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Retired but not Withdrawn: Does Retirement Induce Participation in Social Activities?

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Abstract

Being retired goes with more frequent participation in some social activities such as volunteering or going to a club. It also goes with an increase in the intensity of participation. To conclude about a causal effect of retirement we use the longitudinal SHARE data and an IV strategy. Indeed we find that retiring can be the occasion to engage in a new social activity. More precisely, retirement increases volunteering, club and even training activities. It has little effect on religious, political or community-related involvement. There is very little sign of endogeneity of retirement. Education level and health evolution play a crucial role in most countries. At a time of huge increase in the population of retirees it is important to access the value of their volunteering participation. A conservative estimate translates volunteering into an output of about 6% of the value of pensions for the retirees of our 10 European countries.

Résumé

Être retraité s'accompagne d'une participation accrue à des activités sociales telles que le bénévolat ou les clubs. L'intensité de la participation est aussi plus forte. Pour conclure à un effet causal du passage à la retraite nous utilisons les données longitudinales de l'enquête SHARE et une stratégie de variables instrumentales. De fait nous trouvons que prendre sa retraite peut être l'occasion de s'engager dans une nouvelle activité sociale. Plus précisément, la retraite augmente le bénévolat, les activités au sein de clubs, et même celles de formation. Elle a peu d'effet sur l'engagement religieux ou politique. Il n'y a que peu de signes que la prise de retraite soit endogène. Le niveau d'éducation et l'évolution de la santé jouent un rôle crucial dans la plupart des pays. Au moment où la population des retraités augmente beaucoup il est important d'évaluer la valeur de cette participation bénévole. Une estimation prudente se traduit par une valorisation de la production bénévole des retraités autour de 6% de la valeur des pensions dans les 10 pays européens étudiés.

Omne tulit punctum qui miscuit utile dulci.
Blending the useful with the sweet is a winner
Horace*, Ars Poetica, c. 19 BCE*

1. Introduction

Somewhat paradoxically increased life expectancy has gone with a decline in lifetime labour supply, i.e. a decline in the absolute number of hours worked over a lifetime (Hazan, 2009). Moreover since the second half of the 20th century the new gains in life expectancy in high-income countries are gains in longevity at old age resulting in a decline of the share of life spent in the labor force (Eggleston and Fuchs, 2012). This has important consequences on pension funding and growth. Pension reforms have been a stumbling block for many governments. Some defined benefits pension funds might go bankrupt.[2] Hence the stakes are high when the effects of retirement are discussed. It is important to assess whether retirement is all enjoyable leisure time, or if it can have some adverse effects. A landmark in the discussion has been a paper by Adams et al. (2007).[3] It showed that retirement in itself caused a decline in cognitive capacity. Rohwedder and Willis (2010) publicized the result and talked of 'mental retirement'.[4] Coe et al. (2012) using US data point to possible reverse causation if those who function less well are more likely to retire. Mazzonna and Perrachi (2014) find a negative causal effect of retirement on health and cognition for most workers, but a positive effect for those who had a physically demanding job (see also Blake and Garrouste, 2014, Westerlund et al. 2009 for similar heterogeneous effects on health). Looking at the economic consequences of retirement Angelini et al (2009) underline the existence of an early retirement trap where early retirees trade immediate leisure for a risk of future financial distress. Others have found that retirement improves health, at least in the short run (Coe and Zamarro, 2011). Fonseca et al. (2013) find no effect of retirement on relative or subjective poverty, nor on subjective well being, *once the endogeneity of the decision is taken into account*. They use pension eligibility age as instrument. They find that retirement increases the quality of life and decreases depressive symptoms. Charles (2002) had also found that the direct effect of retirement on well being is positive once the fact that retirement and well being are simultaneously determined is accounted for. In Börsch-Supan and Schuth (2013) early retirement accelerates cognitive decline, which the authors relate to fewer social contacts, especially with friends. Laferrère (2014) shows that, once endogeneity is accounted for, only women lose friends on retirement, not men. Taking a broader perspective and interested in

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[2] Delta airlines pilots lost their pensions; Detroit city workers are one of the recent publicized examples.
[3] See also Bonsang et al. (2012).
[4] Mazzonna and Peracchi (2012) find the same.

mortality on Norwegian data that allow controlling for endogeneity, Hernaes et al. (2012) find that retirement age has no effect on mortality.

The main consequence of retirement is that it provides leisure time. This time can be used for activities that can be as (or more) fulfilling as a job, especially since they are now freely chosen. Croezen et al. (2013) show that participation in social activity, especially in religious and church activity, predicts decline in depressive symptoms over time. Sirven and Debrand (2008) try to disentangle causalities in social participation and healthy ageing. Epidemiologists underline the potentially positive or negative effect of social integration on health or psychological well being (Seeman, 2000; Rook, 1990).[5] Sirven and Godefroid (2009) link participation in social activities and general trust at the country level. Hank and Erlinghagen (2009) show that the dynamic of volunteering vary by country and they point to social context factors. Prouteau and Wolff (2007) study the determinants of volunteering and participation in associations on French data.[6]

Here we study in more details the relationships between retirement and participation in social activities. The respondents of the SHARE (Survey on Health Ageing and Retirement in Europe) survey were asked, wave after wave, whether they engaged in some activities. First we describe their answers (section 2).[7] Then we analyse them. We use the whole period 2004-2011. We correct for the potential endogeneity of the retirement decision by using statutory early retirement and retirement ages as instruments for being retired. Since the respondents are followed over time, we can deal with unobserved heterogeneity in a fixed effect model and identify the retirement effect. We analyse the total number of activities and their intensity (section 3). In a second stage we consider that going to the gym is very different from volunteering and we treat each type of activity separately. We estimate logistic models of participation in each activity, and OLS models on the intensity of participation (section 4). Section 5 concentrates on volunteering and looks into its motivation and assesses its macroeconomic value. Section 6 concludes.

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2. Participation in social activities

In waves 1 (2004-05) and 2 (2006) of SHARE the following question was asked (AC002, only to non nursing home respondents in wave 2):

Please look at card 48. Have you done any of these activities in the last month?
Interviewer instruction: Code all that apply. Taking part in activities of a religious organization includes church, synagogue, mosque attendance.
1. Done voluntary or charity work
2. Cared for a sick or disabled adult
3. Provided help to friends or neighbors
4. Attended an educational or training course
5. Gone to a sport, social or other kind of club
6. Taken part in activities of a religious organization (church, synagogue, mosque etc.)
7. Taken part in a political or community-related organization
96. None of these

The question included care and services provided (items 2 and 3). It has not been asked in wave 3. In wave 4 (2010-11), care and services were not mentioned; reading and playing games were added.

The reference period was now 12 months, and the respondent was not prompted explicitly that pure "attendance" was included in "taking part in a religious organization" (she was not in wave 1 either).

The wording of the question was also slightly modified. Because of all the changes, the question was renamed. It was not asked to respondents in nursing home. Question AC035 in wave 4 was the following:

Please look at card 34: which of the activities listed on this card - if any - have you done in the past twelve months?
Code all that apply.
1. Done voluntary or charity work
4. Attended an educational or training course
5. Gone to a sport, social or other kind of club
6. Taken part in activities of a religious organization (church, synagogue, mosque etc.)
7. Taken part in a political or community-related organization
8. Read books, magazines or newspapers
9. Did word or number games such as crossword puzzles or Sudoku
10. Played cards or games such as chess.
96. None of these

We use items 1, 4, 5, 6, 7 of the two questions as if they were similar and we analyse participation to those five types of activities: voluntary work, training, club activity, religious activity, and political activity. When we use the words "social activities" we only refer to those activities, clearly only a subset of all possible social activities that people can engage into.

We only keep the 10 countries that participated in the three waves, and individuals who participated in at least two waves among waves 1, 2 and 4. We also leave aside some observations with missing values for education, health or the number of children. To avoid the possibility that the increase between wave 1 and wave 2 is due to those who were in nursing home in wave 1 (who are less likely

to have any voluntary activity and are excluded from the question in waves 2 and 4), we excluded all those who lived in a nursing home in wave 1. We further restrict the sample to those aged below 75[8], leaving 41,798 observations (See table A1, upper panel, col. 1-2, Appendix 1). We are interested in the effect of being retired and even more of retiring. In order to get closer to the dynamic aspect of the decision, we reduce the sample to those who were not yet retired at the time they first were interviewed. To spot them we use the spontaneous answer to the following question:

Please look at card 20. In general, which of the following best describes your current employment situation?[9]
1. Retired
2. Employed or self-employed (including working for family business)
3. Unemployed and looking for work
4. Permanently sick or disabled
5. Homemaker
97. Other (Rentier, Living off own property, Student, Doing voluntary work)

We keep those who classified themselves as employed, self-employed or unemployed at the time of their first interview, leaving 17,841 observations, corresponding to 7,193 individuals or pairs of two successive observations of the same person, interviewed 2.48 times on average overt the three waves. Around 6,000 individuals have been interviewed at each wave. We observe 2,395 transitions into retirement, 797 between wave1 and wave 2 and 1,598 between wave 2 and wave 4[10] (table A1, lower panel in Appendix 1). The sample is described in Appendix 1, table A2.

The time span between wave 1 and wave 2 was two years; it was 4 years between wave 2 and wave 4. This change and that in the time reference of the question after wave 2 ("last month" was extended to "last 12 months") risk making the interpretation of temporal evolution delicate. For instance the volunteering rate was 16.2% in wave 1, 17.8% in wave 2 and 25% in wave 4 (table A3 in Appendix 1). We correct for the change in time reference of the question in the following way. We use the information on the intensity of each activity (see Appendix 2 for details) to eliminate the low intensity participants from wave 4. More precisely we reclassify as non-participants those who said they engaged in an activity but participated less often than once a month. We thus reclassify as not

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[8] Above that age very few entered the survey as employed, and studying the effect of retirement makes less sense. We also leave aside those who entered the survey as spouse aged under 50 because they are not a representative sample of their age cohort.

[9] Interviewer: code only one. Only if respondent in doubt then refer to the following:
1. Retired from own work, including semi-retired, partially retired, early retired, pre-retired.
2. Paid work, including also working for family business but unpaid – including workers who are still employees of a firm though currently not paid.
3.Laid out or out of work, including short term unemployed.
4.Including partially disabled or partially invalid.
5. Including looking after home or family, looking after grandchildren.
Recipients of survivor pensions who do not receive pensions from own work should not be coded as retired. If they do not fit in categories 2 through 5, they should go into other.

[10] Some of them (probably around 60) may have occurred between wave 1 and wave 2 if those respondents were not observed in wave 2.

participating 17% of wave 4 volunteers (243/1422), 54% of "trainees" (649/1186), 7% of club participants (166/2309), 21% of religious activists (138/654) and 30% of community activists (143/490). After the correction there is less obvious sign of suspicious increase in the frequency of participation from wave to wave: 21% volunteered in wave 4 (table A3 in Appendix 1).

Treating all activities on the same level, we compute the total number of activities (from 0 to a maximum of 5). It might be that people do not take up a new activity on retirement but increase the time they devote to it. Using the question on how often people participated, we define an intensity variable. When the respondent answered "daily", we code it 4; "every week" (the median answer) is coded 1, "every month" is coded 0.1.[11] We thus create another variable varying from 0 to 4 for each 5 types of activity, and varying from 0 to 14 when we add all the intensities to get a synthetic involvement variable. People mentioned on average 0.71 social activities in wave 1, when they were not retired. In wave 2 they mentioned 0.76 if still not retired (+7.0%) and 0.82 if they had retired (+14.4%); in wave 4 they mentioned 0.789 (+9.8%) if not retired and 0.914 (+27.1%) if retired. The evolution is much larger when retirement took place, pointing to a potential effect of retirement. The results are similar on the intensity of participation. It increases by 43% for those who retired between wave 1 and wave 2, versus 13% for those who did not retire (Appendix 1, table A1, last lines on panel 2). The slower evolution on the non-retired subsample rules out important bias due to the change in questions between wave 2 and wave 4. Still the evolution between wave 1 and wave 2, when the question was unchanged suggests selective attrition of the sample: people who are more socially active might be those who are more prone to answer surveys, and to go on answering from wave to wave. In what follows we introduce wave dummies to mitigate the problem of selective attrition.[12] Figure 1 shows the evolution from wave to wave separately for each type of activity. As before we separate those who are non-retired (observed in waves 1, 2 or 4) and those who retired (observed in waves 2 or 4 by construction of the sample). Looking at volunteering rates, they increase slowly from wave 1 to wave 2, then they remain constant from wave 2 to wave 4 for the non-retired, and increase more sharply for those who retired. The picture is somewhat similar for club activity, and correlatively we see a decline in those who have no activity when they become retired.

Figure 2 presents the age evolution of the number of social activities and their intensity. Number and intensity are correlated (0.658). The age profile is rather flat up to 55-58 year old. After that there is an increase in the taking up of activity till age 65 when 0.930 activities are mentioned; above that age the number is stable, then declines after 72 with the probable onset of disabilities. A cohort effect

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[11] The idea is that every day is four times more frequent than once a week, which in turn is ten times more frequent than less. In a previous version we coded each frequency as 1, 2 and 3. It did not change the results.
[12] Hank and Erlinghagen (2009) correct for selective attrition between wave 1 and wave 2 with a probit model and find that the correction had no significant effect on their results on the dynamic of volunteering.

can compound the age effect. The age gradient varies by country, but in most we detect a flat number of activities between 50 and 55 - at a low level in Spain where a majority do not mention any social activity, at a high level in the Netherlands (Figure 3). Then participation increases, somewhat earlier in France or Belgium than in Denmark, which could be related to earlier retirement age in the former countries. Participation decreases at older ages. It does seem that in countries where statutory retirement age is higher the onset of social activities is delayed. Only a multivariate longitudinal analysis will help disentangle age, cohort and retirement effects.

Figure 4 presents mean number and intensity of all social activities by country. The countries where the intensity is highest are Denmark and the Netherlands. They are followed by Switzerland, Sweden and Belgium; then by France and Germany, then by Austria. Level and intensity are lowest in Italy and Spain. Volunteering (Fig.4, bottom graph) is highest in the Netherlands, where 28% of our sample volunteer compared to 18% for the 10-country average.

First we analyse the whole period 2004-2011, as if each observation was distinct, correcting standard errors for household clustering. Then we follow two strategies. The first deals with the possible endogeneity of retirement. We instrument it by using normal retirement and preretirement ages by sex, cohort and country.[13] Our second strategy is to use the longitudinal panel nature of the data. It corrects for unobserved stable heterogeneity and allows measuring the effect of change in activity over time, getting rid of possible cohort effects. We use a first difference model, and we combine the two strategies and estimate an IV first difference model by two-stage least square.[14] We then estimate logistic models of participation in one activity and OLS models on the number and intensity of activities.

3. Analyses of the participation in social activities

Total number of activities
We regress the number of social activities Y_{it} (from 0 to a maximum of 5) of respondent i at wave t on the respondent's characteristics X_{it} and wave dummies t:

$$Y_{it} = a\, R_{it} + b\, X_{it} + c\, C + d\, t + e_{it} \qquad (1)$$

X is a vector of variables including sex, age, education level (ISCED-97), presence of a spouse, of living parents, number of siblings, of children, of grand-children, indicators of health status (self-reported health, index of limitations in activities of daily living, index of limitations in instrumental activities, fine and gross motor difficulties indexes, hospitalization in the previous 12 months), home location, homeownership. We also introduce country C dummies. We do not control for current income level,

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[13] We take them from OECD (2011) publication complemented by Gruber and Wise (1999) and by Angelini et al. (2009) for Italy.
[14] In former versions we estimated Fixed and random effect models. The conclusions were qualitatively unchanged.

as we want to incorporate income change effect in the retirement variable. To spot retirees we use the spontaneous answer to the question on the current job situation (R_{it}). As mentioned above, in order to get closer to the dynamic aspect of the decision, the sample is reduced to those who were not yet retired at the time they first were interviewed.

We briefly comment on the effect of our control variables on the number of social activities in the cross section (table 1, col. 1). Country differences are important. Compared to Sweden, the reference country, Switzerland (+0.244 activity) and the Netherlands (+0.180) are the top activists, ahead of Denmark, Austria, Sweden and Belgium. Germany is in a middle position, followed by France. Italy and Spain close the ban. Education level has a huge effect on social participation. Those who have a level 5 (first stage of tertiary education) have 0.39 more activities than those of level 2 (lower secondary or second stage of basic education). Having more siblings, more children, being a homeowner, all increase the number of social activities. Having no surviving parents, lower self-reported health, gross motor limitations decrease it. So does having more grandchildren, which may point to competition in the grandparents' time use. Maybe surprisingly, people have fewer activities in big cities or their suburbs than in smaller towns or rural areas. Once we control for professional activity there is no age effect. When we drop self-perceived health and home ownership because of their potential correlation with retirement, the results are unchanged (table 1. col. 2).

In the simple pooled OLS specification being retired adds 0.164 activity. The mean number of activities is 0.776 - only 6.2% have more than 2 - , so the increase is 21% (table 1, col.1).[15] Then we take into account the possible endogeneity of the retirement decision. We think of potential reverse causality: if having a social activity induced or delayed retirement; or if people retired in order to take up a social activity. We use country, cohort and gender specific full and early pension eligibility age as instruments in the same vein as Angelini et al. (2009), Coe and Zammaro (2011), Fonseca et al. (2013). The instruments consist of two dummies "the respondent is aged above the statutory retirement age" and "the respondents is aged above the statutory early retirement age". The instruments are highly significant in the first-stage regression ($R^2=0.4456$) but we clearly reject endogeneity (p value= 0.5675). The effect of retirement is only slightly smaller in the IV specification (table 1, col. 3-4). Those who retired earlier compared to the country norm might have been only very slightly more likely to have more social activities.

Using the longitudinal aspect of the data allows to get rid of potential cohort effects or unobserved stable heterogeneity (if unobserved characteristics affect both retirement and social participation) and allows identifying even more closely the effect of retiring. We use a first difference (FD) estimation. The model becomes the following:

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[15] Ordered Logit or Probit models give the same result of a significant positive effect of retirement.

$$Y_{it} - Y_{it-1} = a\,(R_{it} - R_{it-1}) + b\,(X_{it} - X_{it-1}) + d\,(w_t - w_{t-1}) + e_{it} \qquad (2)$$

The "retiring" variable is again significant and retiring goes with taking up 0.201 activity (table 2, col. 1). The effect is similar (+0.227) when we instrument retirement, which confirms that endogeneity is not an issue (table 2, col. 1 and 4). On retirement the Europeans take up 0.20 new social activity, increasing their participation by some 25%.

We then looked at social activity participation by gender, because they faced different type of careers, and in some countries retirement rules might be imperfectly captured by our instruments.[16] There was no sex difference in the number of activities *cet. par.* (table 1, col. 1-2). When they were in the labour force men and women in our sample had respectively 0.757 and 0.752 activities, a non-significant difference. When they were retired, men had 0.847, while women had 0.924, 9.2% more. The gender difference in the effect of retirement is validated when we run the FD models separately for men and women. The effect of retiring is +0.144 for males, +0.279 for females (resp. 0.166 and 0.303 when we instrument retirement, and we reject endogeneity for both). It means that retiring women are more likely to take up a new social activity than men. One interpretation could be that women's life-cycle "poly-activity" -homemaking, caring for children and working part or full-time- , famously detrimental to their wage level, would prove an advantage in terms of knowing how to spend leisure time.[17]

The effect of other variables in the longitudinal models is to be interpreted as the effect of a change of those variables over time. New gross motor limitation are linked to a decrease in the number of activities. Becoming unemployed has (only for a woman) a positive effect; its order of magnitude is about half the effect of retirement. The death of a partner, of a parent, or the arrival of a grandchild had no significant effect. If we run the FD specification separately in each country as a robustness check, the effect of retirement on the number of social activities is positive and significant in all countries, except in the Netherlands where the number of activities is high and Italy where it is low (Appendix 3, table A31).

