et al. 2004, Kushlev et al. 2015, Dolan et al. 2008, Veenhoven 2012). Yet pensions are critical. Europe, just as the rest of the developed World, is aging. Aging will be the key challenge of this century as governments are grappling with rising proportion of elderly and rising healthcare costs (Stolnitz 1992, Jürges and van Soest 2012). Lack of research on pensions-SWB relationship is in large part due to lacking data—most SWB datasets lack pensions variable. SHARE contains detailed information about pensions as discussed in next section.

## 3 Subjective Wellbeing (SWB)

SWB is a well-established and widely studied construct. The SWB measures, even though self-reported and subjective, are reliable (precision varies) and valid (Myers 2000, Di Tella and MacCulloch 2006, Diener 2009). For elaboration and discussion see Diener (2009), Diener and Seligman (2004), Veenhoven (2008), Kahneman et al. (1999), Campbell et al. (1976). We use two measures of SWB, life satisfaction and CASP scale (Vanhoutte 2012, 2014). Life satisfaction is rather hedonic. CASP scale is more comprehensive and also includes some eudaimonic items. CASP can be conceptualized as Control, Autonomy, Self-realization, and Pleasure (Hyde et al. 2003a, 2015). CASP is based on the theory of satisfaction of needs (Maslow [1954] 1987). It assumes that quality of life depends on a degree of satisfaction of people's needs. It uses four main domains that are important at the early old age for the positive experience of life: the possibility of influencing one's own surroundings (Control), the right of a person to be free from unwanted interference by others (Autonomy), self-fulfillment (Self-realization) and enjoying life (Pleasure).

CASP is often referred to as quality of life (QOL) measure, however, it is probably better understood as SWB measure—QOL measures are rather objective (Okulicz-Kozaryn 2013, Okulicz-Kozaryn and Valente 2018). We also follow Vanhoutte (2012, 2014) who considers CASP to be SWB measure.

Yet, CASP in some ways is problematic as pointed out by reviewers. CASP is primarily directed at meaning/purpose and affective happiness, and the CASP-items create a rather self-evident correlation with volunteering, e.g.: volunteers are more likely to feel that 'life has meaning' and to feel 'full of energy' and pensioners are more likely to feel that they are 'left out of things' and that 'age prevents me to do the things I like to do'.

## 4 Literature

We know that volunteering rate varies across countries (e.g., Hank and Erlinghagen 2009), but we don't know how its effect on SWB varies across countries. This study will focus on testing whether there is a varying effect from volunteering on SWB across countries. This study continues a line of research focusing on cross-country comparisons (Hank and Erlinghagen 2005, 2009). Note, however, the goal of the present study is not to investigate what predicts or affects volunteering cross-nationally as in Hank and Erlinghagen (2005, 2009). We focus on SWB as a consequence of volunteering; that is, we are not interested in antecedents of volunteering neither in other consequences of volunteering than SWB. We build on <blind for peer review>, just extend across countries.

Haski-Leventhal (2009) is one of the main studies in this area, although using the oldest, first wave of SHARE (we use recent wave 6). We also use a specifically designed for elderly measure of SWB: CASP index in addition to 10 point life satisfaction Likert scale. The main finding in Haski-Leventhal (2009) is a positive relation between volunteering and physical and psychological well-being. Volunteering rates differ among countries in the way known from earlier studies: the highest rates in Northern Europe and the lowest rates in Southern Europe. Volunteering influences perceived health and life satisfaction differently in different countries: relationship between volunteering and SWB is strongest in countries with least of it. This is not surprising, just like education in the US: states with

fewest people taking SAT<sup>2</sup> (e.g., Texas) score highest: in general, if there are few test takers, they are ones with greatest inclination. Arguably the same applies to volunteering—if there are few volunteers, they are probably the ones with greatest inclination to volunteer. If large segment of the society volunteers, there are among them volunteers with low inclination to do so. Unfortunately, increasing volunteering may have diminishing marginal returns.

Another main studies in the area are those by Morten Wahrendorf. Wahrendorf et al. (2006) presents SWB results by volunteering status for each country in SHARE, but it is simple means without any test and only for 10 countries in an early wave of SHARE. While Wahrendorf et al. (2016) uses more recent wave and larger sample, there is only descriptive statistics at country level. Wahrendorf and Siegrist (2010) only controls for country dummies but does not break the effect of volunteering by country. Also see useful visualizations by Morten Wahrendorf: <http://www.wahrendorf.de/lifecourses/chrono.html> and [http://www.wahrendorf.de/lifecourses/map\\_1.html](http://www.wahrendorf.de/lifecourses/map_1.html).

Again, the limitation of Haski-Leventhal (2009) and Wahrendorf et al. (2006, 2016), Wahrendorf and Siegrist (2010), as all other studies in this area, is that they do not consider simultaneously the effect of pensions and volunteering on SWB. Also, they use older versions of SHARE with fewer countries. We use Wave 6 containing Eastern Europe.

We would like to test a proposition that effects differ across countries. Duda and Oczkowska (2016) review several studies using SHARE that are finding a geographic pattern: again, North is happier than South. Again, we are interested here not just in descriptive statistics of spatial differences but in varying effect of volunteering and pensions across countries. We hypothesize that there are two clusters of countries: more developed<sup>3</sup> North-West and less developed South-East, where pensions are more necessary for SWB in less developed and collectivist South-East, and volunteering is easier and generates more SWB in individualistic North-West:

$H_1$  : Pensions will have higher payoff in happiness in South-Eastern Europe; Volunteering will generate more happiness in North-Western Europe.

## 5 Data and model

We use the Survey of Health, Aging and Retirement in Europe (SHARE) from <http://www.share-project.org>. SHARE is a multidisciplinary and cross-national panel covering health, socio-economic status, social and family networks of over 50,000 persons aged 50+. An advantage of SHARE is few missing values, and there is an imputed dataset without any values missing (we collapsed the dataset by taking an average across categories on imputed variable). We use Wave 6 release 6.0 conducted in 2015. Specifically for this cross-country study the advantage of the recent wave 6 is the the most comprehensive country coverage of all SHARE waves so far: 18 countries. Countries along with country codes and sample sizes are listed in table 1.

<sup>2</sup>A standardized test widely used for college admissions in the United States. Originally called the Scholastic Aptitude Test, it was later called the Scholastic Assessment Test.

<sup>3</sup>Say as measured by per capita gross domestic product. In Europe, in general, East and South are less developed, and West and North are more developed.

**Table 1:** List of countries, country codes, and country sample sizes in wave 6 of SHARE.

cs	iso	count
Austria	AUT	3,073
Belgium	BEL	5,466
Croatia	HRV	2,386
Czech Republic	CZE	4,568
Denmark	DNK	3,591
Estonia	EST	5,111
France	FRA	3,720
Germany	DEU	4,231
Greece	GRC	4,680
Israel	ISR	1,781
Italy	ITA	4,908
Luxembourg	LUX	1,461
Poland	POL	1,719
Portugal	PRT	1,472
Slovenia	SVN	4,007
Spain	ESP	4,962
Sweden	SWE	3,771
Switzerland	CHE	2,722

We exclude elderly in nursing homes (~ 1%), who have limited opportunity for volunteering. And we only retain main respondents by dropping proxy respondents (~ 5%). Finally, we drop respondents younger than 50 (~ 2%)—SHARE is a study of elderly older than 50, but there were some individuals in the raw dataset who were younger. We use alternative subsampling as a robustness check in appendix. All money amounts are Purchasing Power Parity (PPP) adjusted.<sup>4</sup> Our SWB measures are life satisfaction and CASP scale. Life satisfaction question reads “On a scale from 0 to 10 where 0 means completely dissatisfied and 10 means completely satisfied, how satisfied are you with your life?” Our second SWB measure, CASP, is also widely used in the literature (e.g., Pérez-Rojo et al. 2017, Amit and Litwin 2010, Hyde et al. 2003a, 2015, 2003b, Kim et al. 2015). We used factor analysis with varimax rotation to make CASP scale from variables listed in table 2.<sup>5</sup> Cronbach’s alpha is .82.

-0.50	My age prevents me from doing the things I would like to
-0.52	I feel that what happens to me is out of my control
-0.57	I feel left out of things
0.45	I can do the things that I want to do
-0.19	Family responsibilities prevent me from doing what I want to do
-0.38	Shortage of money stops me from doing the things I want to do
0.58	I look forward to each day
0.67	I feel that my life has meaning
0.49	On balance, I look back on my life with a sense of happiness
0.68	I feel full of energy these days
0.72	I feel that life is full of opportunities
0.74	I feel that the future looks good for me

**Table 2:** Factor loadings (with varimax rotation) for survey items in CASP scale. Cronbach’s alpha is .82.

The main independent variables of interest are pensions and volunteering.

Pensions are measured directly as money amounts: a sum of annual old age, early retirement pensions, survivor and war pension, annual private occupational pensions and other regular payments from private pensions.

In addition we control separately for disability and unemployment benefits and social assistance. While old age pensions should

<sup>4</sup>Purchasing power parity (PPP) measures prices in different places using a common good or goods to contrast the real purchasing power between different currencies. PPP produces an exchange rate that equals the price of the basket of goods at one location over the price of the basket of goods at a different location.

<sup>5</sup>Factor analysis is a data reduction method that combines multiple variables into a single variable based on correlations—variables with higher correlations receive more weight. For examples see Senlier et al. (2009), Proctor (2006). Per CASP and factor analysis see Kim et al. (2015).

increase SWB, disability and unemployment benefits and social assistance may decrease SWB as they indicate disadvantaged status, and possibly social stigma. We also control for disability and employment status.

Volunteering question reads: “Please look at card 34: which of the activities listed on this card - if any - have you done in the past twelve months?” “voluntary or charity work” coded as 0=’no’ or 1=’yes’ (original question ID: ac035d1).

There are several key variables related to volunteering that need to be controlled for to avoid confounding with volunteering and biased estimate of volunteering effect: age, lack of resources (free time), gender, race/immigrant status, education, labor force status, income, family of origin (Wilson 2012a, Haski-Leventhal 2009). We will control for all of them, except race/immigrant status—European elderly are still a fairly homogeneous group.

