



Pasts that last: The moderating role of education and former occupation for men's volunteering after retirement

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Abstract

This study uses nationally representative cross-sectional data to investigate the relationship between retirement and volunteering among men aged 50–70 in the Netherlands, and how this relationship is influenced by educational and occupational background. Based on a life-course perspective, it is hypothesized that education, socio-economic status related to the occupation and non-manual occupations will moderate the relation between retirement and volunteering activities for several reasons. Results from tobit regressions indicate that retirees, the highly educated, people with high occupational status and former non-manual workers are more involved in volunteering. While no interaction between retirement and educational level is found, the characteristics of the occupation (socio-economic status and non-manual versus manual work) are indeed found to interact with retirement, leading to higher volunteering rates for male retirees from occupations with high status, and retirees from non-manual occupations. Implications, strengths and limitations of the study are discussed.

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1. Introduction

The group of retirees is steadily growing across Western countries. A suggestion has been to optimally exploit the large potential of this group by promoting civic engagement among senior citizens, especially retirees (Morrow-Howell, 2010; Warburton, Paynter, & Petriwskyj, 2007). Some have even stated that this group

could 'save civil society' by engaging in productive communal activities such as formal volunteering (Freedman, 1997). The idea is that society benefits from the vast resources that retirees have, while they themselves can profit from the non-monetary advantages that volunteer work has to offer. For these reasons, knowledge about how retirement affects volunteering activities, and, more specifically, *which* retirees decide to volunteer and which do not is important.

While previous research has recurrently shown that, in general, retirement positively influences volunteering (Chambré, 1984; Choi, 2003; Erlinghagen & Hank, 2006; Hank & Erlinghagen, 2009; Mutchler, Burr, & Caro, 2003; Principi, Warburton, Schippers, & Di Rosa,

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2012; Van den Bogaard, Henkens, & Kalmijn, 2014), there are good reasons to suspect that this effect differs for people from various backgrounds. In social stratification research, the question whether it is mostly human capital or rather class that is at work as a differentiating factor in society has been debated extensively. It has been argued that cultural resources, like cognitive skills and knowledge, have become dominant over traditional class hierarchies for explaining differences between people (Bell, 1976; Bourdieu, 1984; Brint, 1984; Gouldner, 1979; Pakulski & Waters, 1996). The relative importance of education over occupation has also been attested empirically, mostly for values and attitudes (Davis, 1982; Kalmijn & Kraaykamp, 2007; Svallfors, 2005; Van de Werfhorst & De Graaf, 2004). On the other hand, there are those who maintain that the class position of a person, usually measured by their occupation, remains the principal component (Evans, 1993; Goldthorpe & Marshall, 1992; Hout, Brooks, & Manza, 1993). This study is among the first to recognize the influence of retirees' educational and occupational heterogeneity on their volunteering and investigate which one of these is most influential.

Earlier studies have shown that education (McPherson & Rotolo, 1996; Wilson, 2000) and other stratification variables such as class and job status (Brady, Verba, & Schlozman, 1995; Gerstel & Gallagher, 1994; Smith, 1994; Wilson & Musick, 1997b) are important predictors for volunteering. That is, on average, those with more education and higher status tend to do more volunteering. To the knowledge of the authors, this has not been coupled with the finding noted earlier that retirement prompts (more) volunteering. A question that thus remains is how the social position and human capital of people during their working life shapes their volunteering activities after retirement. This study adds to the literature by offering insight into *how men's retirement affects their volunteering, and how this relationship is influenced by educational level and occupational background*.

Educational and occupational characteristics have been attested to be highly influential for retirement outcomes other than volunteering, such as *well-being*. For example, Quick and Moen (1998) showed that various occupational status groups (e.g., professional, sales-clerical) differ in their levels of satisfaction with retirement. In a similar vein, Van Solinge and Henkens (2008) found that people who experience their job as challenging are less satisfied with their retirement and adjust less well to it – indicative of them 'missing' their job and the accompanying experiences. This can be related to the finding that well-being in retirement

is also dependent on educational background and the 'need for cognition': when putting their human capital to use some people require more variety and complexity in their experiences than others to be happy (Bye & Pushkar, 2009).