Intensity of social participation

Conducting the same regression analysis (OLS, and FD) on the sum of intensities of all activities, we again find a positive and significant effect of being retired and of getting retired. The effect ranges between +0.28 (OLS, table 1, col. 5-6) and +0.26 (IV OLS, table 1, col. 7-8) for the effect of being retired: retirees have a larger intensity of participation than their employed counterparts. Again, there is no sign of any endogenous retirement behaviour. The two top intensive countries are now the Netherlands and Denmark, women participate less intensively than men and the location effect is

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[16] For instance in France retirement age sometimes depended on the number of children for women.
[17] Sociologists insist on gender roles at the time of retirement with men traditionally less comfortable with retirement than women (Sharabi and Harpaz, 2011, Barnes and Parry, 2004).

limited to living in the suburbs. In first difference models retiring increases the intensity of participation by 0.358 (table 2, col. 7). The effect is only slightly lower if we instrument retirement: +0.272 (table 2, col. 10). Some do increase their social participation when they retire. Intensity at the sample mean is 0.781, the increase due to retirement is 35 to 46%.

Interestingly, in the FD specification, the effect of retirement on the intensity of social activities is now positive and significant in all countries (Appendix 3, table A32). It points to converging behaviours in spite of country idiosyncrasies in the organization and formalization of social activities. The effect of the other variables on intensity is often similar to that on the number of activities. Having more limitations in instrumental activities of daily living, or gross motor limitations decrease the intensity of participation. The death of a partner, of a parent, or the arrival of a grandchild had no significant effect. It should be noted that being unemployed or becoming unemployed has qualitatively the same effect as retirement on the intensity of participation, even if it is smaller. For a person aged 50 and more, becoming unemployed is probably, at least in some countries, similar to becoming pre-retired or partially retired: it gives some free time.[18]

If we again separate the sample by gender, we find that retiring increases the intensity of participation in social activities for men and women; the IV specifications show no significant effect for men when the effect is robust for women who do increase the intensity of their participation on retirement (table 2 col. 8-9-11-12). However since we reject the presence of endogeneity, we attribute the sex differences to the lower power of IV specifications.

Our first conclusion is that retiring induces taking up a new social activity, and increases former participation.

4. **Separating each type of social activity**

What we grouped under the term "social activity" is rather diverse. Attending an educational or training course is not the same as going to a sport club. Engaging in a charity work or volunteering is also different from playing poker at the club with friends. The former might benefit other people than the volunteer; the later is more self-centered. Even if it improves health and life satisfaction the effect is limited to the active person and her immediate surrounding. When discussing the social "utility" of retirees, volunteering is probably more directly valuable than weight lifting in a gym. Anecdotal evidence is plentiful of non-profit organizations that could not function without volunteers, most of them being retirees, or so-called homemakers. We now analyse each type of

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[18] See Kunze and Suppa (2014) for a different effect of unemployment in Germany.

social activity in turn. We do it by logit models. As the intensity varies by activity we also use our intensity variable as a continuous variable and run OLS on the intensity of each activity.

Voluntary work

Volunteering is the closest thing to working. If retirees volunteer a lot, they are not so much "retired" as "differently active" and presumably contribute accordingly to an unmeasured part of production, just as unpaid homemakers contribute by cooking and cleaning, or as parents or grand-parents substitute for teachers, nurses, nannies, tutors and pedagogues, or as adult children complement professional care to their parents. A difference with other types of unpaid activities is that volunteering is, as the name indicates, presumably a voluntary activity, a free choice of doing something useful, a perfect way of "blending the useful and the sweet", as the poet Horace wrote. We come back to the motivation of the volunteers in section 5. In this sub-section, we analyse first the development of volunteering among retirees. Figures 5 and 6 (top left) show a clear age profile: volunteering frequency and intensity are flat from 50 to around 55, then increase up to around 66, with steps at age 60 and 65, the most common retirement ages in Europe, then decrease, especially after age 70.

In a logistic model (table 3, col. 1), being retired has a positive effect on being engaged in a voluntary activity. The odd ratio is exp(0.417)= 1.51. [19] The other factors that drive volunteering are education and motor limitations. Women are significantly less likely to volunteer than men. It should be remembered that we have a selected population of women that excludes those who were homemakers at the time they entered the survey, an important proportion for those feminine cohorts.[20] When they are not retired (when they are employed or unemployed) women are significantly less likely to volunteer than men: 15.9% versus 18.3%; and the intensity of their engagement is lower (0.145 versus 0.202). In a Fixed effect Logit model (table 4, col. 1), retiring has a similarly huge impact on the likelihood to take up a new voluntary activity. It nearly doubles it (odd ratio 1.92). However if we run the FE Logit model separately for men and women we find that taking up a new volunteer activity on retirement is more likely for women (they triple their probability of volunteering on retirement) than for men (who increase it by 66%) (not shown). Hence retired women end up slightly more volunteering than retired men: 25.5% versus 22.8%; the intensity of their volunteer work is the same (0.29). The arrival of a grandchild reduces the likelihood of

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[19] Being/becoming a homemaker is also linked to volunteering, the effect is even higher than that of being a retiree. But our sample includes very few homemakers (only 1.7%) as we selected those who were employed in the entry wave.

[20] Our initial sample had 54.5% of women; our selected sample of those who were employed or unemployed at entry wave has 48.0% (table A1).

volunteering (only 20% significant). The death of a parent increases the likelihood of volunteering. It could be that taking care of an aged parent competed with volunteering.

If we now analyse the intensity of voluntary or charity work and treat it as a continuous variable in an OLS estimation, being retired increases the intensity by +0.091 (+47%); retirement is not found to be endogenous (p=0.7152) even if the increase is smaller and less significant in the IV specification +0.07 (table 5, col. 1 and 2). Retiring (in a first difference model, table 5, col. 3) increases the intensity of participation by 0.10 (+52%), and by 0.12 in a FD, IV model (+62%). Not only does retirement induce to engage in voluntary activities, it increases the intensity of participation. The death of a parent or the arrival of a grandchild had no significant effect on intensity. The higher likelihood to volunteer for retirees is observed in all countries except Germany, Switzerland, Austria and Spain (country by country Logit models, not shown).

Training

Training is declining with age (Figures 5-6). Nevertheless taking up training can happen on retirement, even if to a lesser extent than volunteering (table 3 and 4, col. 2). There is also an increase in the intensity of training either (table 6).

Clubs or associations

Participation in clubs is flat up to age 56, increases up to age 66-68 then declines (Figures 5-6). The likelihood to participate in the activity of a club is multiplied by 1.46 for retirees (OR= exp (0.38)=1.46) compared to employed persons (table 3, col. 3) and the effect is the same on retirement in a fixed effect model (OR= exp (0.468)=1.60) (table 4, col. 3). Clubs answer to all ages needs; many are tailored for old age participants. In our sample 35% of the 65 and over belong to a club, still a third of those aged 70 -75 are members.[21] The rate is only slightly lower on the whole non-selected sample: at age 75 one in five Europeans belong to a club; 1.4 times the frequency of volunteering. As far as intensity is concerned: club intensity increases on retirement (+45%) but the effect is reduced to +25% once we instrument retirement, even if endogeneity is weak (p=0.287) (table 7). People who are *more* likely to retire early seemed also more likely to belong to a club. There is no evidence of gender differences.

Involvement in a religious organization

Contrasting to the activities we analysed so far, responsibility in a religious organization increases with age, an increase that might be compounded by a cohort effect (Figures 5-6). It is also more likely in Austria, the Netherlands, Switzerland and Germany, less likely in France and Denmark. It is more likely for women. There is no retirement effect on religious organization participation in a simple

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[21] Contrary to volunteering, club membership is less likely for the unemployed and not more likely for those who become unemployed, perhaps because of the fees they impose.

Logit (table 3, col. 4), but we find an effect in a fixed effect Logit (table 4, col. 4).[22] The arrival of a grandchild increases participation. There is also a significant effect of retirement on the intensity of participation, which disappears when we correct for selection bias (table 8). Indeed participation in the activity of a religious organization is the only instance where we find clear sign of endogenous retirement.

Activity in a political or community organisation

Taking up community responsibility is more likely in Switzerland, Belgium, Austria and France; the least likely in Spain. It is more likely for men (table 3). There is a positive retirement effect (table 4, col. 5), but no retirement effect whatsoever on the intensity (table 9).

Enlarging volunteering to include religious and community activities, our FD specification shows that retirement increases the intensity of participation, more so for women than for men (table 10).

Having no social activity

Looking at the probability to have no social activity is a means to summarize the results. Overall the positive age effect is significantly reduced by the negative retirement effect (tables 3 and 4, col. 6). The arrival of a grandchild reduces social inactivity. Having no living parent also reduces social inactivity, but losing a parent does not. Disentangling complementary and substitution effects in time use of grandparents or of children caring for an aged parent is left for future research.

Robustness checks on the intensity of volunteering

We now focus on volunteering and conduct some robustness checks on our preferred FD IV specification of the intensity of volunteering. We showed above that the increase in the intensity of volunteering on retirement was more important and more significant for women than for men (table 5, col. 4-5 and 9-10). Similarly, as we found an important effect of education level on participation in volunteering activities, we separate the population between the low educated (ISCED<3, 31% of the sample), and the middle and upper level of education (ISCED>2, 69% of the sample) to look for potential heterogeneity. The effect of retirement is similar (table 5, col. 6-7). It is no more significant for the low educated in the IV FD specification, but it may be due to a smaller sample size (table 5, col. 11-12). Only if we isolate the very low educated (the 14% with ISCED level 0 or 1) do we find a non-significant effect of retirement on volunteering (table 11).

As a final robustness check we drop wave 4 answers. The effect of retiring in the FD models becomes smaller (+0.057**) which was to be expected, as the time span is shorter, but it is still significant (table 11). Our results are not driven by the change in the question in wave 4.

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[22] In a former richer specification we found it is linked with a gain in hope…

5. **Intensity of social participation, motivations and macro consequences of volunteering**

We now come back to the whole sample of the population aged 50 or more, observed in waves 1, 2 or 4. The most common and intense of the social activities over the period 2004-2010 was belonging to a club: a quarter of the 50+ did so; close to 20% went at least once a week (table 12). Volunteering came second, involving 16% of the population; the engagement is rarely intense: on the whole SHARE sample, 3% volunteer daily; most often it is a weekly engagement (8%) and less often (5%) a monthly involvement. Religious responsibilities come third (10%), training fourth (7%), while community involvement comes last (4%). 58% did not mentioned any social activity. A caveat is in order. Not mentioning one of the social activities suggested by SHARE does not mean one has no "social" activity. Such activities might be less formalized in some places than in others. English clubs are famous and to go "to a sport, social or other kind of club" may have seemed rather Anglo-Saxon oriented. Some countries were aware of the risk and played on the translation, adding the word "association", more common in Latin countries (see Appendix 4 for a sample of translations of the club activity). It may well be that a respondent who was singing in a choir, or regularly playing bridge with friends outside a formal club did not feel he or she was taking part in a social activity that fitted into the SHARE question. On the other hand going alone to the gym might not be very "social". To explore this issue one would need to compare the SHARE data with other national surveys. We leave it for future research.

From table 13 (extracted from tables 5 to 9) we draw the following conclusions. Retiring increases the volunteering intensity by 52%, and by 62% when the endogeneity of retirement is taken into account. Even if endogeneity is weak and the interpretation remains tentative, it could be that those who retire later are more likely to increase their intensity of volunteering. The respondents who retired later compared to the country norm may have had a taste for activity that lead them, when they did retire, to go on with or start the social activity that was closest to a professional activity, namely volunteering. Volunteers often work alongside salaried colleagues in non-profit organizations.

Retiring also increases training intensity. Retiring increases the intensity of participation in a club or a religious organization, but, contrary to volunteering, less significantly when the endogeneity of retirement is taken into account. Those who retire earlier are more likely to participate in clubs, or participation in a club goes with earlier retirement. Retirement has no effect on community or political involvement.

Part of the negative effect of a large population of pensioners on "productive output" is mitigated by the involvement of pensioners in productive activities on a voluntary basis. 16.3% of the retirees of

the SHARE sample participate, 11.3% participate at least every week, 3.0% every day (table 12). It is hard to compute the macro effect, but based on the rough conservative assumption that the more active give 3 hours per working day, the moderately active 6 hours per week, and the less active 3 hours per month, I estimate that each retiree gives a weighted average of 0.198 hours per day, or 46 hours per year if a year has 235 working days. Based on 17.1 million retirees in SHARE wave 4 in our ten countries, it translates into 787 million hours.[23] A full time equivalent (FTE) can be estimated at around 1645 hours.[24] So our retirees are providing 478 341 FTE. How to valorize this time is not straightforward (for a good discussion see Prouteau and Wolff, 2004). If we value the hourly labour cost at 15€/hour[25] it yields 11,803 million € for the retirees of our 10 countries. This is about 5.7% of the value of pensions. I leave it to the reader to decide whether this is much or not.

This study also gives some hints as to the future development of volunteering. Volunteering is positively correlated to education level and health. This has three consequences. Firstly the value (15€/hour) may be underestimating the true value of their work. Secondly the general increase in education level of the younger generations may increase their future participation. Thirdly it has been shown that moderate exercising (such as walking) improves health and even prevents memory loss[26]. Sirven and Debrand (2012) find that the impact of health on social capital is significantly higher than the social capital effect on health. We have found that having fewer limitations helps volunteering. Volunteering in turn is likely to improve health, including mental health by preventing a loss of interest in life. Preserving health, and particularly mobility should be a priority. Preventing falls and their adverse consequences by adequate housing and neighbourhood adaptation would yield positive feedback effect. The possibility of going on volunteering when one gets older is a potential channel of the effect.

To get more insight into a possible volunteering policy, we look finally at the motivation for volunteering put forward by the SHARE respondents. The suggested motivations appear in Appendix 2. The choice of answers was more restricted in wave 2 than in wave 1; the motivation question was suppressed in wave 4. Table 14 provides the frequency of the volunteers' answers. We modified the order of the answers to provide a meaningful classification of the motivations into four main groups: the sociability, the altruistic, the egoistic and the duty motivations. The respondent could provide more than one motivation.

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[23] Piliavin and Charng (1990) quote a study that gives 100 hours / year in 1980 for the US, to be compared to our estimation of 46 hours/year in Europe. See also De vaus et al. (2003).

[24] 35 hours per week * (52 weeks per year – 5 weeks regulatory vacation)= 1645.

[25] This is the cost of a minimal wage worker in France, including employer's contribution. According to Eurostat, labour costs were between 29.48€/hour in the construction sector and 34.99€/hour in industry in 2012 (arithmetic mean in our 9 countries - Switzerland is excluded), so our 15€ estimation is likely be a lower bound of the time value of the volunteers. See http://epp.eurostat.ec.europa.eu/cache/ITY_PUBLIC/3-10042013-AP/EN/3-10042013-AP-EN.PDF

[26] A recently publicized study is e.g. Erickson, K. , et al. (2011).

The main motivation of those who volunteer is to contribute to something useful: 68.7% mentioned this reason in wave 1, 79.1% in wave 2. In the same vein, 44.9% (51.6% in wave 2) said "because I am needed". If we combine the two motivations: 81.1% mentioned one or the other (91% in wave 2). We label them "altruistic". Two-third (66.5%) said "because I enjoy it" and 41.5% to "meet other people", all in all three quarters (74.9%) mentioned one or the other of such "sociable enjoyment" motivation in wave 1. More "egoistic" motivations (personal achievement 16.8%, keep fit 32.2%) were mentioned by 40.7% of the volunteers. A sense of duty or obligation was less common (15.6%). In the Netherlands, the top volunteering country, the primary motivation is enjoyment (78%). In Denmark, Belgium and Sweden, other high participation countries, motivations are well balanced between enjoyment and altruism.[27] It is difficult to draw conclusions from such closed answer questions and without knowing the type of volunteering done by the respondents in each country. Nevertheless since the motivations vary by country and participation rate also varies, we graphically explore the correlation between the type of motivation and the volunteering rate at the country level. We do it for wave 1, because the motivations proposed in wave 2 were only a subset of those in wave 1. There was no correlation between "altruism" level or moral obligation level and volunteering rates (figure 7, top row).[28] Correlation for "egoistic" motivation was positive, but low.[29] Correlation for "sociability" motivation was positive and higher (figure 7, bottom row).[30] It is partly driven by Spain and Italy who had little sociability motivation for volunteering and a very low volunteering rate. It is probable that in those southern countries socialization takes other channels, and volunteering is not formalized. It is likely that it is linked to the importance of the family as a primary channel for both socialization and "social activity".[31] Still even excluding the two southern countries the correlation was positive. Even if more work is to be done, it means that organizing volunteering to make it more desirable and pleasurable could achieve a lot in promoting it, more than appealing to duty or even usefulness or need. Putting forward personal achievement and fitness could also be efficient, but less so than "social capital".

Conclusion

Thanks to special questions in SHARE on participation in various social activities over time we found that being retired goes with more participation in social activities such as volunteering or going to a

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[27] Piliavin and Charng (199, p.55) quote two studies suggesting that for the elderly self-fulfillment is a more important motivation than altruism.

[28] There is even a negative correlation for altruism in wave 2, driven by Spain. No correlation once Spain is excluded.

[29] It is positive and higher in wave 2 for the "to use skills or keep fit" motivation.

[30] It is also positive in wave2 for the "meet people" motivation.

[31] See Stoeckel and Litwin (2013) on the relative importance across countries of family and non-family in the personal network of SHARE respondents.

club. Moreover using the longitudinal SHARE data, we showed that retiring can be the occasion to engage in a new social activity, pointing to a causal effect. More precisely, retirement increases volunteering. Retirement also increases club participation and the likelihood of training. It has no effect on community involvement. There is very little sign that the decision to retire is endogenous, people do not seem to retire sooner (relatively to the country norm) in order to volunteer, but, if anything, retiring later is a sign of taste for work and rather increases the intensity of volunteering. At a time of decline in lifetime labour supply and huge increase in the population of retirees it is important to access the value of their social participation in charity work, volunteering or non profit organizations. Part of the negative effect of a large population of pensioners on "productive output" is mitigated by the involvement of pensioners in productive activities on a voluntary basis. A conservative estimate gives an average of 0.2 hours per retiree per day, translating into an output of 11.8 billion € for the retirees of our 10 countries, about 6% of the value of pensions.

Our study also gives some hints as to future development of volunteering. Volunteering is positively correlated to education level. This has two consequences. First we may be underestimating the true value of their work. Second, absent some counter force, the general increase in education level of the younger generation will *cet. par.* increase their future participation. Health, and particularly the capacity to move, is also important in volunteering, and preserving it should be a priority especially if it yields some feedback benefit. We also found some sign that the number of grandchildren or the arrival of a grandchild affected social activities. In some cases the death of a parent also had an impact. However it was not the purpose of this paper to study if and how there was a substitution, or time-sharing in care giving. In a future paper we plan to look at the time spent caring for grand children or aged parents and whether such caring is also triggered by retirement, or vice-versa.