The key predictors of SWB that we will use as controls include income and unemployment (Di Tella et al. 2001b,a, Di Tella and MacCulloch 2006), broadly understood social capital and health (Blanchflower and Oswald 2011, Dolan et al. 2008, Bonsang and van Soest 2012), marital status (e.g., Myers 2000, Diener and Seligman 2004), and age (Ferring and Boll 2010). We also think that grandchildren matter for elderly SWB—they will affect SWB, and also time available for volunteering. All variables are defined in appendix.

We focus on cross-country differences in these relationships and estimate separate model for each country. In order to test our hypotheses, we will analyze data in regression framework. All regressions are survey-weighted using  $[pw = cciw_{w6}]$  syntax in Stata. SWB is ordinal, and hence, should be modeled using ordinal models. We will use ordinary least squares (OLS), however. When modeling SWB, OLS performs very well and results tend to be substantively the same as those from discrete models (Ferrer-i-Carbonell and Frijters 2004, Blanchflower and Oswald 2011), and OLS estimates are easier to interpret.<sup>6</sup> In addition, some observations on life satisfaction are fractions (life satisfaction comes from imputed dataset), and we use continuous CASP measure, hence, OLS is appropriate.

## 6 Results

We start with descriptive statistics. Pairwise correlations are in table 3. The more volunteering, the higher the life satisfaction and CASP, correlations are large,  $r = .74$  and  $r = .8$ . This is surprisingly strong correlation because, of course, at country level there are many confounders such as income and culture, and one would not expect such high correlation between most of the variables. While due to other confounders, one should not give too much weight to this bivariate relationship, it is instructive to take a note how strong it is.

Further, there is relatively low correlation of pensions with life satisfaction ( $r = .26$ ), and with CASP ( $r = .43$ )—correlations are only about 1/3, and 1/2, respectively, of those with volunteering. This is striking, again, even despite other confounders, one would expect pensions to be highly correlated with SWB, definitely not at only about half or third of the correlation between volunteering and SWB.

	life satisfaction	pension PPP	casp	voluntary or charity work
life satisfaction				
pension PPP	0.26			
casp	0.84	0.43		
voluntary or charity work	0.74	0.62	0.8	

**Table 3:** Pairwise correlations, all significant at .1 level of significance except correlation between life satisfaction and pensions. Note: .1 level of significance used as there are only 18 observations.

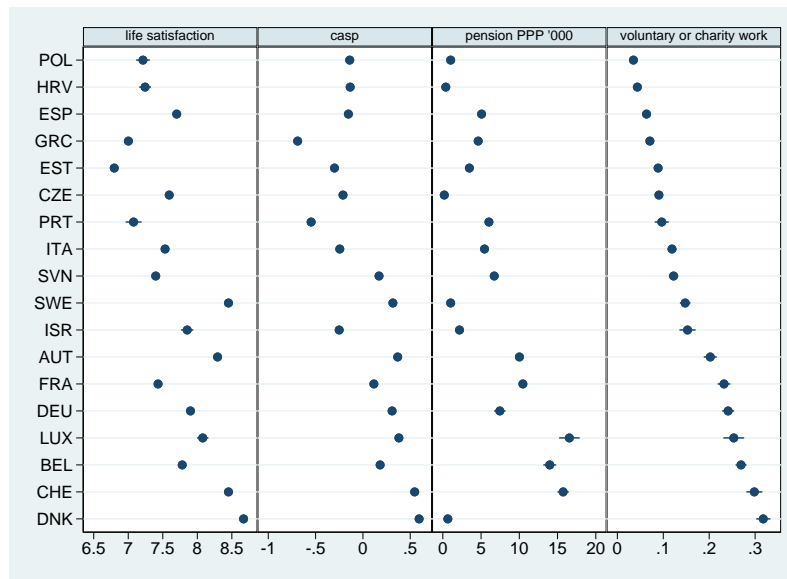
Next we examine the above key relationships by country in figure 1. While the overall relationship between pensions and SWB is positive, there are several interesting outliers. The country with highest CASP, Denmark (DNK) has one of the lowest pensions.

<sup>6</sup>Per OLS and discrete models see Gujarati (2002).

Sweden (SWE) is similar. Greece (GRC) and Portugal (PRT) have low CASP given pension levels. With respect to life satisfaction, elderly are less happy than volunteering would indicate in: Greece (GRC), Estonia (EST), Portugal (PRT), and France (FRA), and Belgium (BEL). With respect to CASP, elderly are less happy than volunteering would indicate in: Greece (GRC), Portugal (PRT), and Israel (ISR)—note that all three countries are in South. On the other hand, elderly in Sweden (SWE) are happier on both measures of SWB than their volunteering would suggest.

Plagnol and Huppert (2010) argue that social, psychological, cultural, historical and institutional factors determine country's level of volunteering. Duda and Oczkowska (2016) in their review of several studies using SHARE data reach a similar conclusion. Not only culture, but also conformity and intrinsic motivation improve effect of volunteering on SWB (Oarga et al. 2015).

Next we move to pensions in the same figure 1. In general, pensions are highest in Western Europe and lowest in Eastern Europe. With respect to pensions, few outliers are notable: elderly in Croatia (HRV) and Czech Republic (CZE) maintain average SWB at very low pensions level. And even more strikingly elderly in Sweden (SWE) are very happy on both SWB measures despite low pensions.



**Figure 1:** Means and 95 percent CI for life satisfaction, casp, pensions, and volunteering and charity work, sorted on the latter.

Compare figure 1 with Plagnol (2014), who shows rates for volunteering (and help) for all major European countries. Interestingly, formal and informal volunteering are positively correlated (Plagnol and Huppert 2010).

We also find as in Haski-Leventhal (2009) that highest volunteering is in Northern countries and lowest in Southern (and effect differs by country, as we show below).

Next we turn to regression analysis. We use a full set of controls described in previous section. The usual practice of sequential elaboration of the model is not instructive for cross-country comparisons, and hence, we chose to postpone all regressions to appendix, and focus instead on plots of the coefficients for the key variables of interest. Coefficient plots are shown in subsequent figures.

We use both regular OLS coefficients and (fully) standardized ones (so called beta coefficients). Regular coefficients have different scales and are more meaningful/easier to interpret with respect to each variable.<sup>7</sup> It is useful to compare coefficients across countries for each pensions and volunteering separately. In some places both have about the same impact, and in other places the effects differ widely.

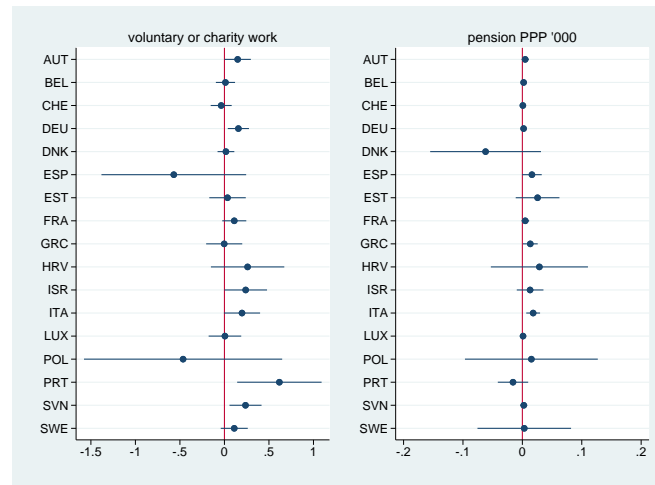
In both figures 2 and 3, largest effect of volunteering is observed in South—the less developed the country<sup>8</sup>, the more volunteering

<sup>7</sup>Also, pensions or volunteering in some countries have relatively strong impact, and hence, having same scales for both variables (standardized coefficients) makes results unreadable because in some cases a variable has a very strong impact, close to 1 std dev, and hence, smaller effects for the variable are all visually squeezed next to zero line.

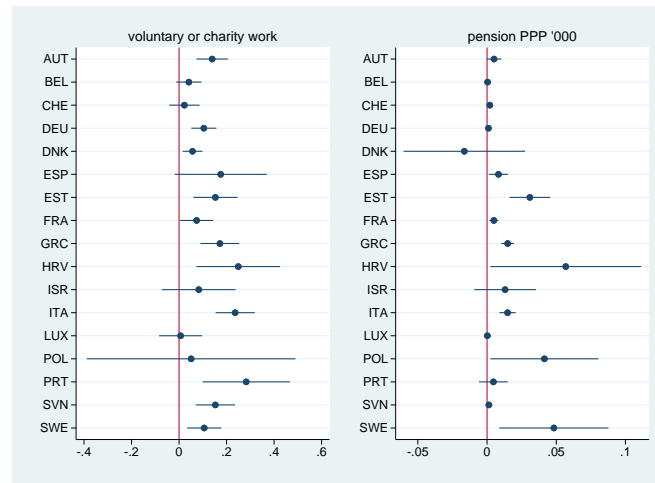
<sup>8</sup>Say as measured by per capita gross domestic product. In Europe, in general, East and South are less developed, and West and North are more developed.

matters. It is the similar result to that in <blind for peer review>, and in general the largest effects are observed for poorer countries such as Croatia (HRV), Italy (ITA), Portugal (PRT), and Slovenia (SVN). This result contradicts our initial hypothesis. But there is a large effect of volunteering on CASP and a small effect on life satisfaction in Spain (ESP), Estonia (EST) and Greece (GRC). In general CASP results are more significant than life satisfaction results. This may indicate that CASP is a better measure of SWB among elderly than life satisfaction—as discussed earlier, CASP was specifically designed to measure wellbeing among elderly.

Likewise, effect of pension is larger in poorer countries, which is understandable and as hypothesized (except SWE).<sup>9</sup> It makes sense—in poorer countries, economic resources are more important. Again, regression results (and more comparisons and discussion) are in appendix.



**Figure 2:** Life satisfaction: OLS coefficients with 95 percent CI. (Underlying regressions are in appendix.) Note: Czech Republic had unusually large CI on pensions and was dropped to improve visualization (appendix includes all results). Note, the reason for a large confidence interval on Poland is that only 3.5 percent of Poles are volunteers, while the average for all countries is 15.5 percent.