Regarding post-retirement *activities*, surprisingly little is known about how the different backgrounds of retirees influence retirement outcomes. Wang, Zhan, Liu, and Shultz (2008) showed that one such activity, bridge employment, is more prevalent among those with higher education and less likely for those with stressful (former) jobs. With regard to *volunteering* as a post-retirement activity – the focus of this study – research that recognizes the educational and occupational heterogeneity of retirees is virtually non-existent. This hiatus is remarkable, since differences in human capital, social class and status can be expected to matter for the effect of retirement on people's activities. For example, one person may be a highly educated managing director in a challenging environment and with many connections, while another does hard physical labor in a monotonous, repetitive job. People differ in their individual human capital and occupational background, and are likely to shape their post-retirement activities accordingly.

There is some debate on the extent to which different types unpaid activities count as volunteering, and should be distinguished from each other (Wilson, 2000). A distinction is often made between formal volunteering, such as an active membership of a public association, and informal volunteering, such as driving an elderly neighbor to the store for groceries. Like most of the literature, this paper will employ a mostly formal definition of volunteering since such forms of unpaid activities may serve as the most satisfying substitutes for paid work (Brady et al., 1995; Chambré, 1984; Choi, 2003; Erlinghagen & Hank, 2006; Gerstel & Gallagher, 1994; Hank & Erlinghagen, 2009; Mutchler et al., 2003; Principi et al., 2012; Smith, 1994; Van den Bogaard et al., 2014; Wilson & Musick, 1997b). Use is made of Dutch data from 2003 and 2007, nationally representative for men.

Regarding retirement, the Netherlands does not deviate considerably from most Western-European countries (Commission of the European Union, 2000; Euwals, de Mooij, & van Vuuren, 2009). Like in many other countries, policies on labor-market and retirement were under pressure and changing at the time of data collection. Working longer was being encouraged while early exit from the labor market was steadily becoming less financially attractive. Still, the general culture was and is one of the early exit with many people moving out of the labor force fully or partially before the age of 65.

With regard to volunteering the Dutch pose a noteworthy case as the young old have some of the highest volunteering rates of Europe (Erlinghagen & Hank, 2006; Hank & Erlinghagen, 2009), which partly reflects the relatively strong support of the government for voluntary organizations (Pichler & Wallace, 2007). Moreover, the nonprofit sector in the Netherlands was strongly influenced by the ‘pillarization’ of Dutch society, a phenomenon most prevalent from the second half of the 19th century until well into the 20th century. Dutch society was highly segregated, characterized by ‘pillars’, in which groups of people organized themselves along religious and political lines. As a result, each group (e.g., Catholics, Protestants, etc.) had its own newspapers, schools, and associations, boosting the total amount of nonprofit activities (Burger, Dekker, Toepler, Anheier, & Salamon, 1999). Although this paper focuses on men only because of data restraints, in terms of volunteering input there seems to be little difference between men and women in the Netherlands. The odds to volunteer are equal, but men invest a little more time once they volunteer (Van Ingen & Dekker, 2011). To what extent the specifics of the Dutch situation influence the generalizability of the results will be discussed in the conclusions.

2. Background and theoretical perspective

Most theories suggest that following retirement, people (partly) compensate for the ‘loss’ of the job by investing in alternative activities that can provide the resources and benefits which accompanied paid work (Atchley, 1989; Biddle & Thomas, 1966; Chambré, 1984; Havighurst, 1963; Sieber, 1974). This study partly follows that general line of reasoning, but also suggests moderating mechanisms from a life course perspective. Central to this perspective is the notion that the actions and choices of individuals structure their life course, and that these actions and choices are contextually embedded in personal history and social structures (Wang, Henkens, & van Solinge, 2011). A life transition such as retirement and its outcomes are thus contingent on relevant circumstances as, for example, the voluntariness of the transition (Van Solinge & Henkens, 2008) or the employment status of a spouse (Kim & Moen, 2002). The sections below first argue why an effect of retirement on volunteering is expected for all retirees, regardless of educational or occupational background. After that it is discussed how this effect is expected to differ along educational and occupational lines.