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Appendix 1. Description of the sample of those employed or unemployed at entry wave, observed in wave 1, 2, 4, for more than one wave, aged below 75

Table A1. Number of observations by wave participation

Wave	Participants in at least 2 waves		and employed or unemployed in entry wave	
1 and 2	7670	0,184	2986	0,167
1 and 4	2167	0,052	993	0,056
2 and 4	7491	0,179	3565	0,200
1, 2 and 4	24470	0,585	10297	0,577
Total	41798	1,000	17841	1,000
% Women	54.5%		48.0%	

Number of respondents, per wave and retirement status

Wave	enter in wave 1	retired between w1 and w2	non retired in w2	enter in wave2	total in w2	are retired in w4	non retired in w 4	total in w4	retired between w2 and w4
1 and 2	1483	**232**	1251	20	1503				
1 and 4	511					220	262	482	**220**
2 and 4				1797	1797	384	1384	1768	**384**
1, 2 and 4	3404	**565**	2839	45	3449	1559	1885	3444	**994**
Total	5398	**797**	4090	1862	6749	2163	3531	5694	**1598**
Number of activities	0.71	**0.82**	0.76			**0.91**	0.78		
Intensity	0.63	**0.92**	0.72			**1.06**	0.83		

NB. 5,398 persons responded in wave1 (non retired by selection), 797 were retired and observed in wave 2. 6,749 responded in wave 2, 4,090 non-retired observed in wave 1 and 1,862 new (non retired) respondents. 5,694 responded in wave 4, 3,531 non retired, 2,163 retired, among which 1,598 newly retired.

Table A2

Variable	Mean	Std.Dev.	Min	Max		Percent
Age	58,297	4,815	50	74.9	Country	
Never had siblings	0,109	0,312	0	1	SE	15,4
Number of siblings	2,447	2,076	0	17	DK	12,6
Number of children	2,110	1,259	0	17	DE	10,6
Number of grand-children	1,480	2,168	0	20	NL	11,2
					BE	13,5
ADL index (high: has difficulties)	0,046	0,285	0	5	FR	12,4
IADL index (high: has difficulties)	0,008	0,117	0	3	CH	6,9
Fine motor skills index (high: has difficulties)	0,041	0,226	0	3	AT	3,4
Gross motor skills index (high: has difficulties)	0,055	0,293	0	4	ES	6,6
Hospitalization	0,097	0,295	0	1	IT	7,3
Big city	0,117	0,321	0	1	ISCED-97	
Suburbs	0,182	0,386	0	1	0. No education	2,7
Large town	0,169	0,375	0	1	1 primary	11,4
Small town	0,256	0,437	0	1	2 lower 2dary	17,1
Rural area	0,275	0,446	0	1	3 upper 2dary	33,3
Retired	0,166	0,372			4 post 2dary non tertiary	3,9

	Mean	SD	Min	Max			
Employed	0,724	0,447	0	1	5 1st stage tertiary		30,7
Homemaker	0,016	0,127	0	1	6 2d stage tertiary		1,0
Unemployed	0,073	0,260	0	1			
Perm. Sick or disabled	0,013	0,112	0	1			
Nb social activities	0,776	0,957	0	5			
Volunteering	0,183	0,386	0	1	wave		
Training	0,132	0,338	0	1		1	30,3
Association/club	0,308	0,462	0	1		2	37,8
Political/community	0,064	0,245	0	1		4	31,9
Religious	0,088	0,284	0	1			
No social activity	0,501	0,500	0	1	Females		48,0
Intensity of volunteering	0,193	0,671	0	4	No partner		19,0
Intensity of training	0,085	0,393	0	4	No parents		88,5
Intensity of club activity	0,372	0,839	0	4			
Intensity of religious activity	0,075	0,369	0	4	Nb of observations		17,841
Intensity of community activity	0,055	0,378	0	4			
Intensity of all social activities	0,781	1,418	0	14	Nb of pairs of individuals		7,193

Table A3. Participation rates. Effect of the correction in activity participation in wave 4

	Volunteering		Training		Club		Religious		Politics	
Wave	Before	After	Before	After	Before	After	Before	After	Before	After
1	0,162	0,162	0,144	0,144	0,258	0,258	0,082	0,082	0,067	0,067
2	0,178	0,178	0,153	0,153	0,291	0,291	0,092	0,092	0,065	0,065
4	**0,250**	**0,207**	**0,208**	**0,095**	**0,406**	**0,376**	**0,115**	**0,091**	**0,086**	**0,061**

NB. Before the correction of wave 4 data for the change in the time reference of the question, 25% volunteered in wave 4 compared to 17.8% in wave 2. After the elimination of the low frequency participants the rate is 20.7%. Number of observations: 17,841.

The SHARE questions on the intensity of participation in and motivation for social activities

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Wave 1

AC003_ HOW OFTEN ACTIVITY IN THE LAST FOUR WEEKS
How often in the last four weeks [did/have] [you] [do voluntary or charity work//attended an educational or training course/go to a sport, social or other kind of club/taken part in a religious organization (church, synagogue, mosque etc.)/taken part in a political or community-related organization]?
 1. Almost daily
 2. Almost every week
 3. Less often
AC004_ MOTIVATIONS
Please look at card 36. For which of the reasons given on this card, if any, [did/have] [you] [do voluntary or charity work//attended an educational or training course/go to a sport, social or other kind of club/taken part in a religious organization (church, synagogue, mosque etc.)/taken part in a political or community-related organization]?
Code all that apply
 1. To meet other people
 2. To contribute something useful
 3. For personal achievement
 4. Because I am needed
 5. To earn money
 6. Because I enjoy it
 7. To use my skills or to keep fit
 8. Because I feel obligated to do it
 96. None of these

Wave 2

AC003_ HOW OFTEN ACTIVITY IN THE LAST FOUR WEEKS
Same as wave 1
AC004_ MOTIVATIONS
Please look at card 49. For which on the reasons given on this card, if any, [did/have] [you] [do voluntary or charity work//attended an educational or training course/go to a sport, social or other kind of club/taken part in the activities of a religious organization (church, synagogue, mosque etc.)/taken part in a political or community-related organization]?
Code all that apply
 1. To meet other people
 2. To contribute something useful
 3. Because I am needed
 4. To earn money
 5. To use my skills or to keep fit
 96. None of these

Wave 4

AC036_HowOftAct
How often in the past twelve months [did/have] [you] [do voluntary or charity work//attended an educational or training course/go to a sport, social or other kind of club/taken part in the activities of a religious organization (church, synagogue, mosque etc.)/taken part in a political or community-related organization]?
Read out.
1. Almost daily
2. Almost every week
3. Almost every month
4. Less often

Appendix 3. Country by country analyses.

Table A31. Number of social activities. First Difference models

VARIABLES	(1) SE	(2) DK	(3) DE	(4) NL	(5) BE	(6) FR	(7) CH	(8) AU	(9) ES	(10) IT
Retired	**0.285*****	**0.200*****	**0.237*****	**0.0753**	**0.280*****	**0.147****	**0.360*****	**0.270****	**0.182****	**0.0308**
	(0.0630)	**(0.0674)**	**(0.0698)**	**(0.0838)**	**(0.0648)**	**(0.0637)**	**(0.110)**	**(0.128)**	**(0.0756)**	**(0.0664)**
Homemaker	-0.0801	0.0372	-0.108	-0.0164	0.0651	0.867***	0.606***	0.0747	-0.0368	-0.0110
	(0.237)	(0.342)	(0.180)	(0.123)	(0.131)	(0.242)	(0.201)	(0.438)	(0.109)	(0.139)
Unemployed	-0.0165	0.153*	0.0858	0.431***	0.0136	0.124	0.323	0.153	-0.00150	0.0824
	(0.121)	(0.0923)	(0.0807)	(0.140)	(0.0903)	(0.0832)	(0.220)	(0.234)	(0.0800)	(0.0977)
Perm. sick	0.301*	0.109	-0.132	0.00299	-0.0246	0.0946	0.569	-0.422	0.0942	-0.117
	(0.164)	(0.178)	(0.235)	(0.193)	(0.132)	(0.176)	(0.496)	(0.623)	(0.163)	(0.270)
Constant	-0.104	0.669	-0.0223	-0.270	0.449	-0.131	0.552	1.546	0.816**	0.540
	(0.362)	(0.479)	(0.389)	(0.558)	(0.320)	(0.301)	(0.660)	(0.959)	(0.394)	(0.480)
Observations	1,511	1,259	1,052	1,070	1,418	1,192	693	339	629	749
Number of individuals	1,107	934	767	812	927	884	514	239	488	521

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1. Models include all the control variables of table 2.

Table A22. Intensity of social activities. First Difference models

VARIABLES	(1) SE	(2) DK	(3) DE	(4) NL	(5) BE	(6) FR	(7) CH	(8) AU	(9) ES	(10) IT
Retired	**0.316*****	**0.610*****	**0.255****	**0.261****	**0.432*****	**0.347*****	**0.576*****	**0.465*****	**0.362*****	**0.146§**
	(0.100)	**(0.130)**	**(0.102)**	**(0.126)**	**(0.113)**	**(0.115)**	**(0.177)**	**(0.147)**	**(0.138)**	**(0.104)**
Homemaker	-0.119	0.660	0.310	-0.433**	0.557**	0.431	1.044***	-0.121	0.130	0.113
	(0.378)	(0.660)	(0.263)	(0.185)	(0.228)	(0.436)	(0.323)	(0.503)	(0.199)	(0.219)
Unemployed	0.148	0.471***	0.188§§	0.637***	0.142	0.270*	0.179	0.499*	0.0217	0.195
	(0.192)	(0.178)	(0.118)	(0.211)	(0.158)	(0.149)	(0.354)	(0.269)	(0.146)	(0.153)
Perm. sick	0.372	0.530	0.124	0.0615	0.247	0.468	0.830	0.111	0.543*	-0.0351
	(0.261)	(0.343)	(0.345)	(0.291)	(0.230)	(0.316)	(0.797)	(0.715)	(0.298)	(0.424)
Constant	-0.604	-0.581	0.565	-0.463	1.569***	-0.198	0.319	2.891***	0.558	0.577
	(0.577)	(0.925)	(0.570)	(0.842)	(0.559)	(0.542)	(1.060)	(1.102)	(0.722)	(0.755)
Observations	1,511	1,259	1,052	1,070	1,418	1,192	693	339	629	749
Number of individuals	1,107	934	767	812	927	884	514	239	488	521

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, § p<0.2. Models include all the control variables of table 2.

Appendix 4. Various country translations of club activity

Country or language	translation	Google Retro-translation in English		
Generic	Gone to a sport, social or other kind of club		social	club
Sweden	Gått till en idrottsklubb/träningslokal, sällskapsklubb eller något annan klubb	Gone to a sports club / gym, social club or any other club	Social sällskaps	club
Denmark	Gået til sport, gået i en social klub eller anden slags klub	Gone to the sport, passed in a social club or other kind of club	social	club
Netherlands	ging naar een sportclub, buurthuis of ander soort club	went to a sport, social or other kind of club	Social Buurthuis: community center	club
Belgium Flemish	ging naar een sportclub, buurthuis of ander soort club.	went to a sport club, social or other kind of club	Social Buurthuis: community center	club
France	J'ai participé à un club sportif, à une amicale ou un autre type de club (club du 3ème âge...)	I participated in a sports club, a friendly or a different type of club (club 3rd age ...)	Friendly/ une amicale	club
Belgium French	J'ai participé aux activités d'un club sportif, social ou d'un autre type.	I participated in the activities of a sports club, social or other kind	social	club
Swiss French	J'ai participé à un club sportif, social ou d'un autre type	I participated in a sports club, social or other kind	social	club
Germany	Teilnahme an Aktivitäten von Vereinen(z.B. Sport- oder Heimatverein)	Participation in activities of clubs (eg sports club or home club)	Heimat /home	club
Austria	Einen Sportverein oder anderen Verein besucht	Attended a sports club or another club	no	club
Swiss German	Teilnahme an Aktivitäten von Vereinen (Sport, Geselligkeit oder andere Zwecke)	Participation in activities of associations (sports, socializing or other purposes)	Sociability Geselligkeit	association
Swiss Italian	A fequentato un club di sport, gioco, o altro	Attends a club sport, game, or other	no	club
Italy	Partecipazione alle attività di un circolo sportivo, ricreativo, sociale o culturale o altro tipo di associazione	Participation in the activities of a sports club, recreational, social or other type of association	Social and recreational	Club and association
Spain	Asistencia a un club deportivo, social o de otro tipo	Attendance at a sports club, social or other	social	club

Interestingly, the two difficult words are "social" and "club". A "club social" does not mean anything in France, but was accepted in French Switzerland and Belgium. The word "social" was barely accepted in Italy, but not in Italian speaking Switzerland (In both Italian languages games or recreation were added as explanation). "Social" does not seem to make much sense in German either. Germany and the Flemish countries alluded to community centers. In some countries (France, Italy) the word "association" would have been closer to the current usage than "club". Curiously the automatic translator gives either club or association for the same German word "Verein". Both come top in frequency, followed by society, organization, guild, union. One could think of fellowship, brotherhood… But the same automatic translator does not give the English "association" for the French" association"… De quoi y perdre son latin![32]

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[32] Not translatable…

Various country translations of volunteering (wave 4)

Country or language	translation	Google Retro-translation in English	Remarks	% volunteer all waves (whole sample)
Generic	Voluntary or charity work			
Sweden	Volontär- eller välgörenhetsarbete	Voluntary or charity work		17.8
Denmark	Deltaget i frivilligt eller velgørenhedsarbejde	Participated in volunteer or charity work		21.8
Netherlands	Vrijwilligers- of liefdadigheidswerk	Voluntary or charity work		27.58
Belgium Flemish	Deed vrijwilligers- of liefdadigheidswerk	Done voluntary or charity work		17.9
Belgium French	Avoir effectué du volontariat ou du bénévolat	Have done voluntary work or volunteer	Dropped charity	
France	Volontariat, bénévolat, activités caritatives	Volunteering, volunteerism, charitable activities		16.3
Swiss French	Faire du bénévolat ou consacrer du temps à une œuvre de charité	To volunteer or spend time in charity work		20.9
Swiss German	Ehrenamtliche Tätigkeit	Volunteering	Dropped charity	
Swiss Italian	Fatto attività di volontariato o beneficenza	Done volunteer work or charity		
Germany	Ehrenamtliche Tätigkeit	Volunteering	Dropped charity	13.3
Austria	Unentgeltliche bzw. freiwillige Arbeit bei Wohltätigkeitsorganisationen/-veranstaltungen	Unpaid or voluntary work with charities/events	Limited to work with charities?	11.7
Italy	Attività di volontariato o beneficenza	Volunteer work or charity		8.8
Spain	Voluntariado u obras de beneficencia	Voluntary or charity		3.1

Table 1. OLS analysis of number and intensity of social activities

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Number of social activities				Intensity of social activities			
VARIABLES	OLS	OLS	IVreg	IVreg	OLS	OLS	IVreg	IVreg
Employed or self-employed	ref	ref	ref	ref	ref	ref	ref	ref
Retired	**0.164***	**0.151***	**0.124***	**0.132***	**0.287***	**0.271***	**0.254***	**0.266***
	(0.0241)	**(0.0242)**	**(0.0701)**	**(0.0705)**	**(0.0392)**	**(0.0394)**	**(0.108)**	**(0.108)**
Homemaker	0.0220	0.0115	0.00935	0.00525	0.165**	0.147*	0.154*	0.145
	(0.0534)	(0.0539)	(0.0570)	(0.0575)	(0.0822)	(0.0834)	(0.0884)	(0.0897)
Unemployed	0.0152	-0.0251	0.00884	-0.0282	0.166***	0.122***	0.161***	0.121**
	(0.0293)	(0.0296)	(0.0310)	(0.0313)	(0.0457)	(0.0457)	(0.0485)	(0.0485)
Perm. sick or disabled	0.0219	-0.0754	0.0105	-0.0808	0.148	0.0204	0.138	0.0190
	(0.0607)	(0.0606)	(0.0638)	(0.0636)	(0.106)	(0.106)	(0.110)	(0.110)
Sweden	ref	ref	ref	ref	ref	ref	ref	ref
Denmark	0.0275	0.0276	0.0283	0.0281	0.232***	0.235***	0.233***	0.235***
	(0.0355)	(0.0358)	(0.0355)	(0.0358)	(0.0519)	(0.0522)	(0.0518)	(0.0522)
Germany	-0.0882**	-0.170***	-0.0858**	-0.169***	-0.121**	-0.209***	-0.119**	-0.209***
	(0.0393)	(0.0388)	(0.0394)	(0.0389)	(0.0500)	(0.0491)	(0.0504)	(0.0496)
Netherlands	0.180***	0.157***	0.182***	0.158***	0.284***	0.244***	0.286***	0.244***
	(0.0383)	(0.0383)	(0.0386)	(0.0386)	(0.0562)	(0.0550)	(0.0567)	(0.0556)
Belgium	-0.00215	-0.0220	0.00183	-0.0199	0.122**	0.0882	0.125**	0.0888
	(0.0379)	(0.0379)	(0.0387)	(0.0389)	(0.0552)	(0.0552)	(0.0568)	(0.0568)
France	-0.226***	-0.264***	-0.221***	-0.262***	-0.0471	-0.100*	-0.0433	-0.0997*
	(0.0362)	(0.0360)	(0.0370)	(0.0369)	(0.0544)	(0.0541)	(0.0558)	(0.0557)
Switzerland	0.244***	0.223***	0.243***	0.222***	0.143**	0.132**	0.142**	0.132**
	(0.0484)	(0.0484)	(0.0484)	(0.0484)	(0.0607)	(0.0602)	(0.0607)	(0.0603)
Austria	-0.0503	-0.0967*	-0.0436	-0.0933	-0.239***	-0.289***	-0.233***	-0.288***
	(0.0576)	(0.0585)	(0.0590)	(0.0600)	(0.0596)	(0.0596)	(0.0629)	(0.0631)
Spain	-0.409***	-0.434***	-0.407***	-0.433***	-0.300***	-0.356***	-0.299***	-0.355***
	(0.0334)	(0.0331)	(0.0335)	(0.0333)	(0.0534)	(0.0528)	(0.0535)	(0.0530)
Italy	-0.376***	-0.420***	-0.373***	-0.418***	-0.274***	-0.332***	-0.271***	-0.331***
	(0.0349)	(0.0349)	(0.0354)	(0.0356)	(0.0494)	(0.0492)	(0.0505)	(0.0504)
ISCED-97 0	ref	ref	ref	ref	ref	ref	ref	ref
1 primary	-0.0439	-0.0422	-0.0427	-0.0415	-0.0318	-0.0329	-0.0307	-0.0327
	(0.0474)	(0.0472)	(0.0474)	(0.0472)	(0.0746)	(0.0745)	(0.0747)	(0.0746)
2 lower 2dary	0.0499	0.0602	0.0512	0.0609	0.0757	0.0897	0.0767	0.0899
	(0.0479)	(0.0475)	(0.0479)	(0.0475)	(0.0749)	(0.0746)	(0.0750)	(0.0747)
3 upper 2dary	0.173***	0.192***	0.174***	0.193***	0.173**	0.195***	0.174**	0.195***
	(0.0460)	(0.0455)	(0.0459)	(0.0455)	(0.0729)	(0.0722)	(0.0728)	(0.0721)
4 Post 2d non tertiary	0.233***	0.261***	0.234***	0.262***	0.223**	0.256***	0.223**	0.257***
	(0.0683)	(0.0684)	(0.0682)	(0.0684)	(0.0961)	(0.0961)	(0.0960)	(0.0961)
5 1st stage tertiary	0.439***	0.484***	0.439***	0.485***	0.429***	0.482***	0.429***	0.482***
	(0.0478)	(0.0472)	(0.0478)	(0.0471)	(0.0749)	(0.0741)	(0.0748)	(0.0740)
6 2d stage tertiary	0.368***	0.420***	0.366***	0.419***	0.341**	0.402***	0.340**	0.402***
	(0.0888)	(0.0877)	(0.0887)	(0.0877)	(0.145)	(0.142)	(0.145)	(0.142)
Never had siblings	-0.0355	-0.0687**	-0.0348	-0.0683**	-0.0978**	-0.110***	-0.0972**	-0.110***
	(0.0311)	(0.0291)	(0.0311)	(0.0291)	(0.0426)	(0.0394)	(0.0425)	(0.0393)
Female	0.000789	-0.00672	0.00108	-0.00654	-0.0663**	-0.0738***	-0.0660**	-0.0737***
	(0.0181)	(0.0183)	(0.0181)	(0.0183)	(0.0262)	(0.0263)	(0.0262)	(0.0263)
Age	0.00158	0.000884	0.00299	0.00159	0.00509	0.00452	0.00629	0.00470
	(0.00246)	(0.00247)	(0.00332)	(0.00335)	(0.00394)	(0.00392)	(0.00529)	(0.00532)
No partner	0.0343	-0.0159	0.0340	-0.0159	0.0537	0.0214	0.0534	0.0214
	(0.0237)	(0.0228)	(0.0237)	(0.0228)	(0.0341)	(0.0335)	(0.0341)	(0.0334)
No Parents	-0.0847***	-0.0987***	-0.0854***	-0.0990***	-0.0847**	-0.105***	-0.0852**	-0.105***