**Figure 3:** CASP: OLS coefficients with 95 percent CI. (Underlying regressions are in appendix.) Note: Czech Republic had unusually large CI on pensions and was dropped to improve visualization (appendix includes all results). Note, the reason for a large confidence interval on Poland is that only 3.5 percent of Poles are volunteers, while the average for all countries is 15.5 percent.

Finally we turn to a comparison between volunteering and pension for each country using standardized coefficients. In table 4 we simply focus on a difference between pensions and volunteering to aid in interpretation. Each value in the table is simply coefficient on volunteering minus coefficient on pensions. We only show results if both coefficients were statistically significant (all full regressions

<sup>9</sup>For which we do not have an explanation.

are in appendix).

	AUT	BEL	CHE	CZE	DEU	DNK	ESP	EST	FRA	GRC	HRV	ISR	ITA	LUX	POL	PRT	SVN	SWE
life satisfaction					.02								-.03					
CASP	.01				.03		-.01	-.04	-.02	-.05	0		-.01					-.01

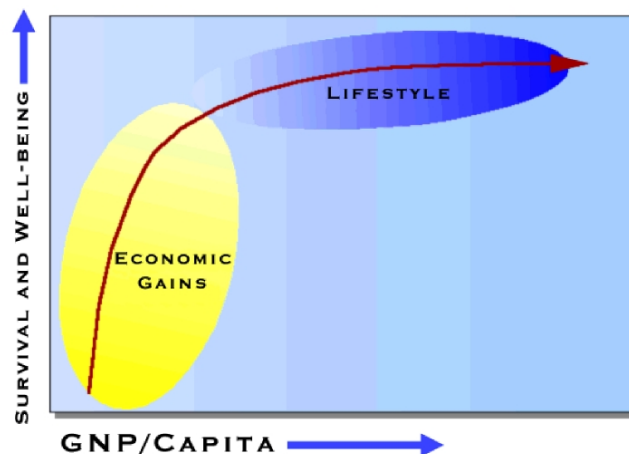
**Table 4:** Difference between volunteering and pensions: Fully standardized (beta) coefficient on volunteering – fully standardized (beta) coefficient on pensions. Only results shown when both coefficients are significant.

Only in Germany (DEU), there is more SWB from volunteering than from pensions. In all other countries, where there was a significant effect on SWB from both pensions and volunteering, the effect size of pensions is larger than that of volunteering (except Croatia (HRV), where effects are equal). Note that the country with greatest advantage of volunteering over pensions, Germany (DEU), is one of the richest countries. And country with greatest advantage of pensions over volunteering, Greece (GRC), is one of the poorest. The second country with similar large advantage of pensions over volunteering, Estonia (EST), is not poor, but still is among less developed countries in this group. Hence, using standardized coefficients we find full support for our hypothesis: in less developed collectivist South-East, pensions matter more for volunteering than in more developed individualistic North-West.

## 7 Conclusion and Discussion

Volunteering and pensions are related to SWB. We find that the effect of volunteering on SWB varies widely across countries. In some countries both effects are comparable, in other countries pensions have larger effect of SWB. In general, effects are larger in South and East.

Arguably, in poorer countries, economic resources are more important for SWB. Inglehart (1997) pictured this concept in figure 4. At low levels of economic development economic gains or material goods matter—people need to satisfy their basic needs such as shelter or food. But once the basic needs are satisfied, there develop higher level needs related to life-style such as being connected and helping others, e.g., volunteering.



**Figure 4:** Well-being and income, (Inglehart 1997).

Our results directly relate to Plagnol and Huppert (2010), who showed that volunteering in low-volunteering countries is associated with greater SWB than in countries with higher rate of volunteering. Authors explain that where volunteering is less common, only those who are most likely to benefit from volunteering do volunteer.

Another theory is that in rich countries there is more volunteering, but it doesn't help much because almost everybody does volunteering and so it does not help much marginally. Also, these are typically welfare states, where help is provided by the state.



Many European countries have very low rates of volunteering (below ten percent)—and we offer practical advice. Volunteering could be induced (e.g., Haski-Leventhal and Cnaan 2009)—there are many ways to activate this yet unused potential of idle elderly (e.g., Atkinson 2006, Henkin and Zapf 2006, Butler and Eckart 2007, Butts 2013, Howgate 2008, Zedlewski and Butrica 2007). And there is a role for institutions of higher education to promote civic engagement and community development in general, not only among the elderly. See, for instance, initiatives at Rutgers-Camden <http://www.camden.rutgers.edu/civic-engagement>. Such initiatives could be copied by institutions of higher education in European countries with low engagement, such as those in Poland and in other East European countries.

On the other hand, it is not necessarily that volunteering can be easily increased. Volunteering is also a function of culture, history and norms (e.g., Haski-Leventhal 2009), and these are relatively stable. Some increase, however, especially taking into account wide variety in volunteering rates, is achievable, we argue.

While SHARE is a rich dataset, it does not contain any information about motives for volunteering. It is a limitation. We know that egoistic motives do not pay off much in SWB (Wiward and Aknin 2017), and in general, intrinsic motives are better for SWB than extrinsic ones (Schmuck et al. 2000, Ryan et al. 1999, Morrison and Weckroth 2017). Hence, it matters for SWB, why one volunteers.

This research has found that the relationship between volunteering and SWB varies widely across countries, and we pointed to several possible explanations, but we leave the appropriate testing for future research. The goal of the present study was simply to document the overall relationship between volunteering and SWB across countries.

Pensions and volunteering affect SWB, but they are just two specific examples of a broader set of social welfare influences. Social welfare states in general provide more services (not only through pensions) that cover the volunteering aspects of highly individualized countries with less social welfare. Hence, for the future research, it would be beneficial to extend the scope from simple social indicators such as volunteering or pensions to the broader socio-economic system of the respective countries. Indeed, our current research indicates that volunteering level at country level proxies other related positive factors as bivariate correlation at country level of volunteering with SWB is very high as elaborated earlier (and this very high country correlation does not persist at person level).

Future research can focus on cultural and value-related aspects of countries. For instance, interestingly, relationship between civic virtue in general and SWB depends on a country: where antisocial punishment is common and the level of justification of dishonest behaviors is high, virtuous behavior does not bring more SWB than non-virtuous behavior (Stavrova et al. 2013). The role of welfare appears to be a fruitful direction in exploring the nexus of pensions and volunteering. Welfare increases SWB in general population (Radcliff 2001, Pacek and Radcliff 2008a,b, Radcliff 2013, Okulicz-Kozaryn et al. 2014) and so it does help elderly in Europe (Motel-Klingebiel et al. 2009, Niedzwiedz et al. 2014). Importantly, welfare was found not to crowd out the helping among people (Motel-Klingebiel et al. 2005). In fact, there is some evidence to the contrary, the more welfare (and civil liberties), the more volunteering (Hank 2010). There is however evidence, that familism (Banfield 1967), or Southern informal high level of relations and engagement within family networks tend to crowd out the formal forms of engagement such as volunteering (Kohli et al. 2009, Pichler and Wallace 2007). Being from Poland, we expect that similar mechanism may be at work in Eastern Europe.

Here we focused on differential effects of economic resources in forms of pensions v social resources in form of volunteering. But a fruitful exploration for future research would entail different perspectives on economic resources. One such approach was suggested by a reviewer, and is provided in next paragraph.

There are several types of income: 1. Income by labor, with substantial differences between people. 2. Welfare benefits, e.g., in case of unemployment, disability, sickness etc. Low level, differences are very limited. 3. Income by wealth, e.g., interest, dividend, royalties, rents, profits, etc. Differences are very substantial. This income is related to (household-) wealth but it is not the same. We can expect some correlation but not enough to use actual wealth as a substitute proxy for income by wealth. 4. Pensions, with three possible pillars: A. State pensions for everybody. B. Collective pensions for employees. C. Individual arrangements like annuities. Only A is about social transfers, B and C are not about social transfers. The level for A is usually rather low and there are no differences. The levels for B and C can be somewhat higher, but are usually still limited because people use tax-facilities to finance these pensions.

Differences between people are also somewhat limited for the same reason. Future research can leave out people who still have some (substantial) income by labor (1) and to leave out people with welfare benefits or social assistance (2), and concentrate on people with pensions and possibly with wealth-related income. It is also important to look at the importance of social security. In nations with less social security wealth and wealth-related income will have more impact on happiness than in nations with more social security (Hochman and Skopek 2013). We did started exploring some of the above in appendix.

There are limitations, as Haski-Leventhal (2009) acknowledges—definitions and perceptions of volunteering differ by country. Still cross-country study of volunteering is common (Haski-Leventhal 2009, Hank and Erlinghagen 2005, Kohli et al. 2009, Hank and Erlinghagen 2009, Hank 2010, Huppert et al. 2008, Wahrendorf et al. 2006, Wahrendorf and Siegrist 2010, Wahrendorf et al. 2016), and we have followed this line of research here. The study is cross-sectional and correlational— we do not claim causality.

## ONLINE APPENDIX

**Table 5:** Variable definitions: dependent variables.

name	description
life satisfaction	"On a scale from 0 to 10 where 0 means completely dissatisfied and 10 means completely satisfied, how satisfied are you with your life?" [imputed]
casp	casp scale: see table 2 [ac]

[imputed], [ac], and [ep] pertain to SHARE modules; ac: Activities, ep: Employment and Pensions.