2.1. General mechanisms: time and social contacts

During working life, the job provides identity and status, a source of experiences, and a structured outlet of creativity and self-expression (Atchley, 1976; Friedmann & Havighurst, 1954; Streib & Schneider, 1971). It is also one of the most time consuming activities in the life of people. Retirement, then, means a loss of resources and a steep increase in leisure time that requires satiation. Earlier research has shown that voluntary work may serve this purpose well (Chambré, 1984; Choi, 2003; Fernández-Ballesteros et al., 2011; Hank, 2011; Hank & Erlinghagen, 2009; Hank & Stuck, 2008; Mutchler et al., 2003; Okun & Schultz, 2003; Palmore, Fillenbaum, & George, 1984; Van den Bogaard et al., 2014), and it has been suggested that this holds mostly for men, as “adjustment to retirement seemed relatively easy for those women who always had a second role as home-makers. They simply shifted from one possible self to another well-established one” (Kloep & Hendry, 2006, p. 590). Volunteering is generally regarded as any non-remunerated activity that somehow benefits people or organizations other than the volunteer, although they are not precluded from benefitting from their activities in non-monetary ways (Wilson, 2000, p. 216). This paper will *not* focus on informal types of volunteering, which relates to activities such as caring for family and friends. The aim will be at more formal volunteering, such as unpaid work for organizations or clubs.

Such activities are not purely altruistic. They offer ‘benefits for the benefactor’: the opportunity to put human capital to use or expand it, to interact with people, to feel useful and important, to ‘matter’ (Clary & Snyder, 1999; Piliavin, 2003, 2005; Rosenberg & McCullough, 1981; Van Willigen, 2000; Wilson, 2000). As such, volunteering can be a good substitute for the lost job, and also requires the commitment of time. Consequently, volunteering can (partly) fill the free time newly gained in retirement. This argument is general since, irrespective of educational and occupational backgrounds, retirement drastically expands leisure time.

Another general trait of retirement is the decrease in contacts with (former) co-workers, which has been attested in earlier research (Cozijnsen, Stevens, & van Tilburg, 2010; Van den Bogaard et al., 2014; Van Tilburg, 2003). As social relationships are important for well-being (House, Landis, & Umberson, 1988), all retirees, regardless of status background, may engage in (more) volunteer work to compensate for lost social contacts, since volunteering usually involves interaction with others (Wilson, 2000). The arguments above lead to the

general retirement hypothesis: *retirement will have a positive effect on volunteering hours (H1).*

2.2. Moderating mechanisms: educational background

The life course perspective proposes that the choices and actions of people depend on their personal history and circumstances. Education is a principal example of this, and it is expected to moderate the retirement effect for several reasons. First, education is a good predictor of volunteering since it boosts empathy, social responsibility, self-confidence, and creates awareness about social problems (Brady et al., 1995; Rosenthal, Feiring, & Lewis, 1998; Wilson, 2000). This leads to highly educated people being more likely to have internalized values that encourage volunteering and having an intrinsic motivation to be socially active and productive. They are more motivated to be active – be it in work or volunteering – because they find the activities *themselves* important, interesting and rewarding (Porter & Lawler, 1968; Thomas, 2000). They have relatively large amounts of human capital, and volunteering is ‘the opportunity to exercise and/or practice knowledge and skills that otherwise could not be used’ (Clary & Snyder, 1999, p. 126).

Second, volunteering requires human, social and cultural capital in varying degrees (Wilson & Musick, 1997a). For this reason, the highly educated are thus in relatively high demand as volunteers since they generally have elevated amounts of these kinds of capital (Becker, 2009; Helliwell & Putnam, 2007). As a result they have more options to choose from when they want to volunteer, or, vice versa, lower educated people are more restricted in their volunteering options.