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	(0.0280)	(0.0281)	(0.0280)	(0.0281)	(0.0405)	(0.0404)	(0.0405)	(0.0404)
Nb sibling	0.0114**		0.0114**		0.00301		0.00299	
	(0.00475)		(0.00475)		(0.00674)		(0.00673)	
Nb children	0.0302***		0.0298***		0.0258**		0.0254**	
	(0.00819)		(0.00820)		(0.0120)		(0.0120)	
Nb grand-children	-0.0102**	-0.00217	-0.00993**	-0.00210	-0.0106	-0.00387	-0.0104	-0.00385
	(0.00473)	(0.00420)	(0.00474)	(0.00420)	(0.00709)	(0.00634)	(0.00710)	(0.00634)
Self perceived health status	-0.0908***		-0.0904***		-0.128***		-0.128***	
	(0.00868)		(0.00868)		(0.0131)		(0.0131)	
ADL difficult.	0.0160	0.0137	0.0158	0.0137	0.0130	0.0144	0.0128	0.0144
	(0.0411)	(0.0418)	(0.0411)	(0.0418)	(0.0610)	(0.0613)	(0.0609)	(0.0612)
IADL difficulties	-0.0825	-0.0538	-0.0807	-0.0530	-0.211***	-0.178***	-0.210***	-0.178***
	(0.0537)	(0.0564)	(0.0535)	(0.0562)	(0.0669)	(0.0687)	(0.0668)	(0.0686)
Fine motor pb index	0.00900	-0.0300	0.00965	-0.0297	0.0470	-0.0119	0.0475	-0.0118
	(0.0522)	(0.0526)	(0.0522)	(0.0526)	(0.0741)	(0.0738)	(0.0740)	(0.0738)
Gross motor pb index	-0.0547**	-0.106***	-0.0540**	-0.106***	-0.0334	-0.102***	-0.0328	-0.102***
	(0.0242)	(0.0243)	(0.0241)	(0.0242)	(0.0381)	(0.0380)	(0.0380)	(0.0380)
Hospital	0.0125	-0.0304	0.0133	-0.0299	0.0393	-0.0211	0.0401	-0.0210
	(0.0245)	(0.0246)	(0.0245)	(0.0246)	(0.0386)	(0.0382)	(0.0385)	(0.0382)
Own home	0.109***		0.110***		0.0391		0.0394	
	(0.0225)		(0.0225)		(0.0340)		(0.0339)	
Big city	-0.0708**	-0.0962***	-0.0713**	-0.0965***	-0.00806	-0.0153	-0.00848	-0.0154
	(0.0294)	(0.0292)	(0.0294)	(0.0292)	(0.0469)	(0.0468)	(0.0468)	(0.0467)
Suburbs	-0.0845***	-0.0967***	-0.0850***	-0.0969***	-0.0659*	-0.0709*	-0.0663*	-0.0709*
	(0.0259)	(0.0261)	(0.0259)	(0.0260)	(0.0395)	(0.0395)	(0.0395)	(0.0395)
Large town	-0.0391	-0.0476*	-0.0390	-0.0475*	0.00759	0.00662	0.00769	0.00663
	(0.0252)	(0.0253)	(0.0251)	(0.0253)	(0.0382)	(0.0383)	(0.0381)	(0.0382)
Rural	-0.00379	0.00150	-0.00389	0.00147	-0.0501	-0.0501	-0.0502	-0.0502
	(0.0233)	(0.0234)	(0.0233)	(0.0234)	(0.0332)	(0.0333)	(0.0331)	(0.0333)
Wave 2	0.0503***	0.0393***	0.0533***	0.0408***	0.0991***	0.0835***	0.102***	0.0839***
	(0.0141)	(0.0141)	(0.0149)	(0.0149)	(0.0214)	(0.0214)	(0.0229)	(0.0229)
Wave 4	0.0583***	0.0465**	0.0655***	0.0501**	0.159***	0.142***	0.165***	0.142***
	(0.0194)	(0.0195)	(0.0233)	(0.0234)	(0.0303)	(0.0303)	(0.0361)	(0.0362)
Constant	0.641***	0.670***	0.559***	0.629***	0.489**	0.338	0.419	0.327
	(0.153)	(0.147)	(0.202)	(0.199)	(0.236)	(0.230)	(0.313)	(0.311)
Observations	17,841	17,841	17,841	17,841	17,841	17,841	17,841	17,841
R-squared	0.111	0.099	0.111	0.099	0.061	0.053	0.061	0.053
Endogeneity test			(p = 0.5675)	(p = 0.7811)			(p = 0.7495)	(p = 0.9621)

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 2. Number and intensity of social activities (First Difference and 2SLS FD models)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Number of social activities						Intensity of social activities					
VARIABLES	All	Men	Women	IV	IV men	IV women	All	Men	Women	IV All	IV men	IV women
Employed or self-employed	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref
Retired	**0.201*****	**0.144*****	**0.279*****	**0.227*****	**0.166***	**0.303*****	**0.358*****	**0.273*****	**0.477*****	**0.272****	**0.156**	**0.422*****
	(0.0237)	**(0.0329)**	**(0.0344)**	**(0.0646)**	**(0.0858)**	**(0.0965)**	**(0.0392)**	**(0.0559)**	**(0.0548)**	**(0.112)**	**(0.151)**	**(0.164)**
Homemaker	0.0784	-0.0201	0.126**	0.0876	-0.0120	0.135*	0.177**	-0.230	0.311***	0.146	-0.272	0.291**
	(0.0538)	(0.113)	(0.0612)	(0.0659)	(0.166)	(0.0727)	(0.0889)	(0.193)	(0.0975)	(0.121)	(0.356)	(0.119)
Unemployed	0.105***	0.0390	0.182***	0.113***	0.0461	0.190***	0.245***	0.199**	0.309***	0.217***	0.162	0.291***
	(0.0338)	(0.0485)	(0.0469)	(0.0392)	(0.0526)	(0.0575)	(0.0558)	(0.0825)	(0.0748)	(0.0709)	(0.101)	(0.0987)
Perm. sick or disabled	0.0958	0.0207	0.174*	0.105	0.0287	0.182*	0.319***	0.165	0.497***	0.289**	0.123	0.479**
	(0.0627)	(0.0875)	(0.0899)	(0.0692)	(0.0991)	(0.0973)	(0.104)	(0.149)	(0.143)	(0.129)	(0.178)	(0.189)
Age	-0.0769***	-0.0567	-0.0994**	-0.0783***	-0.0578	-0.101**	-0.0685	-0.0704	-0.0687	-0.0636	-0.0645	-0.0651
	(0.0276)	(0.0390)	(0.0391)	(0.0284)	(0.0397)	(0.0403)	(0.0457)	(0.0663)	(0.0623)	(0.0473)	(0.0695)	(0.0633)
Loss partner	0.0609	0.0330	0.0823	0.0604	0.0320	0.0823	0.120	-0.0314	0.244**	0.121	-0.0262	0.244**
	(0.0478)	(0.0730)	(0.0630)	(0.0516)	(0.0819)	(0.0657)	(0.0790)	(0.124)	(0.100)	(0.0785)	(0.111)	(0.108)
Death parent	-0.00957	-0.0249	0.0117	-0.00827	-0.0242	0.0134	0.0130	-0.0579	0.0824	0.00858	-0.0615	0.0786
	(0.0438)	(0.0620)	(0.0617)	(0.0452)	(0.0607)	(0.0675)	(0.0723)	(0.105)	(0.0983)	(0.0736)	(0.103)	(0.105)
Nb grand child	0.00190	-0.0216*	0.0261**	0.00171	-0.0220	0.0262**	0.0124	0.00186	0.0241	0.0131	0.00401	0.0239
	(0.00818)	(0.0117)	(0.0114)	(0.0106)	(0.0158)	(0.0112)	(0.0135)	(0.0200)	(0.0181)	(0.0161)	(0.0264)	(0.0176)
ADL difficult.	0.0141	-0.00390	0.0211	0.0152	-0.00276	0.0221	0.0391	0.0931	-0.0244	0.0352	0.0872	-0.0266
	(0.0481)	(0.0754)	(0.0625)	(0.0487)	(0.0778)	(0.0617)	(0.0794)	(0.128)	(0.0996)	(0.100)	(0.166)	(0.122)
IADL difficulties	-0.110	-0.0949	-0.113	-0.112	-0.0973	-0.113	-0.165	-0.314**	0.160	-0.158	-0.302**	0.160
	(0.0671)	(0.0855)	(0.111)	(0.0729)	(0.0986)	(0.113)	(0.111)	(0.145)	(0.177)	(0.118)	(0.136)	(0.227)
Fine motor pb index	-9.93e-06	0.0465	-0.0461	-0.00130	0.0458	-0.0480	0.00616	0.0979	-0.131	0.0106	0.101	-0.126
	(0.0554)	(0.0865)	(0.0724)	(0.0557)	(0.0850)	(0.0767)	(0.0915)	(0.147)	(0.115)	(0.108)	(0.186)	(0.129)
Gross motor pb index	-0.0890***	-0.0967**	-0.0794*	-0.0891***	-0.0974**	-0.0788	-0.101*	-0.194**	0.00323	-0.100	-0.190**	0.00188
	(0.0322)	(0.0486)	(0.0429)	(0.0319)	(0.0393)	(0.0486)	(0.0531)	(0.0826)	(0.0684)	(0.0618)	(0.0791)	(0.0911)
Hospital	0.00976	0.0244	-0.00648	0.00912	0.0239	-0.00715	-0.0266	-0.0857	0.0494	-0.0245	-0.0832	0.0509
	(0.0243)	(0.0336)	(0.0353)	(0.0268)	(0.0362)	(0.0400)	(0.0402)	(0.0571)	(0.0563)	(0.0441)	(0.0638)	(0.0599)
Wave 2	-0.0418	-0.0465	-0.0357	-0.0421	-0.0467	-0.0362	-0.0429	-0.0672	-0.0121	-0.0418	-0.0665	-0.0110
	(0.0283)	(0.0396)	(0.0403)	(0.0290)	(0.0404)	(0.0413)	(0.0467)	(0.0672)	(0.0642)	(0.0485)	(0.0703)	(0.0660)
Constant	0.246***	0.179	0.319**	0.245***	0.178	0.319**	0.255*	0.253	0.261	0.258*	0.259	0.261
	(0.0911)	(0.129)	(0.129)	(0.0923)	(0.129)	(0.131)	(0.150)	(0.219)	(0.205)	(0.154)	(0.228)	(0.204)
Observations	9,912	5,162	4,750	9,912	5,162	4,750	9,912	5,162	4,750	9,912	5,162	4,750
R-squared				0.010	0.006	0.020				0.010	0.008	0.020
Number of individuals	7,193	3,746	3,447	6,648	3,454	3,194	7,193	3,746	3,447	6,648	3,454	3,194
Endogeneity test P-value				0.6854	0.7819	0.7779				0.4317	0.4080	0.7756

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 3. Logit models of participation in each social activity

VARIABLES	(1) volunteer	(2) training	(3) assoc	(4) religious	(5) politics	(6) no activity
Employed or self-employed	ref	ref	ref	ref	ref	ref
Retired	**0.417*****	**0.150***	**0.377*****	**-0.0603**	**0.00539**	**-0.365*****
	(0.0643)	**(0.0841)**	**(0.0563)**	**(0.0878)**	**(0.105)**	**(0.0541)**
Homemaker	0.467***	-0.439*	-0.0716	-0.0737	-0.319	0.0186
	(0.155)	(0.236)	(0.146)	(0.201)	(0.349)	(0.130)
Unemployed	0.276***	-0.216**	-0.201***	-0.0265	-0.212	0.148**
	(0.0801)	(0.105)	(0.0742)	(0.112)	(0.145)	(0.0636)
Perm. sick or disabled	0.0834	-0.295	-0.205	-0.326	-0.379	0.404***
	(0.188)	(0.257)	(0.169)	(0.295)	(0.370)	(0.151)
Sweden						
Denmark	0.126*	-0.480***	0.420***	-0.469***	-0.0275	-0.141**
	(0.0748)	(0.0804)	(0.0624)	(0.115)	(0.123)	(0.0621)
Germany	-0.239***	-0.889***	-0.155**	0.193*	-0.321**	0.469***
	(0.0843)	(0.0946)	(0.0688)	(0.109)	(0.139)	(0.0649)
Netherlands	0.541***	-0.394***	0.268***	0.560***	-0.0476	-0.242***
	(0.0747)	(0.0850)	(0.0652)	(0.100)	(0.132)	(0.0641)
Belgium	0.0584	-0.282***	-0.0985	-0.0487	0.430***	0.168***
	(0.0765)	(0.0804)	(0.0647)	(0.109)	(0.118)	(0.0608)
France	-0.0510	-1.212***	-0.620***	-0.427***	0.212*	0.652***
	(0.0821)	(0.103)	(0.0720)	(0.124)	(0.129)	(0.0643)
Switzerland	0.235***	0.177*	0.225***	0.603***	0.672***	-0.258***
	(0.0901)	(0.0934)	(0.0767)	(0.115)	(0.131)	(0.0750)
Austria	-0.262**	-1.027***	-0.468***	1.047***	0.473***	0.408***
	(0.128)	(0.153)	(0.107)	(0.131)	(0.166)	(0.0945)
Spain	-1.620***	-1.415***	-1.298***	0.235*	-0.775***	1.192***
	(0.168)	(0.155)	(0.108)	(0.134)	(0.232)	(0.0838)
Italy	-0.627***	-1.861***	-1.213***	-0.0627	-0.252	1.139***
	(0.109)	(0.169)	(0.0971)	(0.139)	(0.171)	(0.0783)
ISCED-97 0	ref	ref	ref	ref	ref	ref
_1 primary	-0.177	-0.0946	0.0653	-0.235	0.0907	0.157
	(0.169)	(0.236)	(0.147)	(0.203)	(0.355)	(0.116)
_2 lower 2dary	0.238	0.135	0.292**	-0.0506	0.568*	-0.183
	(0.160)	(0.225)	(0.141)	(0.195)	(0.338)	(0.111)
_3 upper 2dary	0.315**	0.602***	0.516***	0.116	0.970***	-0.462***
	(0.156)	(0.218)	(0.137)	(0.189)	(0.328)	(0.108)
_4 Post 2d non tertiary	0.472**	0.733***	0.461***	0.137	1.354***	-0.538***
	(0.184)	(0.240)	(0.161)	(0.228)	(0.354)	(0.135)
_5 1st stage tertiary	0.727***	1.148***	0.871***	0.495***	1.593***	-1.012***
	(0.156)	(0.218)	(0.137)	(0.189)	(0.328)	(0.109)
_6 2d stage tertiary	0.919***	1.296***	0.876***	0.388	1.013**	-1.117***
	(0.237)	(0.326)	(0.221)	(0.356)	(0.452)	(0.187)
Never had siblings	-0.201***	0.124*	-0.112**	-0.373***	-0.0942	0.153***
	(0.0674)	(0.0721)	(0.0555)	(0.0960)	(0.101)	(0.0510)
Female	-0.138***	0.402***	-0.0520	0.247***	-0.651***	-0.0438
	(0.0409)	(0.0472)	(0.0349)	(0.0554)	(0.0670)	(0.0325)
Age	0.0115**	-0.0305***	-0.00657	0.0375***	0.0146	0.00168
	(0.00579)	(0.00686)	(0.00500)	(0.00762)	(0.00891)	(0.00461)
No partner	-0.0128	-0.0406	-0.0701	0.0946	-0.0739	0.0800*
	(0.0523)	(0.0598)	(0.0448)	(0.0687)	(0.0844)	(0.0414)
No parent	-0.00874	-0.229***	-0.196***	-0.359***	-0.00355	0.193***
	(0.0656)	(0.0682)	(0.0542)	(0.0827)	(0.0999)	(0.0512)
Nb grand child	0.0105	-0.0405***	-0.0291***	0.0615***	-0.00613	0.00163
	(0.00994)	(0.0130)	(0.00887)	(0.0124)	(0.0170)	(0.00816)
ADL difficulties	0.0212	0.126	0.0792	-0.193	-0.00656	0.00774
	(0.138)	(0.179)	(0.125)	(0.187)	(0.236)	(0.107)
IADL difficulties	-0.192	-0.328	-0.0323	-0.707	0.252	0.185
	(0.219)	(0.342)	(0.193)	(0.431)	(0.283)	(0.168)

Fine motor pb index	0.0793	-0.339	-0.191	0.266	-0.111	0.0914
	(0.151)	(0.209)	(0.138)	(0.196)	(0.266)	(0.121)
Gross motor pb index	-0.225**	-0.218*	-0.432***	-0.0402	0.00609	0.266***
	(0.0906)	(0.123)	(0.0837)	(0.113)	(0.145)	(0.0677)
Hospital	0.0264	-0.0501	-0.121**	0.0107	-0.115	0.120**
	(0.0674)	(0.0826)	(0.0594)	(0.0909)	(0.110)	(0.0542)
Big city	-0.148**	-0.174**	-0.165***	-0.226**	-0.0406	0.179***
	(0.0737)	(0.0831)	(0.0621)	(0.0980)	(0.112)	(0.0572)
Suburbs	-0.230***	-0.135*	-0.0993*	-0.176**	-0.253**	0.197***
	(0.0637)	(0.0713)	(0.0532)	(0.0843)	(0.103)	(0.0497)
Large town	-0.0574	0.0186	-0.108**	-0.143*	-0.140	0.106**
	(0.0641)	(0.0719)	(0.0547)	(0.0857)	(0.105)	(0.0509)
Rural	0.105*	-0.189***	-0.00970	-0.0534	0.170**	0.0219
	(0.0547)	(0.0660)	(0.0474)	(0.0742)	(0.0835)	(0.0444)
Wave 2	0.0315	0.100*	0.120***	0.0972	-0.0687	-0.0839**
	(0.0510)	(0.0547)	(0.0435)	(0.0677)	(0.0764)	(0.0394)
Wave 3	0.0373	-0.354***	0.491***	-0.0909	-0.231**	-0.209***
	(0.0596)	(0.0716)	(0.0505)	(0.0803)	(0.0930)	(0.0471)
Constant	-2.566***	-0.0713	-0.732**	-4.607***	-4.259***	0.00789
	(0.366)	(0.443)	(0.316)	(0.477)	(0.606)	(0.285)
Observations	17,841	17,841	17,841	17,841	17,841	17,841

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 4. Conditional Fixed-effect Logit models of participation in each social activity