**Table 6:** Variable definitions: social activities.

name	description
voluntary or charity work	"Please look at card 38: which of the activities listed on this card - if any - have you done in the past twelve months?" [ac]
how often done voluntary or charity work	"How often in the past twelve months did you [do voluntary or charity work]?" [ac]
attended an educational or training course	"Please look at card 38: which of the activities listed on this card - if any - have you done in the past twelve months?" [ac] [ac]
gone to a sport, social or other kind of club	"Please look at card 38: which of the activities listed on this card - if any - have you done in the past twelve months?" [ac] [ac]
taken part in a political or community-related organization	"Please look at card 38: which of the activities listed on this card - if any - have you done in the past twelve months?" [ac] [ac]
read books, magazines or newspapers	"Please look at card 38: which of the activities listed on this card - if any - have you done in the past twelve months?" [ac] [ac]
did word or number games (crossword puzzles/Sudoku...)	"Please look at card 38: which of the activities listed on this card - if any - have you done in the past twelve months?" [ac] [ac]
played cards or games such as chess	"Please look at card 38: which of the activities listed on this card - if any - have you done in the past twelve months?" [ac] [ac]

[imputed], [ac], and [ep] pertain to SHARE modules; ac: Activities, ep: Employment and Pensions.

**Table 7:** Variable definitions: social transfers.

name	description
annual old age, early retirement pensions, survivor and war pension PPP '000	EP078.1-2-3-7-8-9 (1-2-3-9-10-11 in w6) "After taxes, about how large was a typical payment of [ your public old age pension/ your public old age supplementary pension or public old age second pension/ your public early retirement or pre-retirement pension/ your main public sickness benefits/ your main public disability insurance pension/ your secondary public disability insurance pension/ your Secondary public sickness benefits/ your public unemployment benefit or insurance/ your main public survivor pension from your spouse or partner/ your secondary public survivor pension from your spouse or partner/ your public war pension/ your public long-term care insurance/ your social assistance] in [STR (Year - 1)]?" [imputed]
annual private occupational pensions PPP '000	"After taxes, what was the approximate annual amount received from all your occupational pensions in [STR (Year - 1)]?" [imputed]
other regular payments from private pensions PPP '000	"After any taxes and contributions, about how large was the average payment of [ you life insurance payments from a private insurance company/ your private annuity or private personal pension payments/ your alimony/ your regular payments from charities/ your long-term care insurance payments] in [STR (Year - 1)]?" [imputed]
pension PPP '000	EP078.1-2-3-7-8-9 (1-2-3-9-10-11 in w6) from annual old age, early retirement pensions, survivor and war pension AND from annual private occupational pensions AND other regular payments from private pensions [imputed]
disability/sickness benefits PPP '000	EP078.5-6 and EP078.3.6.10 (4-7 in w6) [from question in "annual old age, early retirement pensions, survivor and war pension"] [imputed]
unemployment benefits PPP '000	EP078.6 (8 in w6) [from question in "annual old age, early retirement pensions, survivor and war pension"] [imputed]
social assistance PPP '000	EP078.10 (12-13 in w6) [from question in "annual old age, early retirement pensions, survivor and war pension"] [imputed]

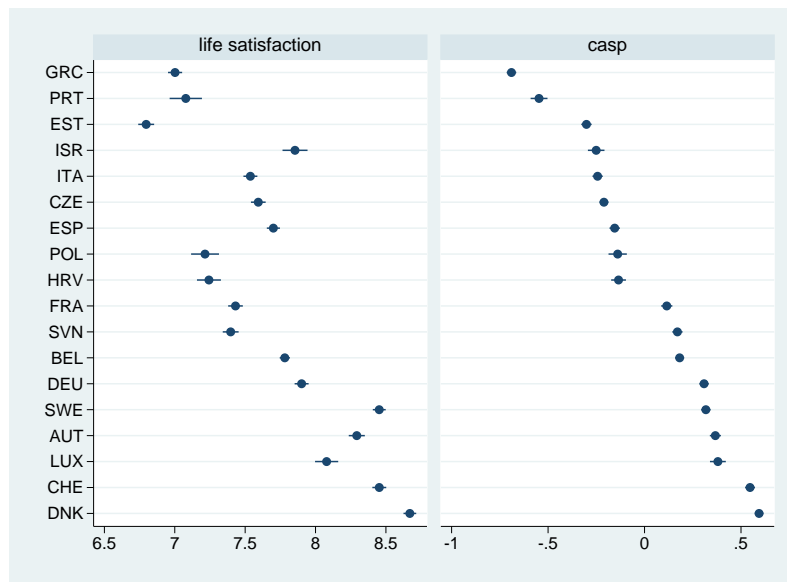
[imputed], [ac], and [ep] pertain to SHARE modules; ac: Activities, ep: Employment and Pensions.

**Table 8:** Variable definitions: control variables.

name	description
labor income PPP '000	"After any taxes and contributions, what was your approximate annual income from employment in the year [STR (Year - 1)]? Please include any additional or extra or lump sum payment, such as bonuses, 13 month, Christmas or Summer pays." AND "After any taxes and contributions and after paying for any materials, equipment or goods that you use in your work, what was your approximate annual income from self-employment in the year [STR (Year - 1)]?" [imputed]
household net worth PPP '000	calculated variable—see Release Guide 6.0.0 [imputed]
years of education	"How many years have you been in full-time education?" full-time education * includes: receiving tuition, engaging in practical work or supervised study or taking examinations * excludes: full-time working, home schooling, distance learning, special on-the-job training, evening classes, part-time private vocational training, flexible or part-time higher education studies, etc [imputed]
age	Age of respondent (based on interview year) "In which month and @byear@b were you born?" [imputed]
male	OBSERVATION Note sex of respondent from observation (ask if unsure)
self reported health	"Would you say your health is..." "Poor" ..."Excellent" [imputed]
permanently sick or disabled	"Please look at card 7. In general, which of the following best describes your @bcurrent@b employment situation?" "1. Retired; 2. Employed or self-employed (including working for family business); 3. Unemployed; 4. Permanently sick or disabled; 5. Homemaker; 97. Other" coded 1 if "Permanently sick or disabled"; 0 otherwise [EP]
mobility limitations	"Please tell me whether you have any difficulty doing each of the everyday activities on this card. Exclude any difficulties that you expect to last less than three months. 1. Walking 100 metres; 2. Sitting for about two hours; 3. Getting up from a chair after sitting for long periods; 4. Climbing several flights of stairs without resting; 5. Climbing one flight of stairs without resting; 6. Stooping, kneeling, or crouching; 7. Reaching or extending your arms above shoulder level; 8. Pulling or pushing large objects like a living room chair; 9. Lifting or carrying weights over 10 pounds/5 kilos, like a heavy bag of groceries; 10. Picking up a small coin from a table" [imputed]
married and living together	"What is your marital status?" [imputed]
employed	The following questions are about your current main job. "In this job were you a private-sector employee, a public sector employee or self-employed?" [imputed]
number of grandchildren	"Talking about grandchildren, how many grandchildren do you [ and your/ and your/ and your/ and your] [husband/ wife/ partner/ partner] have altogether?" [imputed]

[imputed], [ac], and [ep] pertain to SHARE modules; ac: Activities, ep: Employment and Pensions.

CASP and life satisfaction correlate at  $r = .6$ , and while in general countries high on one and high on the other one and low on one and on the other one, there are some notable differences shown in figure 5. Again, CASP was specifically designed for measurement of SWB among elderly and consists of multiple survey items, hence, we use CASP only in this study.



**Figure 5:** Life satisfaction and casp means.

With regressions, we are interested in comparisons across countries, not within, hence, it is instructive to look at regular coefficients, not beta coefficients that are useful for comparisons within country. Nevertheless, some discussion of the differences between the two is instructive. If a regular coefficient is relatively large as compared to other countries, but beta coefficient is relatively small as compared to other countries, it means that for a particular country, there are other things that matter relatively more than volunteering despite the fact that raw effect (regular coefficient) is relatively large as compared to other countries.

In the first set of regressions in tables 9 and 10, only Austria (AUT) and Germany (DEU) have significant coefficients on `voluntary` or `charity` work in both tables and regular (non-standardized) coefficients are about 4 times larger than standardized coefficients.

Regarding pensions effect on life satisfaction in the same tables, 9 and 10, only significant effect is observed in Belgium (BEL), Germany (DEU), and marginally in Spain (ESP).

Next, we turn to `casp` in tables 11 and 12: Austria (AUT) has a large coefficient on `voluntary` or `charity` work in both tables. Countries that have insignificant effect on regular coefficient have, by definition, insignificant effect on beta coefficient: Belgium (BEL), Switzerland (CHE), and Czech Republic (CZE). While Denmark (DNK) has the coefficient of about the same size in both tables, Germany (DEU) and France (FRA) have regular coefficients about twice as large as beta coefficients. And for Spain (ESP) and Estonia (EST) the corresponding difference is threefold.

**Table 9:** OLS of life satisfaction on volunteering and pensions. OLS coefficients reported. All models include country dummies.

