Does Taking Part in Social Activities prevent the Disablement Process?

Nicolas Sirven[*,1,2] & Florence Jusot[3, 2]

Abstract

Context

With the aging of the baby-boom generation, the third age will soon represent an increasing share of the European populations. According to the United Nations (UN, 2011), about 30% of the European population will be 65 years old or more by 2060. The growing health care needs associated with that massive cohort of elderly people represents one of the main economic challenge Europe has to face in a close future (WHO, 2011; OECD, 2011). However, the magnitude of the aging impact on the European economy will depend on future trends in healthy life expectancy (European Commission, 2012, Dolbhammer & Kytir, 2001); i.e. life expectancy without disability. Among the potential candidates that could help "adding life to years", social capital is believed to play a positive role for health ageing strategies (Agren & Berensson, 2006; WHP, 2012).

Continue on next page

JEL codes: I12, J14, C23
Keywords: Disability, Demand for health, Long-term care, Health prevention, Panel models for count data, Mundlak device

* Corresponding author : nicolas.sirven@parisdescartes.fr
1. LIRAES, 45 rue des Saints Pères, 75006 Paris.
2. IRDES, 10 rue Vauvenargues 75018 Paris.
3. LEDa-LEGOS, Université Paris Dauphine, Place du Maréchal de Lattre de Tassigny, 75016 Paris.

During the last two decades, a wide range of individual social capital measures have been found to be associated with various health outcomes (Kawachi, Subramanian & Kim, 2008), giving substance to Putnam's (2000: 326) well-known assertion that "in none is the importance of social connectedness so well established as in the case of health and well-being." Among the many measures of social capital, taking part in voluntary association is especially relevant from a public policy perspective since they these associations are essential partners of government agencies in Europe. In support of this latter point of view is the fact that the year 2011 was designated as "The European Year of Volunteering". The positive effects of social participation on individual health are especially significant for the sub-population of older people. This assertion is supported by a large number of studies that have been published in the empirical literature (see for example, Sirven & Debrand, 2012, 2008; Kondo, Minai, Imai, & Yamagata, 2007; Veenstra, 2000).

Despite the findings reported in these many inquiries, however, the literature is still scare on the relationships between older people social capital and functional disability. One reason is due to conceptual problems, where not taking part in social activities can be seen as a form of disability (Verbrugge &Liu, 2014). Another reason lies in the relative scarcity of cohort data, so that disability and social activity are observed at the same time. These two reasons make it difficult to disentangle (the absence of) social participation from disability.

In this paper, we adopt a dynamic approach of the disablement process with the aim to assess the influence of previous participation in social activities – besides previous functional limitations such as ADL and IADL – on current states of functional limitation. We carry out a dynamic panel data model using three wave of data from SHARE.

Data

This study makes use of individual panel data between 2004 and 2011 from the Survey of Health, Ageing, and Retirement in Europe (SHARE) for respondents aged 50 or more in Europe. SHARE is a multidisciplinary and cross-national cohort of individual data on health, socio-economic status and social and family relationships of more than 80,000 respondents aged 50 or over (Borsch-Supan et al., 2013). The sample retained here is balanced; it is made

of the three regular panel waves and a retrospective one (SHARELIFE). It is restricted to the ten baseline countries, which did carry all of the four waves in northern (Denmark, Sweden, the Netherlands) continental (Austria, Germany, France, Belgium, Switzerland) and southern (Italy, Spain) regions of Europe. Finally, only full-rank data matrices are kept at each wave so that respondents with missing data are deleted.

The two dependant variables are the number of functional limitation in Katz's ADL and Lawton's IADL items. The variable for social capital is dichotomous, whether the respondent declares taking part in social (religious/political/community-related) activities in the last 12 months. Notice that the item taking part in a sport club is treated in a separate variable in order to isolate the potential health effect from physical activities. Control variables include the two main drivers of disability: multimorbidity (2 or more chronic diseases), and the Fried index of frailty (Sirven, 2013). Other covariates deal with income adequacy (ability to make ends meet), loss of the living partner within two years, being a caregiver, and occupational status.