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	volunteer	training	assoc	religious	political	no activity
Employed	ref	ref	ref	ref	ref	ref
Retired	**0.770***	**0.534***	**0.468***	**0.352****	**0.271***	**-0.670***
	(0.108)	**(0.119)**	**(0.0932)**	**(0.167)**	**(0.164)**	**(0.0874)**
Homemaker	0.438*	0.574	0.478*	-0.307	0.00277	-0.564**
	(0.256)	(0.361)	(0.246)	(0.357)	(0.510)	(0.220)
Unemployed	0.603***	0.621***	0.0649	-0.00990	0.199	-0.268**
	(0.166)	(0.200)	(0.143)	(0.256)	(0.278)	(0.135)
Perm. sick	0.735**	0.316	0.0965	-0.0839	-0.196	-0.0382
	(0.347)	(0.382)	(0.277)	(0.607)	(0.559)	(0.254)
Age	-0.264**	-0.477***	-0.180	-0.453**	-0.0906	0.370***
	(0.131)	(0.135)	(0.113)	(0.206)	(0.198)	(0.105)
Loss partner	0.132	-0.152	0.101	1.142***	0.0127	-0.0973
	(0.208)	(0.222)	(0.174)	(0.410)	(0.320)	(0.161)
Death parent	0.391**	-0.117	-0.121	-0.407	0.277	0.0584
	(0.199)	(0.196)	(0.163)	(0.283)	(0.315)	(0.157)
Nb grandchild	-0.0550§§	-0.0386	0.0359	0.0832§§	0.0256	-0.0540*
	(0.0349)	(0.0416)	(0.0293)	(0.0532)	(0.0511)	(0.0292)
ADL difficulties	0.360§	0.0851	0.0135	-0.0546	-0.447	0.0618
	(0.258)	(0.297)	(0.215)	(0.461)	(0.453)	(0.184)
IADL difficulties	-0.470	-1.118*	0.169	-0.881§§	0.254	0.563*
	(0.368)	(0.639)	(0.340)	(0.579)	(0.492)	(0.309)
Fine motor pb index	-0.191	0.350	-0.190	0.161	0.807	-0.0990
	(0.285)	(0.331)	(0.224)	(0.461)	(0.516)	(0.206)
Gross motor pb index	-0.401**	-0.416*	-0.275*	0.312	-0.180	0.215*
	(0.186)	(0.224)	(0.149)	(0.249)	(0.294)	(0.123)
Hospital	0.0647	0.00221	-0.0318	0.185	0.0499	0.0811
	(0.116)	(0.127)	(0.0973)	(0.177)	(0.188)	(0.0914)
Wave 2	0.680**	1.131***	0.537*	1.303**	0.0730	-0.912***
	(0.316)	(0.322)	(0.275)	(0.508)	(0.471)	(0.253)
Wave 4	1.781**	2.331***	1.708**	2.944**	0.0689	-2.493***
	(0.869)	(0.891)	(0.753)	(1.375)	(1.306)	(0.698)
Observations	4,123	4,130	5,980	1,786	1,720	6,619
Number of individuals	1,593	1,603	2,323	692	661	2,586

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, §§ p<0.15

Table 5. Intensity of volunteering (OLS, FD and 2SLS FD models)

VARIABLES	(1) OLS	(2) IV OLS	(3) FD	(4) FD Men	(5) FD Women	(6) FD High educated	(7) FD Low educated	(8) IV FD	(9) IV FD Men	(10) IV FD Women	(11) IV FD High educated	(12) IV FD Low educated
Employed	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref
Retired	**0.0914***	**0.0711**	**0.101***	**0.0532***	**0.164***	**0.104***	**0.0963***	**0.120****	**0.0233**	**0.247***	**0.155****	**0.0472**
	(0.0197)	**(0.0572)**	**(0.0192)**	**(0.0281)**	**(0.0257)**	**(0.0244)**	**(0.0301)**	**(0.0581)**	**(0.0772)**	**(0.0877)**	**(0.0744)**	**(0.0919)**
Homemaker	0.0964**	0.0899*	0.0375	-0.0795	0.0770*	0.0319	0.0411	0.0442	-0.0902	0.107*	0.0491	0.0210
	(0.0443)	(0.0480)	(0.0434)	(0.0970)	(0.0457)	(0.0626)	(0.0571)	(0.0661)	(0.197)	(0.0645)	(0.113)	(0.0673)
Unemployed	0.0768***	0.0736***	0.0549**	0.0708*	0.0456	0.0609*	0.0407	0.0608*	0.0614	0.0726	0.0759	0.0233
	(0.0227)	(0.0242)	(0.0272)	(0.0415)	(0.0351)	(0.0366)	(0.0391)	(0.0351)	(0.0520)	(0.0472)	(0.0483)	(0.0486)
Perm sick	0.0137	0.00801	0.0826	0.0716	0.0933	0.0360	0.141**	0.0890	0.0610	0.122**	0.0527	0.123
	(0.0445)	(0.0472)	(0.0506)	(0.0748)	(0.0672)	(0.0701)	(0.0704)	(0.0563)	(0.0938)	(0.0573)	(0.0673)	(0.0993)
Denmark	0.0195	0.0200	0	0	0	0	0					
	(0.0220)	(0.0220)										
Germany	0.00904	0.0104										
	(0.0244)	(0.0246)										
Netherlands	0.159***	0.160***										
	(0.0279)	(0.0282)										
Belgium	0.0743***	0.0765***										
	(0.0256)	(0.0268)										
France	0.0488**	0.0512**										
	(0.0242)	(0.0252)										
Switzerland	0.0591**	0.0585**										
	(0.0276)	(0.0276)										
Austria	-0.0779***	-0.0744***										
	(0.0231)	(0.0254)										
Spain	-0.0983***	-0.0973***										
	(0.0205)	(0.0206)										
Italy	-0.0486**	-0.0467**										
	(0.0222)	(0.0230)										
ISCED-97 0	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref
1 primary	-0.0121	-0.0114										
	(0.0359)	(0.0360)										
2 lower 2dary	0.0274	0.0281										
	(0.0362)	(0.0363)										
3 upper 2dary	0.0515	0.0520										
	(0.0352)	(0.0353)										
4 Post 2d non tertiary	0.0423	0.0428										
	(0.0422)	(0.0423)										
5 1st stage tertiary	0.114***	0.114***										
	(0.0363)	(0.0363)										
6 2d stage tertiary	0.110*	0.109*										
	(0.0646)	(0.0646)										
Never sib	-0.0437***	-0.0433***										
	(0.0166)	(0.0165)										
Female	-0.0534***	-0.0533***										
	(0.0122)	(0.0122)										
Age	0.00387**	0.00460*	-0.0138	-0.0230	-0.00769	-0.0182	-0.00609	-0.0149	-0.0215	-0.0131	-0.0212	-0.00316
	(0.00189)	(0.00266)	(0.0223)	(0.0334)	(0.0292)	(0.0281)	(0.0358)	(0.0229)	(0.0353)	(0.0287)	(0.0292)	(0.0354)
Loss partner	0.00984	0.00977	-0.0184	-0.0563	0.0101	-0.000855	-0.0741	-0.0188	-0.0549	0.00999	-0.00269	-0.0753**
	(0.0151)	(0.0151)	(0.0386)	(0.0625)	(0.0471)	(0.0468)	(0.0682)	(0.0276)	(0.0389)	(0.0385)	(0.0351)	(0.0367)
Death parent	-0.00607	-0.00637	-0.0187	-0.0349	-0.00460	-0.0273	0.00136	-0.0178	-0.0358	0.00130	-0.0245	0.000711
	(0.0171)	(0.0171)	(0.0353)	(0.0530)	(0.0461)	(0.0441)	(0.0579)	(0.0391)	(0.0613)	(0.0486)	(0.0434)	(0.0818)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Nb grandchild	0.00282	0.00290	-0.00313	-0.00669	0.00136	-0.00551	0.000608	-0.00327	-0.00614	0.00163	-0.00596	0.000827
	(0.00345)	(0.00346)	(0.00660)	(0.0100)	(0.00850)	(0.00846)	(0.0102)	(0.00849)	(0.0144)	(0.00870)	(0.0116)	(0.0109)
ADL difficult.	-0.000957	-0.00104	-0.00818	-0.0277	-0.00443	-0.0548	0.0513	-0.00735	-0.0292	-0.00109	-0.0506	0.0517
	(0.0314)	(0.0313)	(0.0388)	(0.0645)	(0.0467)	(0.0531)	(0.0538)	(0.0546)	(0.0760)	(0.0763)	(0.0766)	(0.0736)
IADL difficulties	-0.0765**	-0.0756**	-0.00245	-0.0134	0.0431	-0.0114	-0.0193	-0.00382	-0.0102	0.0433	-0.0185	-0.0201
	(0.0338)	(0.0338)	(0.0542)	(0.0731)	(0.0830)	(0.0733)	(0.0782)	(0.0495)	(0.0538)	(0.108)	(0.0806)	(0.0346)
Fine motor pb index	0.0495	0.0499	0.0273	0.106	-0.0520	0.0565	-0.0102	0.0264	0.107	-0.0587	0.0509	-0.0117
	(0.0389)	(0.0389)	(0.0447)	(0.0740)	(0.0541)	(0.0603)	(0.0635)	(0.0614)	(0.0922)	(0.0803)	(0.0872)	(0.0775)
Gross motor pb index	-0.0201	-0.0197	-0.0106	-0.0374	0.0256	0.0400	-0.0706**	-0.0107	-0.0364	0.0276	0.0400	-0.0707**
	(0.0200)	(0.0200)	(0.0260)	(0.0416)	(0.0321)	(0.0371)	(0.0343)	(0.0319)	(0.0369)	(0.0494)	(0.0504)	(0.0359)
Hospital	0.00405	0.00459	0.00357	-0.00866	0.0209	-0.0119	0.0352	0.00310	-0.00803	0.0186	-0.0134	0.0360
	(0.0184)	(0.0184)	(0.0196)	(0.0287)	(0.0264)	(0.0248)	(0.0312)	(0.0225)	(0.0328)	(0.0307)	(0.0276)	(0.0381)
Big city	-0.0322	-0.0324*										
	(0.0196)	(0.0196)										
Suburbs	-0.0273	-0.0275										
	(0.0188)	(0.0188)										
Large town	-0.00705	-0.00701										
	(0.0178)	(0.0178)										
Rural	0.00145	0.00141										
	(0.0162)	(0.0162)										
Wave 2	0.00407	0.00566	-0.0212	-0.0283	-0.0148	-0.0322	0.00161	-0.0214	-0.0281	-0.0165	-0.0327	0.00274
	(0.0101)	(0.0110)	(0.0228)	(0.0338)	(0.0301)	(0.0287)	(0.0366)	(0.0233)	(0.0353)	(0.0300)	(0.0297)	(0.0362)
Wave 4	0.0183	0.0221										
	(0.0145)	(0.0176)										
Constant	-0.111	-0.153	0.0587	0.0901	0.0350	0.0783	0.0209	0.0582	0.0917	0.0350	0.0778	0.0231
	(0.110)	(0.156)	(0.0735)	(0.110)	(0.0961)	(0.0927)	(0.118)	(0.0754)	(0.117)	(0.0933)	(0.0951)	(0.120)
Observations	17,841	17,841	9,912	5,162	4,750	6,818	3,094	9,912	5,162	4,750	6,818	3,094
R-squared	0.023	0.023						0.003	0.002	0.007	0.003	0.006
Number of individuals			7,193	3,746	3,447	4,976	2,217	6,648	3,454	3,194	4,610	2,038
Endogeneity test P-value		0.7152						0.7278	0.6784	0.3037	0.4718	0.5155

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 6. Intensity of training (OLS, FD and 2SLS FD models)

VARIABLES	(1) OLS	(2) IV OLS	(3) FD	(4) FD Men	(5) FD Women	(6) FD High educated	(7) FD Low educated	(8) IV FD	(9) IV FD Men	(10) IV FD Women	(11) IV FD High educated	(12) IV FD Low educated
Employed	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref
Retired	**0.0489***	**0.0747****	**0.0636***	**0.0507***	**0.0803***	**0.0681***	**0.0506****	**0.0632***	**0.0440**	**0.0780**	**0.0531**	**0.0752**
	(0.0104)	**(0.0320)**	**(0.0132)**	**(0.0171)**	**(0.0205)**	**(0.0170)**	**(0.0201)**	**(0.0375)**	**(0.0538)**	**(0.0514)**	**(0.0487)**	**(0.0598)**
Homemaker	0.0321	0.0404	0.0526*	0.0245	0.0793**	0.0432	0.0527	0.0525	0.0222	0.0784**	0.0381	0.0628*
	(0.0286)	(0.0293)	(0.0299)	(0.0590)	(0.0364)	(0.0435)	(0.0382)	(0.0333)	(0.0828)	(0.0375)	(0.0556)	(0.0357)
Unemployed	0.0627***	0.0668***	0.123***	0.0516**	0.194***	0.151***	0.0805***	0.122***	0.0495	0.193***	0.146***	0.0892***
	(0.0163)	(0.0174)	(0.0188)	(0.0252)	(0.0279)	(0.0254)	(0.0262)	(0.0281)	(0.0394)	(0.0400)	(0.0407)	(0.0346)
Perm sick	0.0225	0.0297	0.0741**	0.0596	0.0934*	0.0920*	0.0481	0.0739	0.0573	0.0926	0.0871	0.0570
	(0.0293)	(0.0304)	(0.0348)	(0.0455)	(0.0534)	(0.0487)	(0.0471)	(0.0518)	(0.0528)	(0.0931)	(0.0750)	(0.0708)
Female	0.0316***	0.0313***										
	(0.00623)	(0.00626)										
Loss partner	0.00879	0.00887	-0.0179	-0.0543	0.0156	0.000437	-0.0677	-0.0179	-0.0540	0.0156	0.000977	-0.0671
	(0.00875)	(0.00874)	(0.0266)	(0.0380)	(0.0375)	(0.0325)	(0.0456)	(0.0304)	(0.0389)	(0.0448)	(0.0318)	(0.0757)
Death parent	-0.0111	-0.0108	0.0139	0.000672	0.0316	-0.0175	0.0863**	0.0139	0.000465	0.0314	-0.0184	0.0873*
	(0.0101)	(0.0101)	(0.0243)	(0.0323)	(0.0367)	(0.0306)	(0.0388)	(0.0240)	(0.0286)	(0.0389)	(0.0272)	(0.0485)
Nb grand-child	0.00378***	0.00388***	-0.000765	-0.00195	0.00119	0.000372	-0.00277	0.000762	-0.00183	0.00118	0.000505	-0.00288
	(0.00134)	(0.00134)	(0.00454)	(0.00611)	(0.00676)	(0.00587)	(0.00684)	(0.00390)	(0.00573)	(0.00544)	(0.00525)	(0.00529)
ADL difficult.	0.00369	0.00379	-1.57e-05	0.0672*	-0.0520	0.00454	-0.00225	-3.33e-05	0.0669*	-0.0521	0.00330	-0.00246
	(0.0141)	(0.0141)	(0.0267)	(0.0392)	(0.0372)	(0.0369)	(0.0360)	(0.0247)	(0.0405)	(0.0319)	(0.0321)	(0.0371)
IADL difficulties	-0.0180	-0.0190	-0.0611	-0.103**	0.00276	-0.0577	-0.0573	-0.0611*	-0.102**	0.00276	-0.0556	-0.0569
	(0.0146)	(0.0146)	(0.0373)	(0.0445)	(0.0661)	(0.0509)	(0.0524)	(0.0368)	(0.0499)	(0.0507)	(0.0506)	(0.0553)
Fine motor pb index	-0.0208	-0.0213	0.0240	-0.0222	0.0433	0.0252	0.0188	0.0240	-0.0220	0.0435	0.0268	0.0195
	(0.0152)	(0.0151)	(0.0308)	(0.0450)	(0.0430)	(0.0419)	(0.0425)	(0.0267)	(0.0493)	(0.0299)	(0.0329)	(0.0451)
Gross motor pb index	-0.000926	-0.00150	-0.0149	-0.0280	-0.00684	-0.0349	0.00741	-0.0149	-0.0278	-0.00690	-0.0349	0.00743
	(0.0115)	(0.0116)	(0.0179)	(0.0253)	(0.0255)	(0.0258)	(0.0229)	(0.0227)	(0.0251)	(0.0365)	(0.0248)	(0.0396)
hospital	-0.00106	-0.00175	-0.00173	-0.0156	0.0129	0.00402	-0.0137	-0.00172	-0.0154	0.0129	0.00444	-0.0141
	(0.0101)	(0.0101)	(0.0135)	(0.0175)	(0.0210)	(0.0172)	(0.0209)	(0.0155)	(0.0204)	(0.0235)	(0.0177)	(0.0306)
Constant	0.142***	0.197**	0.0243	0.00568	0.0448	0.00977	0.0453	0.0243	0.00603	0.0448	0.00994	0.0442
	(0.0527)	(0.0849)	(0.0506)	(0.0669)	(0.0765)	(0.0644)	(0.0787)	(0.0519)	(0.0736)	(0.0730)	(0.0650)	(0.0849)
Observations	17,841	17,841	9,912	5,162	4,750	6,818	3,094	9,912	5,162	4,750	6,818	3,094
R-squared	0.018	0.018						0.008	0.006	0.014	0.009	0.009
Number of individuals			7,193	3,746	3,447	4,976	2,217	6,648	3,454	3,194	4,610	2,038
Endogeneity test P-value		0.3845						0.9935	0.9683	0.9991	0.7402	0.5669

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1. All models include country dummies and age controls. Models 1 and 2 include location, existence of sibling and education dummies as in table 5

Table 7. Intensity of club activity (OLS, FD and 2SLS FD models)

VARIABLES	(1) OLS	(2) IV OLS	(3) FD	(4) FD Men	(5) FD Women	(6) FD High educated	(7) FD Low educated	(8) IV FD	(9) IV FD Men	(10) IV FD Women	(11) IV FD High educated	(12) IV FD Low educated
Employed	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref
Retired	0.151***	0.0797	0.166***	0.150***	0.193***	0.179***	0.145***	0.0942§	0.0543	0.154	0.163*	-0.0387
	(0.0227)	(0.0696)	(0.0241)	(0.0330)	(0.0354)	(0.0312)	(0.0362)	(0.0729)	(0.0924)	(0.116)	(0.0946)	(0.109)
Homemaker	0.0401	0.0173	0.100*	-0.0325	0.130**	0.0682	0.141**	0.0740	-0.0666	0.116	0.0628	0.0655
	(0.0472)	(0.0527)	(0.0547)	(0.114)	(0.0630)	(0.0798)	(0.0688)	(0.0680)	(0.178)	(0.0758)	(0.114)	(0.0717)
Unemployed	-0.0115	-0.0228	0.0528	0.0640	0.0488	0.0588	0.0373	0.0298	0.0338	0.0363	0.0541	-0.0283
	(0.0224)	(0.0245)	(0.0343)	(0.0487)	(0.0483)	(0.0466)	(0.0471)	(0.0418)	(0.0572)	(0.0613)	(0.0564)	(0.0591)
Perm sick	-0.00301	-0.0228	0.111*	0.0280	0.203**	0.0604	0.175**	0.0856	-0.00585	0.190	0.0552	0.109
	(0.0575)	(0.0606)	(0.0637)	(0.0879)	(0.0925)	(0.0894)	(0.0848)	(0.0737)	(0.0799)	(0.127)	(0.0945)	(0.116)
Female	-0.0173	-0.0166										
	(0.0151)	(0.0151)										
Loss partner	0.000697	0.000452	0.0926*	0.0294	0.143**	0.151**	-0.0790	0.0940*	0.0337	0.144*	0.151**	-0.0835
	(0.0197)	(0.0196)	(0.0486)	(0.0734)	(0.0649)	(0.0597)	(0.0821)	(0.0536)	(0.0740)	(0.0763)	(0.0660)	(0.0831)
Death parent	-0.0557**	-0.0567**	-0.00708	-0.0501	0.0316	-0.00713	-0.0137	-0.0108	-0.0530	0.0289	-0.00801	-0.0215
	(0.0240)	(0.0240)	(0.0445)	(0.0623)	(0.0635)	(0.0562)	(0.0697)	(0.0451)	(0.0509)	(0.0756)	(0.0536)	(0.0843)
Nb grand-	-	-	0.0124	0.00577	0.0184	0.0177	0.000856	0.0129	0.00752	0.0183	0.0179	0.00168