	AUT	BEL	CHE	CZE	DEU	DNK	ESP	EST	FRA
voluntary or charity work	0.15*	0.01	-0.04	-0.18	0.16**	0.02	-0.57	0.03	0.11
pension PPP '000	0.00	0.00***	0.00	0.22	0.00*	-0.06	0.02+	0.03	0.00
attended an educational or training course	0.16+	-0.03	0.05	0.01	-0.02	0.03	0.46*	0.15	0.10
gone to a sport, social or other kind of club	0.09	0.04	0.09	0.29**	0.05	-0.04	0.42**	0.16+	0.11+
taken part in a political or community-related organization	0.08	0.06	0.07	0.01	-0.00	0.01	-0.32	-0.04	-0.08
read books, magazines or newspapers	-0.04	0.03	0.06	0.53***	0.30**	0.01	0.03	0.30*	0.15*
did word or number games (crossword puzzles/Sudoku...)	0.12+	0.00	0.01	0.15	0.02	0.06	-0.11	0.02	-0.02
played cards or games such as chess	0.01	0.04	0.13*	0.13	0.16**	0.03	0.28*	0.12	0.01
labor income PPP '000	0.01	0.01**	0.00	0.30	0.01**	0.00	0.03**	0.03**	0.00
unemployment benefits PPP '000	-0.03	0.00	-0.06***	0.75	-0.12***	-0.49*	-0.01	0.28+	-0.05*
social assistance PPP '000	-0.07**	-0.09+	-0.12***	-4.75+	0.06	-0.56	0.07	0.09	0.01
disability/sickness benefits PPP '000	0.05*	0.00	-0.01+	-0.62	-0.02	-0.01	0.00	0.10*	0.03
household net worth PPP '000	-0.00	0.00***	0.00**	0.03***	0.00***	0.00*	-0.00	0.00**	0.00***
male	-0.15*	-0.06	-0.07	0.03	-0.12*	-0.17**	-0.07	-0.27***	-0.01
married and living together	0.53***	0.39***	0.18**	0.56***	0.36***	0.36***	0.57***	0.44***	0.31***
employed	0.08	0.04	0.08	-0.09	-0.01	0.05	-0.04	0.06	0.16
age	-0.01	0.04	-0.05	-0.05	0.04	0.12**	0.21*	-0.06	0.10*
age2	0.00	-0.00	0.00+	0.00	-0.00	-0.00*	-0.00+	0.00+	-0.00+
years of education	-0.02**	-0.01	-0.00	-0.02	-0.01	-0.01	0.00	-0.02	0.01
number of grandchildren	0.04***	0.01	0.03**	0.10***	0.01	0.04***	-0.03	0.05***	0.02*
permanently sick or disabled	-0.55	-0.39*	-0.25	-0.23	-0.85**	-0.19	-0.06	-0.26	-0.31
mobility limitations	-0.09***	-0.04**	-0.09***	-0.09***	-0.11***	-0.11***	-0.10***	-0.13***	-0.05**
self reported health	0.45***	0.40***	0.39***	0.44***	0.46***	0.34***	0.38***	0.56***	0.39***
constant	6.29***	4.10*	7.68***	6.47+	4.05**	2.87*	-1.74	6.08***	1.67
N	3045	5403	2707	4544	4205	3563	4896	5076	3685

+p<0.10 \*p<0.05 \*\*p<0.01 \*\*\*p<0.001, robust std err

**Table 10:** OLS of life satisfaction on volunteering and pensions. Beta (fully standardized) coefficients reported. All models include country dummies.

	AUT	BEL	CHE	CZE	DEU	DNK	ESP	EST	FRA
voluntary or charity work	0.04*	0.00	-0.01	-0.03	0.04**	0.01	-0.07	0.01	0.03
pension PPP '000	0.03	0.05***	0.01	0.02	0.02*	-0.03	0.05+	0.03	0.03
attended an educational or training course	0.04+	-0.01	0.01	0.00	-0.00	0.01	0.06*	0.03	0.02
gone to a sport, social or other kind of club	0.03	0.01	0.03	0.07**	0.01	-0.01	0.08**	0.03+	0.03+
taken part in a political or community-related organization	0.01	0.01	0.02	0.00	-0.00	0.00	-0.03	-0.00	-0.02
read books, magazines or newspapers	-0.01	0.01	0.01	0.12***	0.06**	0.00	0.01	0.05*	0.04*
did word or number games (crossword puzzles/Sudoku...)	0.04+	0.00	0.00	0.04	0.01	0.02	-0.02	0.01	-0.01
played cards or games such as chess	0.00	0.01	0.05*	0.03	0.04**	0.01	0.06*	0.02	0.00
labor income PPP '000	0.05	0.06**	0.03	0.04	0.06**	0.00	0.12**	0.07**	0.02
unemployment benefits PPP '000	-0.03	0.01	-0.08***	0.00	-0.09***	-0.04*	-0.01	0.03+	-0.05*
social assistance PPP '000	-0.05**	-0.03+	-0.06***	-0.04+	0.01	-0.03	0.02	0.01	0.01
disability/sickness benefits PPP '000	0.06*	0.02	-0.04+	-0.02	-0.02	-0.00	0.00	0.05*	0.02
household net worth PPP '000	-0.00	0.09***	0.08**	0.08***	0.06***	0.04*	-0.02	0.04**	0.09***
male	-0.05*	-0.02	-0.03	0.01	-0.03*	-0.06**	-0.02	-0.06***	-0.00
married and living together	0.16***	0.14***	0.07**	0.15***	0.10***	0.12***	0.15***	0.11***	0.09***
employed	0.02	0.02	0.03	-0.03	-0.00	0.02	-0.01	0.01	0.05
age	-0.07	0.34	-0.35	-0.29	0.22	0.82**	1.22*	-0.31	0.65*
age2	0.22	-0.17	0.51+	0.39	-0.08	-0.70*	-1.05+	0.45+	-0.51+
years of education	-0.06**	-0.03	-0.01	-0.03	-0.02	-0.03	0.00	-0.03	0.02
number of grandchildren	0.07***	0.03	0.06**	0.16***	0.02	0.08***	-0.04	0.06***	0.04*
permanently sick or disabled	-0.04	-0.07*	-0.03	-0.01	-0.09**	-0.02	-0.01	-0.03	-0.03
mobility limitations	-0.13***	-0.07**	-0.11***	-0.11***	-0.14***	-0.14***	-0.14***	-0.15***	-0.07**
self reported health	0.29***	0.27***	0.28***	0.25***	0.26***	0.27***	0.23***	0.24***	0.25***
constant	***	*	***	+	**	*	***	***	***
N	3045	5403	2707	4544	4205	3563	4896	5076	3685

+p<0.10 \*p<0.05 \*\*p<0.01 \*\*\*p<0.001, robust std err

**Table 11:** OLS of CASP on volunteering and pensions. OLS coefficients reported. All models include country dummies.

	AUT	BEL	CHE	CZE	DEU	DNK	ESP	EST	FRA
voluntary or charity work	0.14***	0.04	0.02	0.02	0.10***	0.06**	0.18+	0.15**	0.07*
pension PPP '000	0.01+	0.00	0.00**	0.21	0.00*	-0.02	0.01*	0.03***	0.00**
attended an educational or training course	0.11*	0.03	0.08*	0.02	0.05	0.07**	0.13	0.15***	0.03
gone to a sport, social or other kind of club	0.08**	0.04	0.04	0.13**	0.08**	0.06**	0.30***	0.09*	0.07*
taken part in a political or community-related organization	-0.04	0.11**	-0.03	0.00	-0.01	0.00	-0.00	0.08	0.10*
read books, magazines or newspapers	0.20***	0.12***	-0.05	0.31***	0.12**	0.10*	0.12*	0.23***	0.18***
did word or number games (crossword puzzles/Sudoku...)	0.08**	0.04+	-0.01	0.01	-0.00	0.04	0.11+	0.08**	0.03
played cards or games such as chess	0.14***	0.06*	0.11***	0.01	0.10***	0.02	0.03	0.02	0.02
labor income PPP '000	0.01***	0.00**	0.00	0.11	0.00***	0.00	0.01	0.01+	0.00*
unemployment benefits PPP '000	-0.00	-0.00	-0.01*	2.14***	-0.04**	-0.31**	-0.02	-0.02	0.01
social assistance PPP '000	-0.04*	-0.05*	-0.08**	0.40	0.02	-0.34	-0.08*	0.06	-0.01
disability/sickness benefits PPP '000	0.02**	-0.00	-0.00*	-0.76*	0.01	-0.01	-0.01	0.04**	0.01
household net worth PPP '000	-0.00	0.00***	0.00*	0.01	0.00***	0.00	-0.00	0.00**	0.00**
male	-0.06+	-0.04	-0.06+	0.03	-0.04	-0.03	-0.02	-0.14***	0.05
married and living together	0.20***	0.19***	0.10***	0.07+	0.12***	0.13***	0.11+	0.12***	0.13***
employed	0.06	-0.03	0.04	0.08	-0.01	0.03	0.05	0.11*	0.05
age	0.07**	0.03*	0.02	0.12***	0.07***	0.09***	0.12**	-0.00	0.09***
age2	-0.00**	-0.00*	-0.00	-0.00***	-0.00***	-0.00***	-0.00***	-0.00	-0.00***
years of education	-0.01*	-0.00	0.00	-0.01*	0.00	-0.01**	0.00	0.01**	0.00
number of grandchildren	0.01	0.01**	0.01	0.00	-0.00	0.01***	-0.00	0.03***	0.02***
permanently sick or disabled	0.22	-0.12	-0.11	0.29+	-0.15	-0.10	0.07	-0.12	-0.01
mobility limitations	-0.08***	-0.10***	-0.09***	-0.09***	-0.10***	-0.09***	-0.09***	-0.10***	-0.08***
self reported health	0.26***	0.28***	0.23***	0.22***	0.25***	0.21***	0.34***	0.27***	0.27***
constant	-3.30***	-2.07***	-1.15	-5.01***	-3.22***	-3.00***	-5.36***	-0.82	-4.06***
N	3020	5255	2652	4338	4106	3492	4766	4965	3555

+p&lt;0.10 \*p&lt;0.05 \*\*p&lt;0.01 \*\*\*p&lt;0.001, robust std err

**Table 12:** OLS of CASP on volunteering and pensions. Beta (fully standardized) coefficients reported. All models include country dummies.