Method

We use a general framework of dynamic panel models for binary outcome. Simple and intuitive estimation procedure suggested by Wooldridge contributed to render these methods increasingly popular in applied economics (Wooldridge, 2005). We followed a seminal application to health economics that was provided in previous research (Contoyannis et al., 2004). We carried out a Poisson regression for panel data to address the skewed distribution of the dependant variables.

$$y_{it} = exp(Z_{it-1}\rho + X_{it}\beta + c_i) + u_{it}$$

where y_{it} is in turn the number of limitations in IADLs and ADLs, X_{it} the vector of contemporaneous covariates which includes a set of time dummies, c_i is the individual fixed effect, and u_{it} is the error term. Notice that, as a dynamic panel model, Z_{it-1} includes a lagged value of the dependant variable, and some lagged covariates. Lee (2005) points out that dynamic panel models usually rely on the implicit assumption that one lag of the dependent variable is sufficient to fully capture the dynamics of the process (Lee, 2005). However, it

may be that some past values of X_{it} (such as participation in voluntary activities) may contribute to contemporaneous values of y_{it}, even after y_{it-1} is controlled for. In our case Z_{it-1} includes lagged values of (i) functional limitations, both ADL_{t-1} and $IADL_{t-1}$ and (ii) participation in social activities and sport clubs.

The usual random effect assumption of strict independence between c_i and X_{it} is too strong in the case of individual micro-data. We therefore allowed some correlation between the unobservable and the explanatory variables in order to retain a more realistic assumption. Following Wooldridge (2005) we assumed:

$$c_i = \psi + \bar{X}_i\xi + \xi_0 y_{i0} + a_i$$

where c_i, the unobserved individual effect is replaced by its linear projection onto $\bar{X}_i$, the means of the regressors, and where ψ is the intercept, y_{i0} is the initial value of y_{it} prior to the start of the survey, and a_i represents the projection error. The use of yi0 prevents from inconsistent estimates – as known as the problem of initial conditions (Heckman, 1981). Although it is general practice to use the first wave observation as the initial value of the dependent variable, life-history data from wave 3 (SHARELIFE) allow us to use retrospective information as a good proxy for yi0. Doing so, we kept the first regular panel wave for the analysis so that T = 3 is sufficient for a dynamic estimation. We opted for a binary retrospective index of health, taking the value 1 if the respondent reported any periods of ill health over the life-cycle (>1 year) or if she reported any physical injury over the lifecycle (>1 year).

Results

The first results are displayed in Table 1. Estimates for the contemporaneous variables indicate that increase in multimorbidity and increase in frailty are associated with increase in the number of limitations. Change in any of the other contemporaneous covariates is not found to be significantly associated with change in the dependant variables, but in the case of IADLs, where taking part in social activity are found to be associated with a decrease in the number of limitations.

Estimates for lagged values suggest that there is a dynamic progression in the disablement process: current limitations seem to induce more limitations in the future. Inn the detail, the results support the Verbrugge & Jette (1994) model of disablement where current IADLs lead to future increase in ADLs (p-value = 0.056), while because ADLs are more severe than IADLS, there is no significant pathways from the former to the latter (p-value = 0.201). It seems that participation in social activities reduces the risk to develop IADL limitations at the next period, but does not seem to influence more severe ADL limitations.

Table 1 : Determinants of disablement

Dep var is N. of limitations :	IADL	ADL
Lagged covariates		
ADLt-1	0.031	0.110***
IADLt-1	0.113***	-0.076*
Social activities	-0.269***	-0.121
Sport club, etc.	0.071	0.017
Contemporaneous covariates		
Multimorbidity	0.309***	0.536***
Frailty	0.380***	0.485***
Make-ends-meet	0.015	0.030
Without partner ≤ 2 years	-0.148	-0.348
Social activities	-0.207**	-0.198
Sport club, etc.	0.000	-0.065
Caregiver	0.000	0.118
Occupational status		
At work	0.027	0.020
Not at work	ref.	ref.
Time dummies		
Wave 2	ref.	ref.
Wave 4	0.374***	0.440***
Initial conditions		
Health problems in adult life	0.069	0.285***
Intercept	-1.255***	-3.073***
N obs.	2822	2822
N indiv.	1411	1411

Legend: * p<10%; ** p<5%; *** p<1%.

Conclusion

Our results indicate that taking part in social activities may reduce the risks to develop IADL limitations at the next period, while no effect is found with regard to more severe ADL limitations. Encouraging social activities is therefore useful to prevent functional limitations at an early stage of the disablement process.