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
child	0.00762**	0.00734**										
	(0.00353)	(0.00354)	(0.00831)	(0.0118)	(0.0117)	(0.0108)	(0.0123)	(0.00923)	(0.0138)	(0.0123)	(0.0126)	(0.0123)
ADL difficult.	0.0106	0.0103	0.0120	-0.0254	0.0332	0.0286	-0.00510	0.00872	-0.0302	0.0317	0.0273	-0.00352
	(0.0346)	(0.0345)	(0.0488)	(0.0757)	(0.0643)	(0.0678)	(0.0649)	(0.0527)	(0.0830)	(0.0678)	(0.0750)	(0.0684)
IADL difficulties	-0.0382	-0.0352	-0.0836	-0.116	0.0155	-0.168*	0.0248	-0.0782	-0.105	0.0154	-0.166*	0.0217
	(0.0385)	(0.0384)	(0.0682)	(0.0859)	(0.114)	(0.0934)	(0.0942)	(0.0596)	(0.0842)	(0.0580)	(0.0934)	(0.0545)
Fine motor pb index	-0.0320	-0.0307	-0.0242	0.0519	-0.0981	-0.0174	-0.0487	-0.0205	0.0548	-0.0951	-0.0157	-0.0543
	(0.0421)	(0.0420)	(0.0562)	(0.0869)	(0.0745)	(0.0769)	(0.0764)	(0.0567)	(0.0942)	(0.0688)	(0.0815)	(0.0707)
Gross motor pb index	-0.0855***	-0.0839***	-0.0601*	-0.0914*	-0.0219	-0.0526	-0.0610	-0.0598**	-0.0880**	-0.0229	-0.0526	-0.0611*
	(0.0182)	(0.0181)	(0.0327)	(0.0488)	(0.0442)	(0.0473)	(0.0413)	(0.0290)	(0.0384)	(0.0428)	(0.0436)	(0.0363)
Hospital	-0.0321	-0.0302	-0.0530**	-0.0951***	0.00167	-0.0369	-0.0872**	-0.0511**	-0.0931***	0.00274	-0.0364	-0.0842**
	(0.0206)	(0.0206)	(0.0247)	(0.0337)	(0.0364)	(0.0317)	(0.0376)	(0.0250)	(0.0355)	(0.0349)	(0.0327)	(0.0352)
Constant	0.450***	0.301	0.121	0.111	0.128	0.219*	-0.0798	0.123	0.116	0.128	0.219*	-0.0715
	(0.124)	(0.194)	(0.0925)	(0.129)	(0.132)	(0.118)	(0.142)	(0.0952)	(0.132)	(0.138)	(0.122)	(0.147)
Observations	17,841	17,841	9,912	5,162	4,750	6,818	3,094	9,912	5,162	4,750	6,818	3,094
R-squared	0.056	0.055						0.006	0.007	0.009	0.007	0.002
Number of individuals			7,193	3,746	3,447	4,976	2,217	6,648	3,454	3,194	4,610	2,038
Endogeneity test P-value		0.2875						0.3308	0.3367	0.6849	0.8571	0.0987

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, § p<0.2. All models include country dummies and age controls.
Models 1 and 2 include location, existence of sibling and education dummies as in table 5

Table 8. Intensity of religious activity (OLS, FD and 2SLS FD models)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
VARIABLES	OLS	IV OLS	FD	FD Men	FD Women	FD High educated	FD Low educated	IV FD	IV FD Men	IV FD Women	IV FD High educated	IV FD Low educated
Employed	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref
Retired	-0.00549	-0.0327	0.0326***	0.0277**	0.0406***	0.0439***	0.00857	-0.0380	-0.0225	-0.0643	0.000215	-0.105**
	(0.0107)	(0.0287)	(0.00952)	(0.0125)	(0.0146)	(0.0114)	(0.0173)	(0.0276)	(0.0356)	(0.0432)	(0.0349)	(0.0441)
Homemaker	-0.0217	-0.0304	-0.0276	-0.0665	-0.0132	-0.0433	-0.0190	-0.0533**	-0.0845	-0.0513*	-0.0579	-0.0658*
	(0.0169)	(0.0189)	(0.0216)	(0.0431)	(0.0260)	(0.0292)	(0.0329)	(0.0258)	(0.0630)	(0.0304)	(0.0362)	(0.0385)
Unemployed	0.0138	0.00946	0.0125	0.00291	0.0257	0.0167	0.00480	-0.0101	-0.0130	-0.00835	0.00385	-0.0359
	(0.0128)	(0.0130)	(0.0135)	(0.0184)	(0.0200)	(0.0171)	(0.0225)	(0.0174)	(0.0211)	(0.0278)	(0.0244)	(0.0222)
Perm sick	0.00173	-0.00586	0.0286	-0.0213	0.0853**	0.0621*	-0.0143	0.00394	-0.0392	0.0498	0.0478	-0.0556***
	(0.0290)	(0.0296)	(0.0251)	(0.0332)	(0.0382)	(0.0327)	(0.0405)	(0.0281)	(0.0242)	(0.0528)	(0.0471)	(0.0212)
Female	0.00677	0.00703										
	(0.00758)	(0.00755)										
Loss partner	0.0165	0.0164	0.0509***	0.0340	0.0628**	0.0368*	0.0902**	0.0523***	0.0362	0.0630**	0.0384**	0.0874*
	(0.0102)	(0.0102)	(0.0192)	(0.0277)	(0.0268)	(0.0219)	(0.0393)	(0.0194)	(0.0267)	(0.0280)	(0.0193)	(0.0512)
Death parent	-0.0268***	-0.0272***	-0.00393	-0.0176	0.0102	-0.0169	0.0301	-0.00755	-0.0191	0.00283	-0.0193	0.0253
	(0.0102)	(0.0102)	(0.0175)	(0.0235)	(0.0262)	(0.0206)	(0.0333)	(0.0162)	(0.0233)	(0.0223)	(0.0194)	(0.0297)
Nb grand-child	0.00492**	0.00503**	0.00279	0.00230	0.00312	-0.00152	0.0116**	0.00333	0.00323	0.00278	-0.00114	0.0121**
	(0.00212)	(0.00212)	(0.00328)	(0.00446)	(0.00484)	(0.00395)	(0.00588)	(0.00396)	(0.00707)	(0.00378)	(0.00517)	(0.00516)
ADL difficult.	-0.00462	-0.00473	0.00451	-0.00796	0.0115	0.00523	0.00356	0.00128	-0.0105	0.00733	0.00164	0.00454
	(0.0168)	(0.0168)	(0.0193)	(0.0286)	(0.0266)	(0.0248)	(0.0310)	(0.0169)	(0.0277)	(0.0224)	(0.0158)	(0.0344)
IADL difficulties	-0.0110	-0.00990	0.0269	-0.0102	0.100**	0.0612*	-0.0235	0.0322	-0.00478	0.100	0.0672	-0.0254
	(0.0197)	(0.0197)	(0.0269)	(0.0325)	(0.0472)	(0.0342)	(0.0450)	(0.0393)	(0.0197)	(0.108)	(0.0632)	(0.0227)
Fine motor pb index	-0.00536	-0.00484	-0.0204	0.000923	-0.0393	-0.0273	-0.00627	-0.0168	0.00243	-0.0310	-0.0226	-0.00974
	(0.0181)	(0.0181)	(0.0222)	(0.0328)	(0.0308)	(0.0282)	(0.0365)	(0.0212)	(0.0336)	(0.0305)	(0.0229)	(0.0384)
Gross motor pb index	-0.00222	-0.00162	0.00312	0.00734	0.00286	0.00290	0.000585	0.00341	0.00908	0.000297	0.00295	0.000488
	(0.0117)	(0.0117)	(0.0129)	(0.0184)	(0.0183)	(0.0173)	(0.0197)	(0.0100)	(0.00992)	(0.0169)	(0.0150)	(0.0147)
Hospital	0.00588	0.00660	0.0176*	0.0218*	0.0132	0.00291	0.0488***	0.0194**	0.0228*	0.0161	0.00414	0.0507**
	(0.0101)	(0.0102)	(0.00975)	(0.0127)	(0.0150)	(0.0116)	(0.0180)	(0.00961)	(0.0126)	(0.0148)	(0.00934)	(0.0226)
Constant	-0.151**	-0.208**	-0.0431	-0.0695	-0.0128	-0.0160	-0.105	-0.0411	-0.0669	-0.0128	-0.0155	-0.0996*
	(0.0671)	(0.0869)	(0.0365)	(0.0488)	(0.0547)	(0.0433)	(0.0677)	(0.0323)	(0.0426)	(0.0484)	(0.0390)	(0.0576)
Observations	17,841	17,841	9,912	5,162	4,750	6,818	3,094	9,912	5,162	4,750	6,818	3,094

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
R-squared	0.011	0.010						-0.002	0.001	-0.005	0.003	-0.007
Number of individuals			7,193	3,746	3,447	4,976	2,217	6,648	3,454	3,194	4,610	2,038
Endogeneity test P-value		0.2861						0.0075	0.1355	0.0137	0.2104	0.0063

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1. All models include country dummies and age controls. Models 1 and 2 include location, existence of sibling and education dummies as in table 5

Table 9. Intensity of political activity (OLS, FD and 2SLS FD models)

VARIABLES	(1) OLS	(2) IV OLS	(3) FD	(4) FD Men	(5) FD Women	(6) FD High educated	(7) FD Low educated	(8) IV FD	(9) IV FD Men	(10) IV FD Women	(11) IV FD High educated	(12) IV FD Low educated
employed	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref
retired	-0.0141	0.0175	-0.00551	-0.00876	-0.000745	-0.0161	0.0161	-0.00478	0.0116	-0.0231	-0.0274	0.0476
	(0.00938)	(0.0295)	(0.0111)	(0.0173)	(0.0135)	(0.0146)	(0.0157)	(0.0323)	(0.0436)	(0.0476)	(0.0452)	(0.0404)
homemaker	-1.49e-05	0.0101	0.0146	-0.0760	0.0384	0.0173	0.0163	0.0149	-0.0688	0.0303	0.0135	0.0292
	(0.0167)	(0.0179)	(0.0252)	(0.0596)	(0.0240)	(0.0375)	(0.0297)	(0.0266)	(0.0583)	(0.0288)	(0.0489)	(0.0181)
unemployed	-0.0195**	-0.0145	0.00175	0.00943	-0.00494	-0.0134	0.0258	0.00199	0.0159	-0.0122	-0.0167	0.0370**
	(0.00816)	(0.00910)	(0.0158)	(0.0255)	(0.0184)	(0.0219)	(0.0204)	(0.0145)	(0.0211)	(0.0200)	(0.0203)	(0.0173)
Perm sick	-0.0145	-0.00566	0.0235	0.0269	0.0220	0.00393	0.0519	0.0238	0.0341	0.0144	0.000241	0.0633
	(0.0264)	(0.0277)	(0.0294)	(0.0459)	(0.0353)	(0.0420)	(0.0367)	(0.0271)	(0.0402)	(0.0370)	(0.0331)	(0.0467)
female	-0.0414***	-0.0417***										
	(0.00695)	(0.00697)										
Loss partner	-0.0144*	-0.0143*	0.0126	0.0158	0.0114	0.0136	0.0109	0.0126	0.0149	0.0114*	0.0140	0.0116
	(0.00761)	(0.00761)	(0.0224)	(0.0384)	(0.0248)	(0.0280)	(0.0355)	(0.0184)	(0.0407)	(0.00646)	(0.0246)	(0.0106)
Death parent	-0.00495	-0.00447	0.0288	0.0440	0.0136	0.0154	0.0589*	0.0288**	0.0446*	0.0120	0.0147	0.0602*
	(0.0122)	(0.0122)	(0.0205)	(0.0326)	(0.0242)	(0.0264)	(0.0301)	(0.0142)	(0.0263)	(0.00929)	(0.0153)	(0.0312)
Nb grand-child	-0.000212	-0.000335	0.00114	0.00243	1.89e-05	0.00250	-0.00191	0.00114	0.00206	-5.35e-05	0.00260	-0.00205
	(0.00152)	(0.00150)	(0.00383)	(0.00617)	(0.00447)	(0.00507)	(0.00532)	(0.00307)	(0.00525)	(0.00324)	(0.00405)	(0.00428)
ADL difficult.	0.00571	0.00583	0.0308	0.0868**	-0.0128	0.0301	0.0326	0.0308	0.0879	-0.0137	0.0291	0.0323
	(0.0153)	(0.0153)	(0.0225)	(0.0396)	(0.0246)	(0.0318)	(0.0280)	(0.0274)	(0.0579)	(0.0157)	(0.0428)	(0.0267)
IADL difficulties	-0.0347***	-0.0360***	-0.0444	-0.0719	-0.00130	-0.0660	-0.0125	-0.0445	-0.0740	-0.00137	-0.0644	-0.0120
	(0.0133)	(0.0133)	(0.0315)	(0.0449)	(0.0437)	(0.0439)	(0.0407)	(0.0357)	(0.0589)	(0.00517)	(0.0613)	(0.0115)
Fine motor pb index	-0.00316	-0.00376	-0.000568	-0.0385	0.0153	0.0222	-0.0355	-0.000605	-0.0391	0.0171	0.0234	-0.0345
	(0.0153)	(0.0153)	(0.0259)	(0.0454)	(0.0284)	(0.0361)	(0.0330)	(0.0241)	(0.0535)	(0.0149)	(0.0323)	(0.0353)
Gross motor pb index	0.00661	0.00591	-0.0182	-0.0445*	0.00355	-0.0155	-0.0187	-0.0182	-0.0452	0.00300	-0.0155	-0.0186
	(0.0102)	(0.0104)	(0.0151)	(0.0255)	(0.0169)	(0.0222)	(0.0178)	(0.0191)	(0.0332)	(0.0209)	(0.0311)	(0.0212)
Hospital	0.00214	0.00130	0.00684	0.0119	0.000789	0.0112	-0.00232	0.00683	0.0115	0.00141	0.0115	-0.00284
	(0.0103)	(0.0102)	(0.0114)	(0.0176)	(0.0139)	(0.0149)	(0.0163)	(0.0129)	(0.0201)	(0.0151)	(0.0167)	(0.0195)
Constant	0.00698	0.0734	0.0946**	0.116*	0.0659	0.106*	0.0710	0.0946**	0.115	0.0659	0.106*	0.0696
	(0.0640)	(0.0839)	(0.0427)	(0.0676)	(0.0505)	(0.0555)	(0.0612)	(0.0446)	(0.0716)	(0.0514)	(0.0565)	(0.0684)
Observations	17,841	17,841	9,912	5,162	4,750	6,818	3,094	9,912	5,162	4,750	6,818	3,094
R-squared	0.012	0.011						0.002	0.003	0.002	0.002	0.003
Number of individuals			7,193	3,746	3,447	4,976	2,217	6,648	3,454	3,194	4,610	2,038
Endogeneity test P-value		0.2655						0.9118	0.6123	0.6036	0.7791	0.2392

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1. All models include country dummies and age controls. Models 1 and 2 include location, existence of sibling and education dummies as in table 5

Table 10. Intensity of volunteering or political or religious activity (OLS, FD and 2SLS FD models)

VARIABLES	(1) OLS	(2) IV OLS	(3) FD	(4) FD Men	(5) FD Women	(6) FD High educated	(7) FD Low educated	(8) IV FD	(9) IV FD Men	(10) IV FD Women	(11) IV FD High educated	(12) IV FD Low educated
Employed	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref	ref
Retired	**0.0718***	**0.0559**	**0.128***	**0.0721**	**0.204***	**0.131***	**0.121***	**0.0768**	**0.0125**	**0.160§**	**0.127§**	**-0.0106**
	(0.0274)	**(0.0758)**	**(0.0251)**	**(0.0365)**	**(0.0342)**	**(0.0320)**	**(0.0394)**	**(0.0738)**	**(0.0967)**	**(0.113)**	**(0.0966)**	**(0.112)**
Homemaker	0.0747	0.0696	0.0246	-0.222*	0.102*	0.00598	0.0384	0.00581	-0.243	0.0862	0.00471	-0.0156
	(0.0570)	(0.0611)	(0.0569)	(0.126)	(0.0607)	(0.0820)	(0.0749)	(0.0780)	(0.209)	(0.0817)	(0.134)	(0.0785)
Unemployed	0.0710**	0.0685**	0.0692*	0.0831	0.0663	0.0642	0.0713	0.0526	0.0643	0.0521	0.0630	0.0244
	(0.0321)	(0.0336)	(0.0357)	(0.0539)	(0.0466)	(0.0479)	(0.0512)	(0.0442)	(0.0628)	(0.0626)	(0.0608)	(0.0605)
Perm sick	0.000908	-0.00351	0.135**	0.0772	0.201**	0.102	0.179*	0.117	0.0560	0.186*	0.101	0.131
	(0.0729)	(0.0757)	(0.0663)	(0.0971)	(0.0892)	(0.0918)	(0.0923)	(0.0799)	(0.123)	(0.100)	(0.101)	(0.134)
Denmark	-0.0163	-0.0159										
	(0.0317)	(0.0317)										
Germany	-0.0154	-0.0143										
	(0.0340)	(0.0341)										
Netherlands	0.221***	0.222***										
	(0.0396)	(0.0400)										
Belgium	0.116***	0.117***										
	(0.0371)	(0.0383)										
France	0.0739**	0.0758**										
	(0.0362)	(0.0370)										
Switzerland	0.104***	0.104***										
	(0.0392)	(0.0393)										
Austria	0.00882	0.0116										
	(0.0441)	(0.0462)										
Spain	-0.0985***	-0.0977***										
	(0.0362)	(0.0361)										
Italy	-0.0496	-0.0481										
	(0.0316)	(0.0322)										
ISCED-97 0	ref	ref										
1 primary	-0.0517	-0.0511										
	(0.0628)	(0.0628)										
2 lower 2dary	0.00784	0.00840										
	(0.0625)	(0.0624)										
3 upper 2dary	0.0588	0.0592										
	(0.0622)	(0.0620)										
4 Post 2d non tertiary	0.0634	0.0638										
	(0.0735)	(0.0734)										
5 1st stage tertiary	0.182***	0.182***										
	(0.0635)	(0.0634)										
6 2d stage tertiary	0.179	0.179										
	(0.116)	(0.116)										
Never sib	-0.0727***	-0.0724***										
	(0.0243)	(0.0242)										
Female	-0.0880***	-0.0879***										
	(0.0179)	(0.0179)										
Age	0.00893***	0.00950**	-0.0321	-0.0416	-0.0246	-0.0477	0.000926	-0.0291	-0.0385	-0.0217	-0.0475	0.00879
	(0.00280)	(0.00376)	(0.0292)	(0.0433)	(0.0388)	(0.0368)	(0.0469)	(0.0298)	(0.0458)	(0.0372)	(0.0380)	(0.0457)
Loss partner	0.0119	0.0119	0.0451	-0.00653	0.0844	0.0496	0.0270	0.0461	-0.00386	0.0845*	0.0497	0.0237
	(0.0224)	(0.0223)	(0.0506)	(0.0811)	(0.0625)	(0.0613)	(0.0894)	(0.0385)	(0.0612)	(0.0488)	(0.0470)	(0.0642)
Death parent	-0.0378	-0.0381	0.00616	-0.00846	0.0192	-0.0289	0.0904	0.00351	-0.0103	0.0161	-0.0291	0.0848
	(0.0252)	(0.0252)	(0.0463)	(0.0688)	(0.0613)	(0.0577)	(0.0759)	(0.0465)	(0.0755)	(0.0541)	(0.0507)	(0.100)
Nb grandchild	0.00753	0.00759	0.000807	-0.00195	0.00449	-0.00453	0.0103	0.00120	-0.000852	0.00435	-0.00449	0.0109
	(0.00472)	(0.00473)	(0.00865)	(0.0130)	(0.0113)	(0.0111)	(0.0134)	(0.0107)	(0.0187)	(0.0101)	(0.0145)	(0.0135)
ADL difficult.	0.000127	6.56e-05	0.0271	0.0512	-0.00566	-0.0195	0.0874	0.0247	0.0482	-0.00742	-0.0198	0.0885
	(0.0430)	(0.0429)	(0.0508)	(0.0837)	(0.0621)	(0.0696)	(0.0706)	(0.0722)	(0.115)	(0.0905)	(0.102)	(0.0955)
IADL	-0.122**	-0.122**	-0.0199	-0.0955	0.142	-0.0162	-0.0553	-0.0161	-0.0891	0.142	-0.0157	-0.0575