	AUT	BEL	CHE	CZE	DEU	DNK	ESP	EST	FRA
voluntary or charity work	0.07***	0.02	0.01	0.01	0.05***	0.04**	0.04+	0.05**	0.04*
pension PPP '000	0.06+	0.01	0.05**	0.04	0.02*	-0.02	0.05*	0.09***	0.06**
attended an educational or training course	0.05*	0.02	0.05*	0.01	0.02	0.04**	0.03	0.06***	0.01
gone to a sport, social or other kind of club	0.05**	0.02	0.03	0.07**	0.05**	0.04**	0.10***	0.04*	0.03*
taken part in a political or community-related organization	-0.01	0.04**	-0.01	0.00	-0.00	0.00	-0.00	0.02	0.03*
read books, magazines or newspapers	0.07***	0.05***	-0.02	0.15***	0.05**	0.04*	0.06*	0.07***	0.09***
did word or number games (crossword puzzles/Sudoku...)	0.05**	0.02+	-0.01	0.00	-0.00	0.03	0.04+	0.04**	0.02
played cards or games such as chess	0.08***	0.03*	0.08***	0.01	0.06***	0.01	0.01	0.01	0.01
labor income PPP '000	0.12***	0.05**	0.03	0.03	0.07***	0.00	0.06	0.03+	0.06*
unemployment benefits PPP '000	-0.01	-0.01	-0.03*	0.02***	-0.07**	-0.05**	-0.02	-0.00	0.02
social assistance PPP '000	-0.05*	-0.03*	-0.08**	0.01	0.01	-0.04	-0.04*	0.01	-0.01
disability/sickness benefits PPP '000	0.06**	-0.01	-0.03*	-0.06*	0.02	-0.01	-0.03	0.05**	0.01
household net worth PPP '000	-0.00	0.08***	0.04*	0.04	0.06***	0.02	-0.00	0.04**	0.05**
male	-0.04+	-0.02	-0.04+	0.02	-0.02	-0.02	-0.01	-0.07***	0.03
married and living together	0.12***	0.11***	0.07***	0.04+	0.07***	0.09***	0.05+	0.06***	0.07***
employed	0.04	-0.02	0.03	0.05	-0.01	0.02	0.03	0.05*	0.03
age	0.88**	0.43*	0.35	1.40***	0.89***	1.23***	1.31**	-0.05	1.11***
age2	-0.86**	-0.40*	-0.35	-1.34***	-0.84***	-1.29***	-1.33***	-0.08	-1.12***
years of education	-0.04*	-0.01	0.00	-0.05*	0.01	-0.05**	0.01	0.04**	0.02
number of grandchildren	0.02	0.04**	0.02	0.00	-0.00	0.06***	-0.01	0.07***	0.05***
permanently sick or disabled	0.03	-0.03	-0.02	0.03+	-0.03	-0.03	0.01	-0.03	-0.00
mobility limitations	-0.22***	-0.25***	-0.20***	-0.24***	-0.25***	-0.22***	-0.23***	-0.26***	-0.19***
self reported health	0.33***	0.31***	0.32***	0.29***	0.29***	0.33***	0.37***	0.24***	0.31***
constant	***	***	***	***	***	***	***	***	***
N	3020	5255	2652	4338	4106	3492	4766	4965	3555

+p&lt;0.10 \*p&lt;0.05 \*\*p&lt;0.01 \*\*\*p&lt;0.001, robust std err

In the second set of regressions in tables 13 and 14 similar comparisons can be made. Coefficient on voluntary or charity work is by far highest in Portugal (PRT). Slovenia (SVN), Israel (ISR), and Italy (ITA) show coefficients of about half of that of Portugal; and only marginally significant for Israel (ISR) and Italy (ITA).

Next we turn to casp in tables 15 and 16. What really stands out is Croatia (HRV): regular coefficient is five times bigger than standardized coefficient. People in Croatia are much happier from volunteering than other nationals, but taking into account relative impact of other things within a country, volunteering in Croatia has only moderate effect.

Regarding effect of pensions on life satisfaction, in the same set of tables, 13 and 14: the effect is significant for Greece (GRC), Italy (ITA). Regarding effect of pensions on casp, in tables 13 and 14, the effect is severalfold for most countries, except Sweden (SWE), where the effect is only two-fold.

**Table 13:** OLS of life satisfaction on volunteering and pensions. OLS coefficients reported. All models include country dummies.

	GRC	HRV	ISR	ITA	LUX	POL	PRT	SVN	SWE
voluntary or charity work	-0.00	0.26	0.24+	0.20+	0.01	-0.46	0.62*	0.24**	0.11
pension PPP '000	0.01*	0.03	0.01	0.02**	0.00	0.02	-0.02	0.00	0.00
attended an educational or training course	0.02	-0.09	0.13	0.18	-0.14	-0.61	-0.08	0.01	0.11+
gone to a sport, social or other kind of club	-0.04	0.39**	0.04	0.13	0.10	0.24	-0.00	0.16*	-0.06
taken part in a political or community-related organization	0.49***	-0.13	0.45**	0.02	0.12	0.24	-0.55+	0.09	0.03
read books, magazines or newspapers	0.14*	0.42***	0.23	0.32***	0.51*	0.49*	0.27	0.27**	0.23+
did word or number games (crossword puzzles/Sudoku...)	0.02	0.10	-0.00	0.18*	-0.03	0.20	0.04	0.14*	-0.02
played cards or games such as chess	0.12+	-0.04	-0.26	0.09	0.23*	0.02	-0.02	0.02	0.12*
labor income PPP '000	0.01	0.14*	0.00	0.01	0.00	0.03	0.00	-0.00	0.04
unemployment benefits PPP '000	-0.16	0.13	0.03	0.02***	-0.01	-2.64	-0.07	-0.02	-0.34
social assistance PPP '000	-0.09	-1.17	-0.16	-0.05	-0.03*	-0.04	-0.13	-0.01	5.17*
disability/sickness benefits PPP '000	-0.00	0.07	-0.02	0.01	0.03*	-0.05	0.05	0.01	-0.32*
household net worth PPP '000	0.00***	0.00**	0.00***	0.00***	0.00	0.01	0.00	0.00	0.00
male	-0.18**	-0.26**	0.26*	0.01	-0.18	0.10	-0.35*	-0.25***	-0.15*
married and living together	0.42***	0.78***	-0.00	0.87***	0.41***	0.48**	0.83***	0.45***	0.36***
employed	0.14+	0.27*	-0.09	0.15	-0.17	-0.08	-0.14	0.38**	0.17*
age	0.12***	-0.06	-0.02	0.06	-0.01	-0.09	-0.06	0.02	0.07
age2	-0.00*	0.00	-0.00	-0.00	0.00	0.00	0.00	0.00	-0.00
years of education	0.01	0.01	-0.03+	-0.01	-0.01	0.05	-0.02	0.02*	-0.02**
number of grandchildren	0.00	0.02	0.03**	-0.01	0.06*	0.03	-0.01	0.04*	0.03***
permanently sick or disabled	-0.60*	-0.31	-0.51+	-0.20	-0.44	-0.23	-0.09	-0.05	-0.49
mobility limitations	-0.11***	-0.08**	-0.11***	-0.10***	-0.13***	-0.09*	-0.21***	-0.10***	-0.05*
self reported health	0.33***	0.52***	0.36***	0.43***	0.41***	0.66***	0.31**	0.41***	0.36***
constant	0.44	5.50*	8.24**	2.34	6.23*	6.75+	7.22	4.04*	4.11**
N	4619	2359	1708	4835	1452	1699	1454	3970	3747

+p&lt;0.10 \*p&lt;0.05 \*\*p&lt;0.01 \*\*\*p&lt;0.001, robust std err

**Table 14:** OLS of life satisfaction on volunteering and pensions. Beta (fully standardized) coefficients reported. All models include country dummies.

	GRC	HRV	ISR	ITA	LUX	POL	PRT	SVN	SWE
voluntary or charity work	-0.00	0.02	0.05+	0.03+	0.00	-0.05	0.10*	0.04**	0.03
pension PPP '000	0.04*	0.01	0.03	0.06**	0.02	0.01	-0.06	0.01	0.00
attended an educational or training course	0.00	-0.01	0.03	0.02	-0.03	-0.06	-0.01	0.00	0.03+
gone to a sport, social or other kind of club	-0.01	0.06**	0.01	0.02	0.03	0.03	-0.00	0.04*	-0.02
taken part in a political or community-related organization	0.07***	-0.01	0.06**	0.00	0.02	0.02	-0.05+	0.01	0.01
read books, magazines or newspapers	0.04*	0.10***	0.07	0.09***	0.10*	0.11*	0.06	0.06**	0.04+
did word or number games (crossword puzzles/Sudoku...)	0.00	0.02	-0.00	0.04*	-0.01	0.04	0.01	0.04*	-0.01
played cards or games such as chess	0.03+	-0.01	-0.05	0.02	0.07*	0.00	-0.00	0.01	0.04*
labor income PPP '000	0.02	0.04*	0.01	0.04	0.02	0.02	0.00	-0.02	0.04
unemployment benefits PPP '000	-0.02	0.01	0.01	0.03***	-0.02	-0.03	-0.04	-0.01	-0.02
social assistance PPP '000	-0.03	-0.04	-0.03	-0.01	-0.05*	-0.00	-0.04	-0.00	0.02*
disability/sickness benefits PPP '000	-0.00	0.01	-0.03	0.00	0.09*	-0.01	0.02	0.02	-0.07*
household net worth PPP '000	0.13***	0.06**	0.10***	0.08***	0.02	0.06	0.04	0.02	0.01
male	-0.05**	-0.06**	0.08*	0.00	-0.05	0.02	-0.09*	-0.07***	-0.05*
married and living together	0.11***	0.17***	-0.00	0.22***	0.12***	0.11**	0.19***	0.12***	0.12***
employed	0.04+	0.05*	-0.03	0.04	-0.05	-0.02	-0.03	0.09**	0.06*
age	0.73***	-0.26	-0.11	0.33	-0.03	-0.48	-0.30	0.11	0.47
age2	-0.56*	0.44	-0.02	-0.14	0.07	0.59	0.52	0.02	-0.35
years of education	0.02	0.01	-0.08+	-0.03	-0.04	0.07	-0.03	0.04*	-0.06**
number of grandchildren	0.00	0.03	0.09**	-0.02	0.08*	0.04	-0.01	0.05*	0.07***
permanently sick or disabled	-0.04*	-0.02	-0.07+	-0.01	-0.06	-0.03	-0.01	-0.00	-0.05
mobility limitations	-0.14***	-0.09**	-0.15***	-0.12***	-0.16***	-0.11*	-0.31***	-0.14***	-0.06*
self reported health	0.19***	0.29***	0.24***	0.23***	0.26***	0.30***	0.14**	0.23***	0.27***
constant	*	*	**	*	*	+	*	*	**
N	4619	2359	1708	4835	1452	1699	1454	3970	3747