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
difficulties												
	(0.0490)	(0.0489)	(0.0710)	(0.0949)	(0.110)	(0.0960)	(0.103)	(0.0909)	(0.0918)	(0.210)	(0.152)	(0.0378)
Fine motor pb index	0.0410	0.0413	0.00632	0.0682	-0.0760	0.0513	-0.0520	0.00897	0.0700	-0.0726	0.0518	-0.0560
	(0.0504)	(0.0504)	(0.0585)	(0.0961)	(0.0718)	(0.0790)	(0.0832)	(0.0779)	(0.124)	(0.101)	(0.109)	(0.102)
Gross motor pb index	-0.0157	-0.0154	-0.0256	-0.0746	0.0320	0.0275	-0.0887**	-0.0254	-0.0725	0.0309	0.0275	-0.0888*
	(0.0301)	(0.0301)	(0.0340)	(0.0539)	(0.0426)	(0.0486)	(0.0449)	(0.0445)	(0.0560)	(0.0658)	(0.0701)	(0.0528)
Hospital	0.0121	0.0125	0.0280	0.0250	0.0349	0.00212	0.0817**	0.0294	0.0263	0.0361	0.00222	0.0839
	(0.0259)	(0.0259)	(0.0257)	(0.0373)	(0.0351)	(0.0325)	(0.0409)	(0.0292)	(0.0424)	(0.0396)	(0.0353)	(0.0511)
Big city	-0.0183	-0.0186										
	(0.0308)	(0.0307)										
Suburbs	-0.0529**	-0.0531**										
	(0.0267)	(0.0267)										
Large town	-0.00641	-0.00638										
	(0.0259)	(0.0258)										
Rural	-0.00177	-0.00180										
	(0.0225)	(0.0225)										
Wave 2	0.00857	0.00981	-0.0244	-0.0378	-0.00884	-0.0508	0.0316	-0.0238	-0.0374	-0.00797	-0.0507	0.0347
	(0.0139)	(0.0151)	(0.0299)	(0.0439)	(0.0400)	(0.0376)	(0.0480)	(0.0301)	(0.0455)	(0.0382)	(0.0383)	(0.0459)
Wave 4	0.000533	0.00348										
	(0.0210)	(0.0247)										
Constant	-0.255	-0.288	0.110	0.136	0.0881	0.168	-0.0128	0.112	0.139	0.0881	0.168	-0.00694
	(0.163)	(0.218)	(0.0963)	(0.143)	(0.128)	(0.121)	(0.154)	(0.0984)	(0.151)	(0.122)	(0.125)	(0.151)
Observations	17,841	17,841	9,912	5,162	4,750	6,818	3,094	9,912	5,162	4,750	6,818	3,094
R-squared	0.024	0.024						0.003	0.003	0.009	0.003	0.004
Number of individuals			7,193	3,746	3,447	4,976	2,217	6,648	3,454	3,194	4,610	2,038
Endogeneity test P-value		(p = 0.8279)						0.4494	0.5094	0.6603	0.9627	0.1850

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 11. Intensity of volunteering Robustness checks (FD and 2SLQ FD models on wave1 and wave 2 only)

VARIABLES	(1) primary edu	(2) lower 2dary	(3) upper 2dary	(4) tertiary	(5) Only w1-w2	(6) primary edu IV	(7) lower 2dary IV	(8) upper 2dary IV	(9) tertiary IV	(10) Only w1-w2 IV
Retired	**0.0313**	**0.157***	**0.0617***	**0.159***	**0.0566****	**0.0888**	**-0.0190**	**0.102**	**0.214***	**0.0730**
	(0.0421)	**(0.0428)**	**(0.0323)**	**(0.0373)**	**(0.0281)**	**(0.120)**	**(0.137)**	**(0.0914)**	**(0.121)**	**(0.0764)**
Homemaker	0.0287	0.0491	0.167**	-0.230**	0.115**	0.0542	-0.0168	0.181	-0.212	0.119
	(0.0800)	(0.0811)	(0.0754)	(0.110)	(0.0582)	(0.0680)	(0.113)	(0.123)	(0.224)	(0.0810)
Unemployed	0.0596	0.0152	0.0925**	-0.0235	0.0795**	0.0797	-0.0477	0.104*	-0.00673	0.0839**
	(0.0529)	(0.0574)	(0.0438)	(0.0650)	(0.0342)	(0.0626)	(0.0757)	(0.0563)	(0.0895)	(0.0421)
Perm. sick	-0.000969	0.265**	-0.0269	0.184	0.0710	0.0204	0.205	-0.0136	0.203*	0.0748
	(0.0956)	(0.104)	(0.0827)	(0.129)	(0.0670)	(0.0586)	(0.192)	(0.0784)	(0.121)	(0.0658)
Age	0.0542	-0.0585	-0.00372	-0.0284	-0.00477	0.0494	-0.0503	-0.00672	-0.0308	-0.00534
	(0.0512)	(0.0502)	(0.0380)	(0.0416)	(0.0249)	(0.0588)	(0.0424)	(0.0397)	(0.0428)	(0.0262)
Loss partner	-0.0895	-0.0728	-0.0779	0.0861	0.0154	-0.0891**	-0.0793	-0.0791*	0.0840	0.0151
	(0.104)	(0.0907)	(0.0622)	(0.0707)	(0.0554)	(0.0419)	(0.0540)	(0.0446)	(0.0543)	(0.0370)
Death parent	-0.0201	0.0338	-0.116**	0.101	0.0242	-0.0199	0.0213	-0.115**	0.106	0.0250
	(0.0834)	(0.0804)	(0.0562)	(0.0702)	(0.0487)	(0.115)	(0.113)	(0.0559)	(0.0663)	(0.0589)
Nb grandchild	0.00449	-0.00645	0.00757	-0.0187	-0.00151	0.00471	-0.00419	0.00764	-0.0197	-0.00161
	(0.0135)	(0.0154)	(0.0121)	(0.0119)	(0.01000)	(0.0140)	(0.0172)	(0.0191)	(0.0126)	(0.0118)
ADL difficult.	0.153**	-0.0546	-0.0167	-0.139	-0.0673	0.153	-0.0478	-0.0129	-0.136	-0.0660
	(0.0724)	(0.0808)	(0.0625)	(0.0977)	(0.0520)	(0.0955)	(0.111)	(0.0721)	(0.172)	(0.0712)
IADL difficulties	-0.0383	0.0341	0.0509	-0.137	0.0612	-0.0381	0.0300	0.0455	-0.145	0.0600
	(0.0943)	(0.142)	(0.0890)	(0.128)	(0.0741)	(0.0278)	(0.0894)	(0.101)	(0.143)	(0.0472)
Fine motor pb index	-0.103	0.0892	-0.0274	0.193*	0.0165	-0.100	0.0852	-0.0313	0.187	0.0151
	(0.0855)	(0.0952)	(0.0721)	(0.108)	(0.0625)	(0.0875)	(0.133)	(0.0860)	(0.179)	(0.0831)
Gross motor pb index	-0.0855*	-0.0607	0.00250	0.122*	-0.0495	-0.0848*	-0.0590	0.00284	0.121	-0.0496
	(0.0477)	(0.0490)	(0.0449)	(0.0650)	(0.0362)	(0.0494)	(0.0521)	(0.0404)	(0.115)	(0.0364)
Hospital	0.0255	0.0438	-0.0418	0.0310	0.00673	0.0252	0.0488	-0.0437	0.0311	0.00622
	(0.0454)	(0.0430)	(0.0312)	(0.0405)	(0.0263)	(0.0502)	(0.0543)	(0.0350)	(0.0455)	(0.0284)
Wave 2	0.0696	-0.0506	-0.00878	-0.0521		0.0669	-0.0489	-0.00972	-0.0518	
	(0.0537)	(0.0504)	(0.0386)	(0.0428)		(0.0617)	(0.0431)	(0.0407)	(0.0430)	
Constant	-0.165	0.186	0.0501	0.0874	0.0208	-0.165	0.198	0.0513	0.0843	0.0193
	(0.167)	(0.166)	(0.125)	(0.137)	(0.0587)	(0.196)	(0.147)	(0.128)	(0.140)	(0.0627)
Observations	1,379	1,715	3,706	3,112	4,763	1,379	1,715	3,706	3,112	4,763
R-squared						0.006	0.004	0.005	0.014	0.004
Number of individuals	1,003	1,214	2,689	2,287	4,763	908	1,130	2,515	2,095	4,763
Endogeneity test P-value						0.5309	0.2121	0.6118	0.6436	0.7988

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 12. Intensity of each social activity among the 50+ (all waves)

	volunteer	volunteer (if retired)	training	club	religious	community
Participation	**15.8**	**16.3**	**7.3**	**24.6**	**10.1**	**4.4**
1 once a month	5.4	5.1	3.3	5.2	3.3	2.5
2 almost once a week	7.8	8.3	3.5	16.4	6.0	1.5
3 almost everyday	2.6	3.0	0.5	3.1	0.8	0.5
	100	100	100	100	100	100
Mean intensity	0.280	0.310	0.117	0.459	0.175	0.066
(std.error)	(0.003)	(0.004)	(0.002)	(0.003)	(0.002)	(0.001)
Nb observations	80,616	41,939	80,616	80,616	80,616	80,616

NB: Whole SHARE sample, waves 1-2-4 (2004-2010).

Table 13. Summary of retirement effects (FD and 2SLS FD model) on intensity of participation (extracted from tables 5-9, col. 3 and 8)

|	volunteer	training	club	religious	community
FD model	0.101***	0.064***	0.166***	0.033***	-0.006
IV FD model	0.120**	0.063*	0.094§	-0.038	-0.005
Mean intensity	0.193	0.085	0.372	0.075	0.055
In % of mean					
FD	52	75	45	44	ns
IV FD	62	74	25	ns	ns

NB. Lines 2 and 3 provide the estimated coefficient of retiring from First Difference and 2SLS FD models. The last two lines compute the percentage increase in intensity (intensity is that measured on our sub-sample of employed in entry wave, who participated in at least two waves, aged <75, lower than that in the whole sample in table 12).

Table 14. Motivation for volunteering

	Wave 1		Wave 2	
	Nb obs.	percent	Nb obs.	percent
Sociability				
to meet other people	1,402	41.5	1,771	46.45
because I enjoy it	2,247	66.5		
Altruism				
contribute something useful	2,322	68.7	3,018	79.15
because I am needed	1,518	44.9	1,966	51.56
Egoism				
for personal achievement	569	16.8		
to use skills or keep fit	1,087	32.2	1,326	34.78
to earn money	20	0.59	37	0.97
Duty				
feel obligated to do it	527	15.6		
none of these	19	0.56	74	1.94
Total	3,381		3,813	

NB: Whole SHARE sample, waves 1-2.

Figure 1. Social activity by wave for retired and non-retired, by type of activity
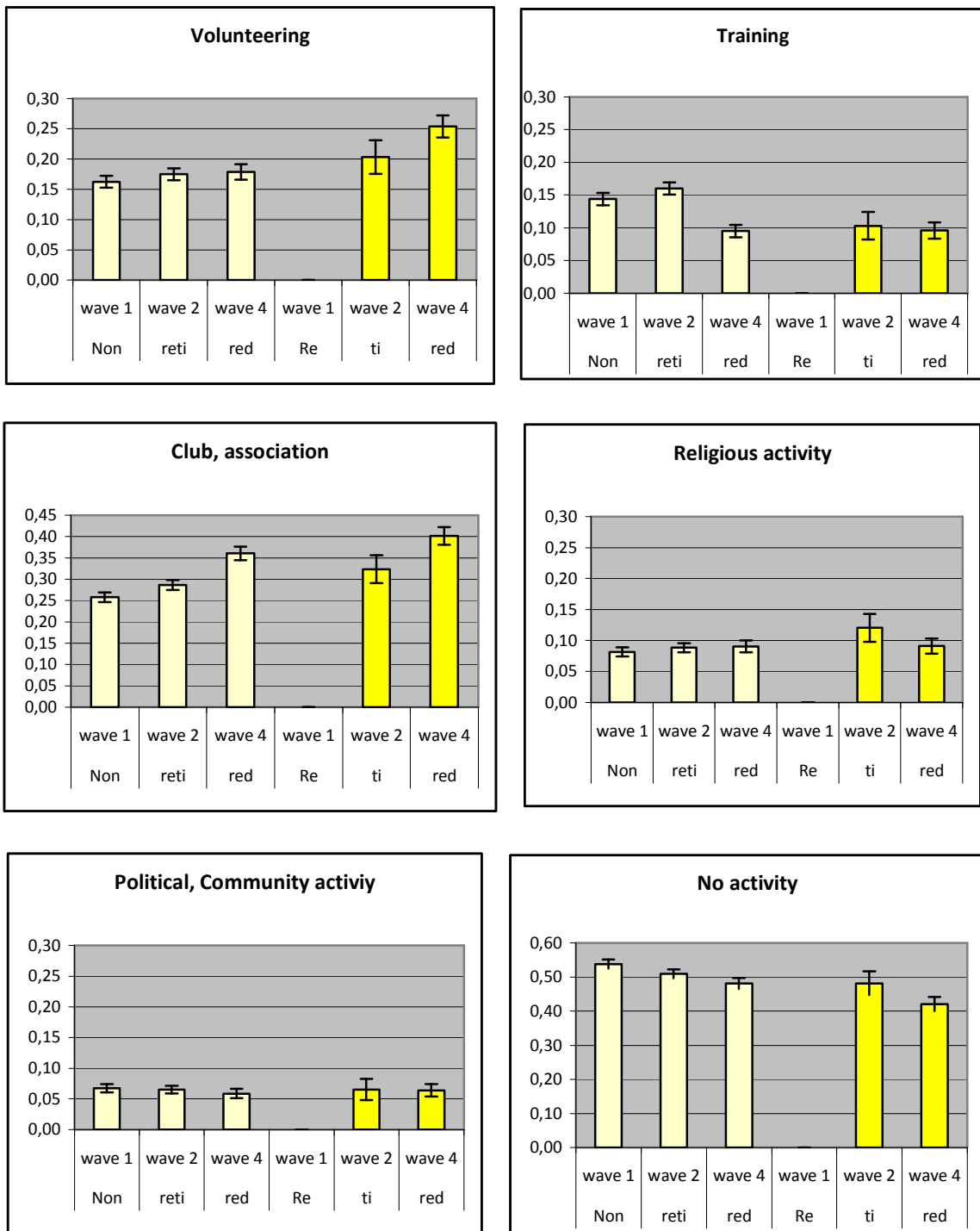
NB. Participated in 2 waves in 2 3 4- active at entry wave. Non-retired are three left pale yellow bars, retired are two right yellow bars. Scales can differ by graph.

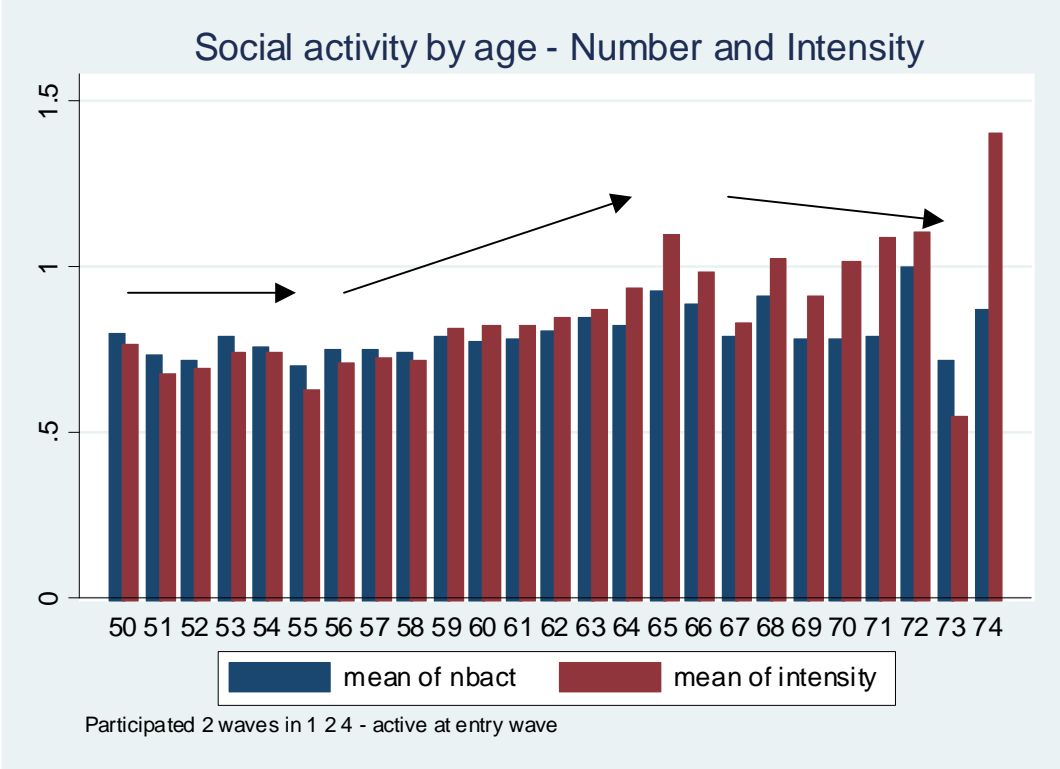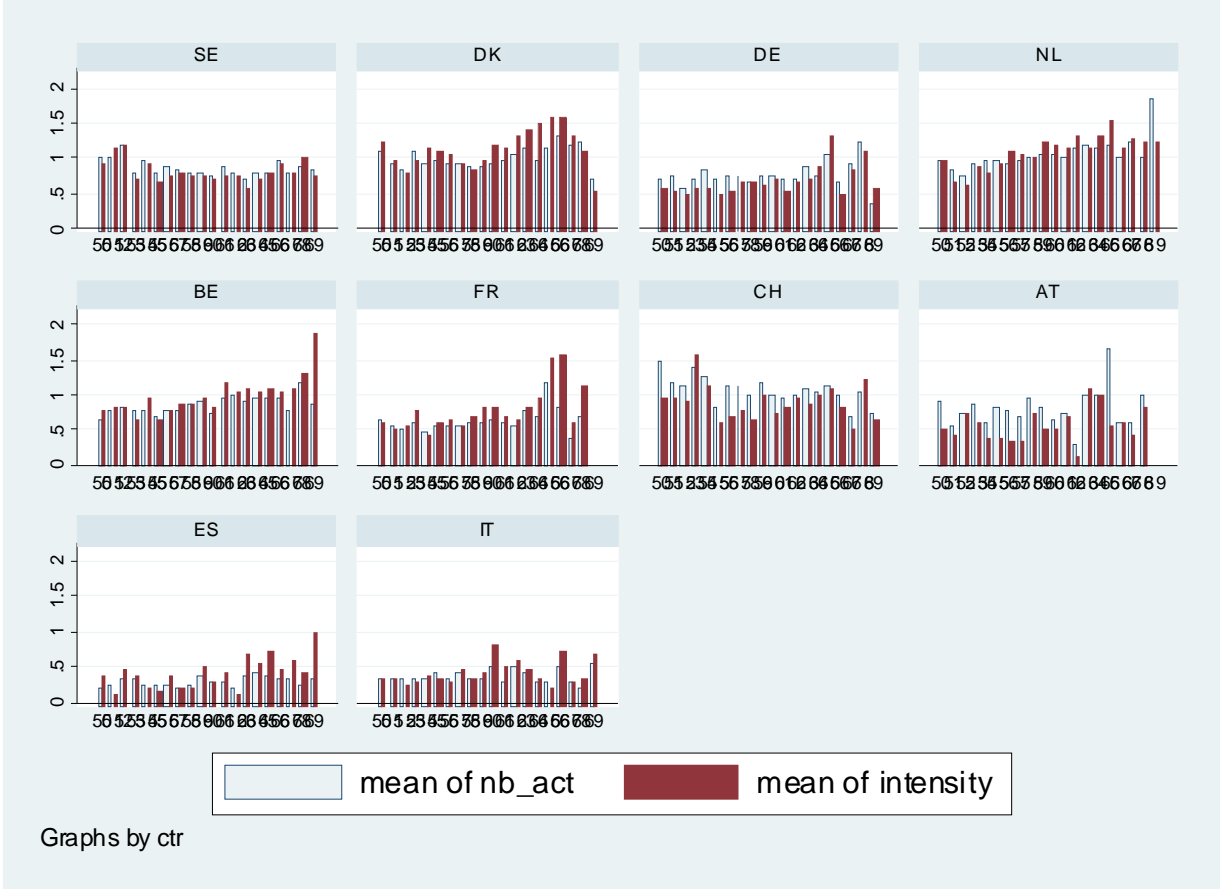**Figure 2. Social activity by age - Number and Intensity**

Social activity by age - Number and Intensity

Participated 2 waves in 1 2 4 - active at entry wave

Figure 3. Social activity by age - Number and Intensity, by country

Graphs by ctr

NB. Participated in 2 waves in 2 3 4- active at entry wave.