+p&lt;0.10 \*p&lt;0.05 \*\*p&lt;0.01 \*\*\*p&lt;0.001, robust std err



**Table 15:** OLS of CASP on volunteering and pensions. OLS coefficients reported. All models include country dummies.

	GRC	HRV	ISR	ITA	LUX	POL	PRT	SVN	SWE
voluntary or charity work	0.17***	0.25**	0.08	0.24***	0.01	0.05	0.28**	0.15***	0.11**
pension PPP '000	0.01***	0.06*	0.01	0.01***	0.00	0.04*	0.00	0.00	0.05*
attended an educational or training course	0.08	0.15	0.03	0.25*	0.05	-0.02	-0.01	0.04	0.14***
gone to a sport, social or other kind of club	0.14***	0.14**	0.27***	0.16***	0.05	0.19	0.09	0.08*	0.01
taken part in a political or community-related organization	0.14***	-0.01	0.28**	-0.07	0.01	0.34+	-0.15	0.05	0.03
read books, magazines or newspapers	0.17***	0.24***	0.05	0.19***	0.22*	0.20*	0.08	0.16***	0.12*
did word or number games (crossword puzzles/Sudoku...)	0.08*	0.06	0.27**	0.19***	0.04	0.12	0.11	0.11***	-0.01
played cards or games such as chess	0.05+	0.03	0.16*	0.07+	0.13*	0.01	0.09	0.04	0.04
labor income PPP '000	0.01**	-0.02	0.00	0.00	-0.00	0.07	-0.01+	-0.01+	0.02
unemployment benefits PPP '000	-0.02	0.10+	-0.03	0.01***	0.01	-0.88	-0.08**	-0.02	-0.11
social assistance PPP '000	-0.06*	-0.48	0.00	-0.03	-0.01+	-0.30+	-0.22***	-0.04	1.89
disability/sickness benefits PPP '000	0.00	-0.02	0.00	0.01	0.00	0.08	0.02	0.00	0.02
household net worth PPP '000	0.00***	0.00***	0.00***	0.00***	0.00*	0.00	0.00***	0.00	0.00***
male	-0.01	-0.04	-0.04	0.08*	-0.05	-0.03	0.00	-0.04	-0.07*
married and living together	0.03	0.24***	0.04	0.21***	0.14*	0.13	0.04	0.13***	0.09**
employed	0.11**	0.14**	0.25	0.17**	0.00	0.02	0.04	0.19**	0.07*
age	0.05***	0.05+	0.06+	0.01	0.04	0.04	-0.00	0.08**	0.08***
age2	-0.00***	-0.00*	-0.00+	-0.00	-0.00	-0.00	-0.00	-0.00***	-0.00***
years of education	0.00	0.01	0.02+	-0.00	0.01	0.03*	-0.01	0.01+	-0.01**
number of grandchildren	0.00	-0.01	0.02**	0.02*	0.02*	0.01	-0.01	0.01+	0.01**
permanently sick or disabled	-0.01	-0.41*	-0.02	-0.27*	-0.02	-0.34+	-0.09	0.02	-0.31*
mobility limitations	-0.07***	-0.08***	-0.02	-0.10***	-0.11***	-0.11***	-0.09***	-0.09***	-0.06***
self reported health	0.22***	0.23***	0.18***	0.23***	0.24***	0.32***	0.23***	0.20***	0.22***
constant	-3.24***	-2.70**	-3.58*	-1.64*	-2.22	-3.09*	-0.56	-3.09***	-3.09***
N	4571	2341	1574	4816	1415	1677	1433	3895	3621

+p<0.10 \*p<0.05 \*\*p<0.01 \*\*\*p<0.001, robust std err

**Table 16:** OLS of CASP on volunteering and pensions. Beta (fully standardized) coefficients reported. All models include country dummies.

	GRC	HRV	ISR	ITA	LUX	POL	PRT	SVN	SWE
voluntary or charity work	0.05***	0.05**	0.03	0.08***	0.00	0.01	0.10**	0.06***	0.05**
pension PPP '000	0.10***	0.05*	0.05	0.09***	0.01	0.05*	0.04	0.01	0.06*
attended an educational or training course	0.02	0.02	0.01	0.04*	0.02	-0.00	-0.00	0.01	0.08***
gone to a sport, social or other kind of club	0.05***	0.05**	0.12***	0.05***	0.03	0.05	0.03	0.04*	0.01
taken part in a political or community-related organization	0.04***	-0.00	0.07**	-0.01	0.00	0.07+	-0.03	0.01	0.01
read books, magazines or newspapers	0.10***	0.12***	0.03	0.09***	0.08*	0.09*	0.04	0.08***	0.04*
did word or number games (crossword puzzles/Sudoku...)	0.03*	0.02	0.13**	0.07***	0.03	0.05	0.06	0.07***	-0.01
played cards or games such as chess	0.02+	0.01	0.06*	0.03+	0.07*	0.00	0.04	0.02	0.02
labor income PPP '000	0.04**	-0.01	0.00	0.02	-0.02	0.08	-0.07+	-0.05+	0.05
unemployment benefits PPP '000	-0.01	0.01+	-0.01	0.03***	0.02	-0.02	-0.10**	-0.02	-0.01
social assistance PPP '000	-0.04*	-0.03	0.00	-0.02	-0.04+	-0.03+	-0.15***	-0.03	0.01
disability/sickness benefits PPP '000	0.01	-0.00	0.00	0.01	0.02	0.03	0.02	0.01	0.01
household net worth PPP '000	0.10***	0.06***	0.16***	0.10***	0.05*	0.03	0.18***	0.03	0.06***
male	-0.00	-0.02	-0.02	0.04*	-0.03	-0.02	0.00	-0.03	-0.05*
married and living together	0.02	0.12***	0.02	0.10***	0.08*	0.06	0.02	0.07***	0.06**
employed	0.06**	0.06**	0.14	0.08**	0.00	0.01	0.02	0.10**	0.05*
age	0.67***	0.52+	0.67+	0.12	0.51	0.49	-0.05	0.93**	1.12***
age2	-0.74***	-0.56*	-0.72+	-0.14	-0.47	-0.39	-0.04	-1.00***	-1.26***
years of education	0.01	0.04	0.07+	-0.01	0.05	0.08*	-0.05	0.04+	-0.06**
number of grandchildren	0.00	-0.02	0.13**	0.04*	0.07*	0.04	-0.03	0.03+	0.05**
permanently sick or disabled	-0.00	-0.05*	-0.00	-0.04*	-0.00	-0.10+	-0.01	0.00	-0.06*
mobility limitations	-0.16***	-0.21***	-0.04	-0.22***	-0.26***	-0.28***	-0.30***	-0.27***	-0.14***
self reported health	0.26***	0.28***	0.22***	0.24***	0.30***	0.31***	0.25***	0.24***	0.33***
constant	***	**	*	*		*		***	***
N	4571	2341	1574	4816	1415	1677	1433	3895	3621

+p<0.10 \*p<0.05 \*\*p<0.01 \*\*\*p<0.001, robust std err

## 7.1 Robustness check: dropping respondents with labor income or welfare benefits/social assistance

We dropped those who still have some income by labor (1) [ $>1k$  euro] and those with welfare benefits or social assistance (2). And compare below the original regressions (for CASP only) with the new subsample. Results are similar and if anything stronger (both more statistically significant and larger effect sizes), which given smaller sample size, points to cleaner and more straightforward setup as suggested by the reviewer. Then, if anything, the main results as reported in the body of the paper are more conservative. Still those results are reported as main ones because subsampling approach cuts the sample size by third and potentially biases results. And our initial vision for this study was to investigate the effect of volunteering (**and other social capital**) and pensions (**and other social transfers**) on SWB. Hence, we control for other social capital and other social transfers.

**Table 17: OLS of CASP on volunteering and pensions. OLS coefficients reported. All models include country dummies.**

	AUT	BEL	CHE	CZE	DEU	DNK	ESP	EST	FRA
voluntary or charity work	0.14***	0.04	0.02	0.02	0.10***	0.06**	0.18+	0.15**	0.07*
pension PPP '000	0.01+	0.00	0.00**	0.21	0.00*	-0.02	0.01*	0.03***	0.00**
attended an educational or training course	0.11*	0.03	0.08*	0.02	0.05	0.07**	0.13	0.15***	0.03
gone to a sport, social or other kind of club	0.08**	0.04	0.04	0.13**	0.08**	0.06**	0.30***	0.09*	0.07*
taken part in a political or community-related organization	-0.04	0.11**	-0.03	0.00	-0.01	0.00	-0.00	0.08	0.10*
read books, magazines or newspapers	0.20***	0.12***	-0.05	0.31***	0.12**	0.10*	0.12*	0.23***	0.18***
did word or number games (crossword puzzles/Sudoku...)	0.08**	0.04+	-0.01	0.01	-0.00	0.04	0.11+	0.08**	0.03
played cards or games such as chess	0.14***	0.06*	0.11***	0.01	0.10***	0.02	0.03	0.02	0.02
labor income PPP '000	0.01***	0.00**	0.00	0.11	0.00***	0.00	0.01	0.01+	0.00*
unemployment benefits PPP '000	-0.00	-0.00	-0.01*	2.14***	-0.04**	-0.31**	-0.02	-0.02	0.01
social assistance PPP '000	-0.04*	-0.05*	-0.08**	0.40	0.02	-0.34	-0.08*	0.06	-0.01
disability/sickness benefits PPP '000	0.02**	-0.00	-0.00*	-0.76*	0.01	-0.01	-0.01	0.04**	0.01
household net worth PPP '000	-0.00	0.00***	0.00*	0.01	0.00***	0.00	-0.00	0.00**	0.00**
male	-0.06+	-0.04	-0.06+	0.03	-0.04	-0.03	-0.02	-0.14***	0.05
married and living together	0.20***	0.19***	0.10***	0.07+	0.12***	0.13***	0.11+	0.12***	0.13***
employed	0.06	-0.03	0.04	0.08	-0.01	0.03	0.05	0.11*	0.05
age	0.07**	0.03*	0.02	0.12***	0.07***	0.09***	0.12**	-0.00	0.09***
age2	-0.00**	-0.00*	-0.00	-0.00***	-0.00***	-0.00***	-0.00***	-0.00	-0.00***
years of education	-0.01*	-0.00	0.00	-0.01*	0.00	-0.01**	0.00	0.01**	0.00
number of grandchildren	0.01	0.01**	0.01	0.00	-0.00	0.01***	-0.00	0.03***	0.02***
permanently sick or disabled	0.22	-0.12	-0.11	0.29+	-0.15	-0.10	0.07	-0.12	-0.01
mobility limitations	-0.08***	-0.10***	-0.09***	-0.09***	-0.10***	-0.09***	-0.09***	-0.10***	-0.08***
self reported health	0.26***	0.28***	0.23***	0.22***	0.25***	0.21***	0.34***	0.27***	0.27***
constant	-3.30***	-2.07***	-1.15	-5.01***	-3.22***	-3.00***	-5.36***	-0.82	-4.06***
N	3020	5255	2652	4338	4106	3492	4766	4965	3555
+p<0.10 *p<0.05 **p<0.01 ***p<0.001, robust std err									

**Table 18: Subsample: OLS of CASP on volunteering and pensions. OLS coefficients reported. All models include country dummies.**

	AUT	BEL	CHE	CZE	DEU	DNK	ESP	EST	FRA
voluntary or charity work	0.17***	0.00**	0.05	0.01	0.12***	0.08*	0.11	0.18**	0.05
pension PPP '000	0.01+	0.00	0.00	0.24+	0.00*	-0.07*	0.00	0.05***	0.01**
attended an educational or training course	0.04	-0.05	0.03	0.04	-0.01	0.08+	0.15	0.27**	0.01
gone to a sport, social or other kind of club	0.11***	0.04	0.06+	0.10*	0.15***	0.06+	0.27***	0.08+	0.10**
taken part in a political or community-related organization	-0.08	0.14**	0.01	-0.01	-0.02	0.04	0.13	0.07	0.08
read books, magazines or newspapers	0.23**	0.13***	-0.07	0.20***	0.11+	0.07	0.13*	0.19**	0.21***
did word or number games (crossword puzzles/Sudoku...)	0.10**	0.02	-0.01	0.01	-0.02	0.07*	0.12+	0.08*	0.04
played cards or games such as chess	0.13***	0.04	0.10**	0.02	0.12***	0.04	-0.05	0.03	0.02
household net worth PPP '000	-0.00	0.00***	0.00	0.01+	0.00***	-0.00	0.00*	0.00**	0.00*
male	-0.07+	-0.06*	-0.01	0.03	0.00	-0.01	0.12*	-0.19***	-0.01
married and living together	0.19***	0.15***	0.07+	0.02	0.14***	0.13***	0.02	0.15***	0.15***
employed	0.10	-0.01	0.08	0.02	0.02	0.09*	0.21*	0.05	0.05
age	0.04	0.06*	0.07+	0.06*	0.06+	0.10***	0.09+	-0.00	0.10*
age2	-0.00	-0.00*	-0.00+	-0.00*	-0.00+	-0.00***	-0.00*	-0.00	-0.00**
years of education	-0.01*	-0.00	0.00	-0.01+	-0.01	-0.01**	-0.00	0.00	0.00
number of grandchildren	0.01	0.01**	0.01	0.01+	0.00	0.01**	-0.01	0.02***	0.02***
permanently sick or disabled	0.44***	-0.94**	0.09	0.14	0.28	0.15	-0.32+	-0.13	0.30
mobility limitations	-0.09***	-0.10***	-0.07***	-0.10***	-0.10***	-0.09***	-0.08***	-0.09***	-0.07***
self reported health	0.23***	0.23***	0.32***	0.22***	0.27***	0.23***	0.37***	0.34***	0.33***
constant	-2.04	-2.84**	-3.12*	-2.85**	-2.84*	-3.59***	-4.29*	-0.91	-4.66**
N	2117	2976	1454	3888	2117	1765	3441	2624	2291
+p<0.10 *p<0.05 **p<0.01 ***p<0.001, robust std err									

**Table 19: OLS of CASP on volunteering and pensions. OLS coefficients reported. All models include country dummies.**

	GRC	HRV	ISR	ITA	LUX	POL	PRT	SVN	SWE
voluntary or charity work	0.17***	0.25**	0.08	0.24***	0.01	0.05	0.28**	0.15***	0.11**
pension PPP '000	0.01***	0.06*	0.01	0.01***	0.00	0.04*	0.00	0.00	0.05*
attended an educational or training course	0.08	0.15	0.03	0.25*	0.05	-0.02	-0.01	0.04	0.14***
gone to a sport, social or other kind of club	0.14***	0.14**	0.27***	0.16***	0.05	0.19	0.09	0.08*	0.01
taken part in a political or community-related organization	0.14***	-0.01	0.28**	-0.07	0.01	0.34+	-0.15	0.05	0.03
read books, magazines or newspapers	0.17***	0.24***	0.05	0.19***	0.22*	0.20*	0.08	0.16***	0.12*
did word or number games (crossword puzzles/Sudoku...)	0.08*	0.06	0.27**	0.19***	0.04	0.12	0.11	0.11***	-0.01
played cards or games such as chess	0.05+	0.03	0.16*	0.07+	0.13*	0.01	0.09	0.04	0.04
labor income PPP '000	0.01**	-0.02	0.00	0.00	-0.00	0.07	-0.01+	-0.01+	0.02
unemployment benefits PPP '000	-0.02	0.10+	-0.03	0.01***	0.01	-0.88	-0.08**	-0.02	-0.11
social assistance PPP '000	-0.06*	-0.48	0.00	-0.03	-0.01+	-0.30+	-0.22***	-0.04	1.89
disability/sickness benefits PPP '000	0.00	-0.02	0.00	0.01	0.00	0.08	0.02	0.00	0.02
household net worth PPP '000	0.00***	0.00***	0.00***	0.00***	0.00*	0.00	0.00***	0.00	0.00***
male	-0.01	-0.04	-0.04	0.08*	-0.05	-0.03	0.00	-0.04	-0.07*
married and living together	0.03	0.24***	0.04	0.21***	0.14*	0.13	0.04	0.13***	0.09**
employed	0.11**	0.14**	0.25	0.17**	0.00	0.02	0.04	0.19**	0.07*
age	0.05***	0.05+	0.06+	0.01	0.04	0.04	-0.00	0.08**	0.08***
age2	-0.00***	-0.00*	-0.00+	-0.00	-0.00	-0.00	-0.00	-0.00***	-0.00***
years of education	0.00	0.01	0.02+	-0.00	0.01	0.03*	-0.01	0.01+	-0.01**
number of grandchildren	0.00	-0.01	0.02**	0.02*	0.02*	0.01	-0.01	0.01+	0.01**
permanently sick or disabled	-0.01	-0.41*	-0.02	-0.27*	-0.02	-0.34+	-0.09	0.02	-0.31*
mobility limitations	-0.07***	-0.08***	-0.02	-0.10***	-0.11***	-0.11***	-0.09***	-0.09***	-0.06***
self reported health	0.22***	0.23***	0.18***	0.23***	0.24***	0.32***	0.23***	0.20***	0.22***
constant	-3.24***	-2.70**	-3.58*	-1.64*	-2.22	-3.09*	-0.56	-3.09***	-3.09***
N	4571	2341	1574	4816	1415	1677	1433	3895	3621
+p<0.10 *p<0.05 **p<0.01 ***p<0.001, robust std err									

**Table 20:** Subsample: OLS of CASP on volunteering and pensions. Beta (fully standardized) coefficients reported. All models include country dummies.

	GRC	HRV	ISR	ITA	LUX	POL	PRT	SVN	SWE
voluntary or charity work	0.20***	0.30**	0.12	0.28***	0.06	0.33+	0.23*	0.15***	0.17***
pension PPP '000	0.01***	0.04+	0.01	0.02***	0.00	0.08**	0.00	0.00	0.07**
attended an educational or training course	0.06	0.21	-0.04	0.45*	-0.01	-0.03	0.11	0.07	0.09+
gone to a sport, social or other kind of club	0.15**	0.09	0.24**	0.20***	-0.03	0.35*	-0.01	0.09*	0.01
taken part in a political or community-related organization	0.14**	0.04	0.48***	-0.04	-0.01	-0.16	-0.19	0.10	0.03
read books, magazines or newspapers	0.15***	0.24***	0.01	0.20***	0.28**	0.22*	0.15*	0.11**	0.11
did word or number games (crossword puzzles/Sudoku...)	0.09*	0.09+	0.27+	0.14**	0.12*	0.36***	0.10	0.13***	-0.03
played cards or games such as chess	0.06+	0.04	0.21*	0.11**	0.07	0.07	0.14+	0.04	0.04
household net worth PPP '000	0.00***	0.00***	0.00***	0.00***	0.00+	0.00*	0.00***	0.00	0.00
male	-0.03	-0.05	-0.08	0.01	-0.05	-0.00	-0.01	-0.01	-0.07+
married and living together	0.07*	0.24***	0.04	0.16***	0.15*	0.12	-0.07	0.13***	0.13***
employed	0.21***	0.13*	0.28	0.20*	0.07	0.03	0.08	0.14	0.04
age	0.08***	0.05+	0.12*	0.03	0.02	-0.06	-0.01	0.09***	0.05
age2	-0.00***	-0.00+	-0.00*	-0.00	-0.00	0.00	-0.00	-0.00***	-0.00
years of education	0.00	0.01	0.02+	0.01	0.00	0.02	-0.01	0.01	-0.02**
number of grandchildren	-0.00	-0.00	0.02*	0.02*	0.03**	0.00	-0.01	0.01	0.01+
permanently sick or disabled	-0.25+	-0.29	-0.29*	-0.28*	-0.28	-0.43+	-0.16	0.02	-0.21
mobility limitations	-0.06***	-0.09***	-0.00	-0.10***	-0.12***	-0.12***	-0.08***	-0.09***	-0.08***
self reported health	0.23***	0.21***	0.23**	0.21***	0.25***	0.25***	0.25***	0.24***	0.23***
constant	-4.31***	-2.62*	-5.85*	-2.24*	-1.62	0.65	-0.27	-3.66***	-1.72
N	3541	1793	1013	3450	854	1110	1043	2770	2393

+p<0.10 \*p<0.05 \*\*p<0.01 \*\*\*p<0.001, robust std err

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