Figure 4. Social activity by country - mean number and intensity

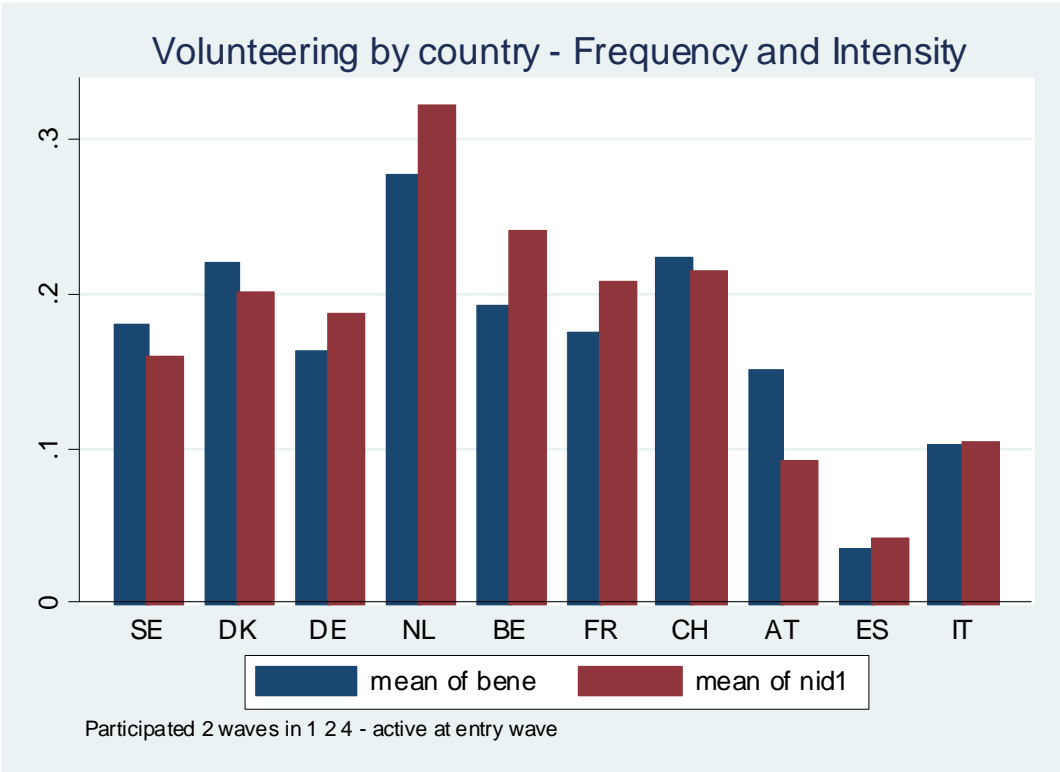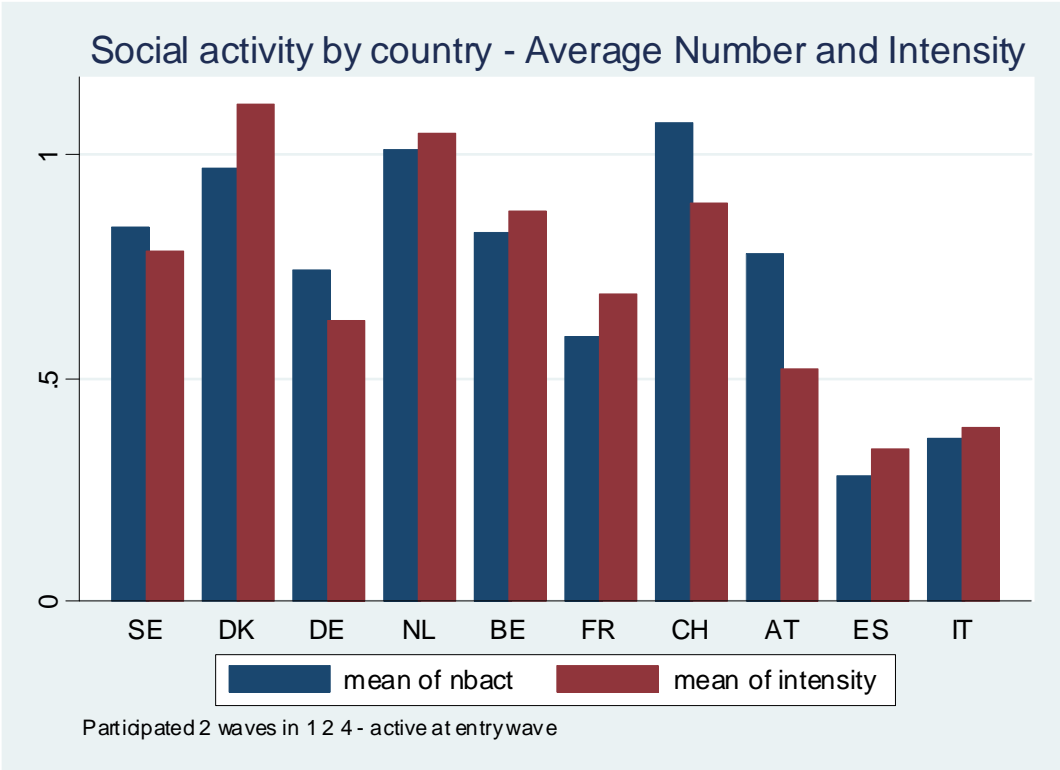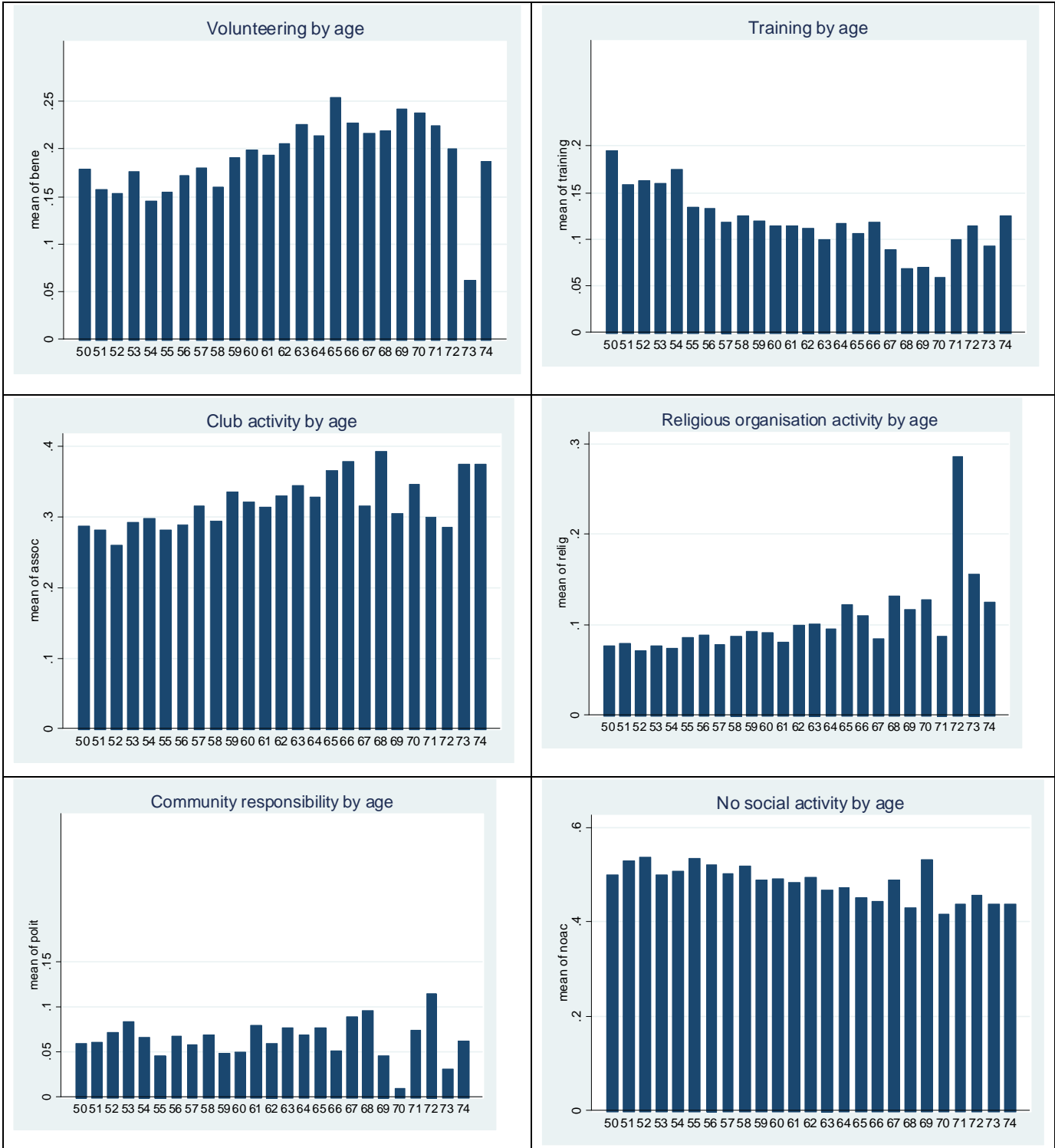Social activity by country - Average Number and Intensity

mean of nbact   mean of intensity

Participated 2 waves in 1 2 4 - active at entry wave

Volunteering by country - Frequency and Intensity

mean of bene   mean of nid1

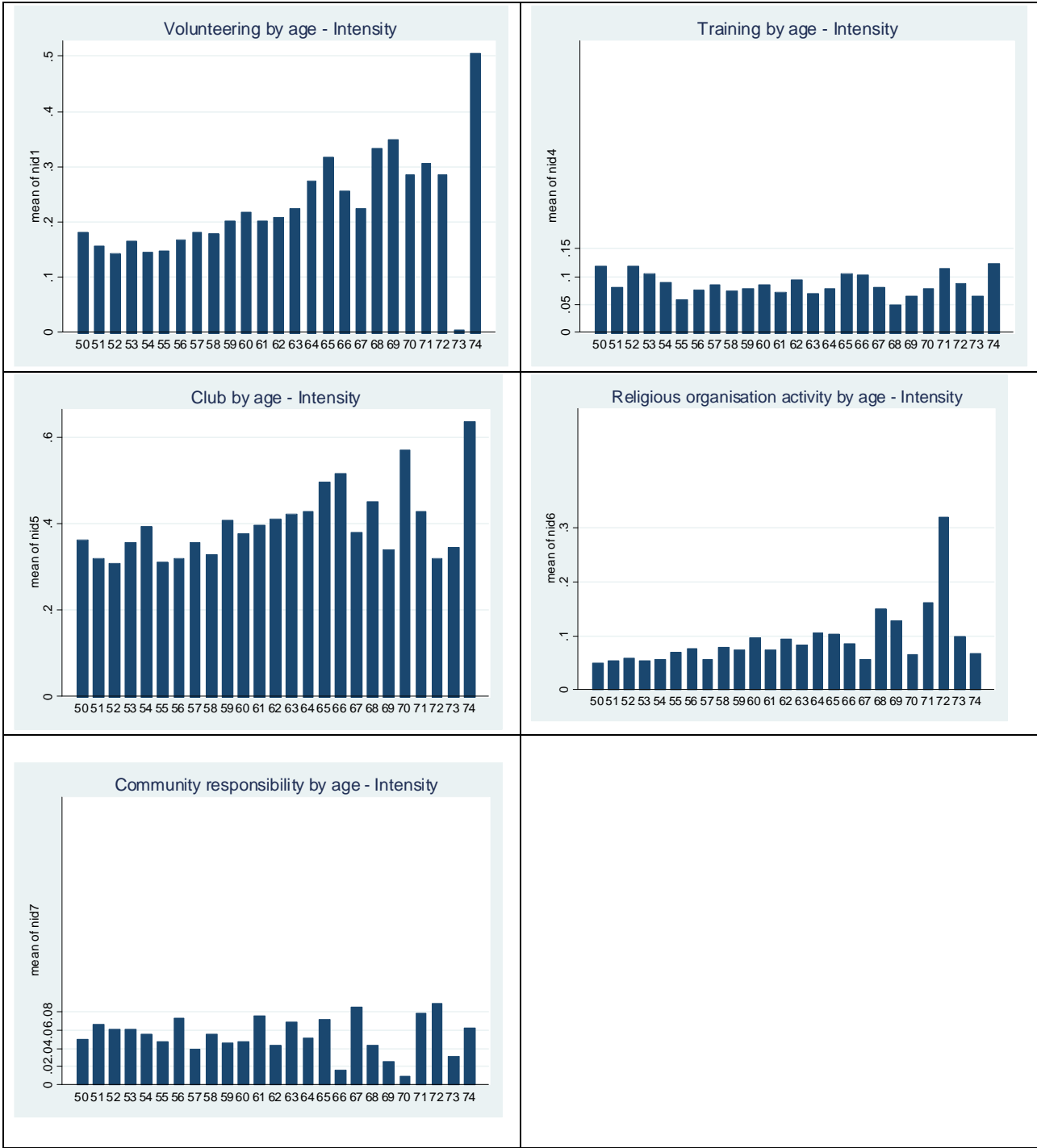Participated 2 waves in 1 2 4 - active at entry wave

Figure 5. Social activity by age - Frequency of each type of activity

NB. Participated in 2 waves in 2 3 4- active at entry wave. Scales differ by graph.
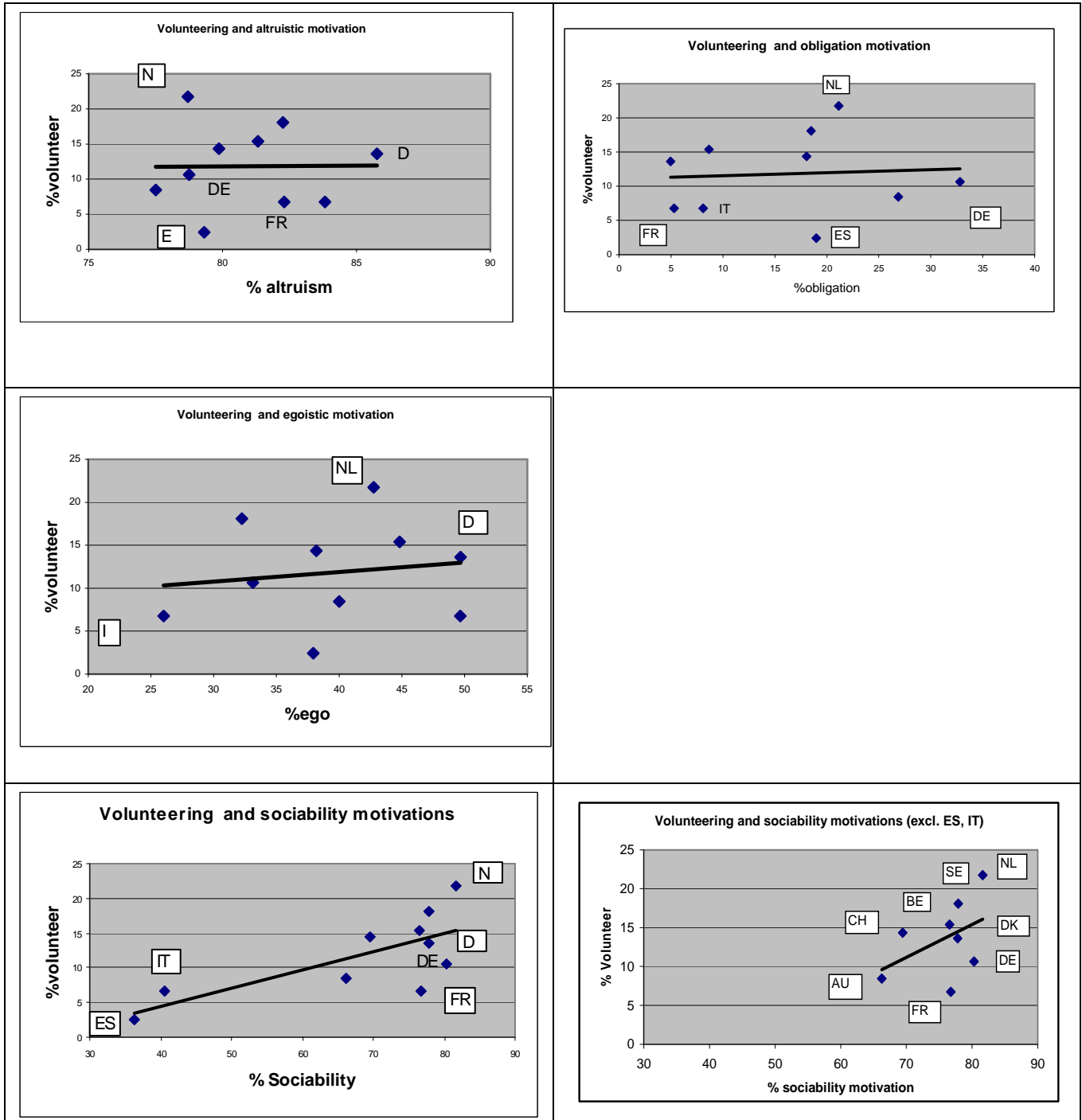
Figure 6. Social activity by age - Intensity of each type of activity

NB. Participated in 2 waves in 2 3 4- active at entry wave. Scales differ by graph.

Figure 7. Country level correlation between volunteering and motivation put forward to volunteer

Volunteering and altruistic motivation

Volunteering and obligation motivation

Volunteering and egoistic motivation

Volunteering and sociability motivations

Volunteering and sociability motivations (excl. ES, IT)

NB. Whole SHARE sample. Wave 1.