Finally, when voluntary work is already performed prior to retirement it is easily expanded after the cessation of paid work, which contrasts the possible ‘barrier’ new volunteers can experience when they are not already active and do not have the conducive connections. Research has shown that during the working life, volunteering is highly dependent on experiences earlier in the life course, such as education (McPherson & Rotolo, 1996; Wilson, 2000). Since highly educated retirees are more likely to already be involved in volunteering, it is easier for them to increase their volunteering activities than it is for lowly educated retirees to *start* volunteering.

To sum up, education generally increases awareness of social problems and feelings of responsibility as well as the attachment to work and work like activities. Additionally, a higher education generates more opportunities for volunteering as it increases skills, human capital,

and the necessary connections. As retirement bereaves people of their job and bestows them with time, the higher educated will be more inclined to spend this time volunteering. This leads to the educational diversity hypothesis: *the effect of retirement on volunteering hours will be positively influenced by educational level (H2a).*

2.3. Moderating mechanisms: occupational background

Apart from education, a person’s occupation and accompanying social position can be expected to matter greatly for their post-retirement life. Although some people still identify themselves with their past occupation, retirement can be interpreted as the *loss* of one’s occupation. High status occupations are generally characterized by more complexity, autonomy and variety than low status occupations. They are more demanding as well as more supplying in terms of resources and skills, and require dealing with challenges while promoting an active orientation on life in general (Kalleberg, 1977; Kohn & Schooler, 1983; Loher, Noe, Moeller, & Fitzgerald, 1985; Ross & Reskin, 1992; Wilensky, 1961; Wilson & Musick, 1997a, 1997b). Losing such an occupation may imply losing more daily challenges, varying experiences, and means to put human capital to work than losing a low status occupation (Atchley, 1976, 1989). In that respect, retiring from a high status occupation represents a different loss than retiring from a lower status occupation, since the latter are less well typified by the features described above. Low status occupations are often more physically demanding, repetitive, and low in autonomy, making them less intrinsically rewarding. In other words, retirement from a low status occupation will often be interpreted as a relief rather than a loss. It can be expected then that people with higher social status will shape their retirement in a way that substitutes challenging and gratifying experiences, and offers channels to outlet their human capital, more so than people from lower social status strata. Volunteering can be a good way to do so.

Finally, retirement from any occupation may imply losing the honor and prestige associated with that occupation. Retiring from an occupation with high social status thus suggests losing more honor and prestige. Commitment to altruistic behavior like volunteering may (partly) compensate for this by providing social status (House et al., 1988; Kaskie, Imhof, Cavanaugh, & Culp, 2008; Morrow-Howell, 2010). Moreover, people from higher social status jobs may conserve the status tied to their former occupation by performing voluntary

work that largely resembles their former occupation. For example, a former financial director may again hold financial responsibility and have management tasks, only without remuneration. Overall, the arguments above lead to the occupational diversity hypothesis: *the effect of retirement on volunteering hours will be positively influenced by (former) occupational status (H2b)*.

To capture several dimensions of occupational status, two separate indicators will be used, namely the ascribed International Socio-Economic Index of occupational status (ISEI) and a more class-oriented variable, that is, whether a person performed mainly manual or non-manual labor.

3. Methods

3.1. Data and sample

This study uses cross-sectional, nationally representative Dutch data for men from the 2003 and 2007 editions of the Additional Facility-use Inquiry (Aanvullend Voorzieningengebruik Onderzoek, or AVO). The survey has been conducted for the Netherlands Institute for Social Research (SCP) every 4 years through 1979 and 2007 and its aim is to provide insight into the use of social and cultural facilities by households and their members (Buis, 2007). The 2003 and 2007 editions of the survey include information on volunteering and are pooled to generate statistical power for the analyses. Although there are minor differences in the method of sample selection and data collection, the surveys were identical with regard to content (Buis, 2007). The data include not only information on the current job, but also, if applicable, the job *before* retirement. This is essential for establishing the occupational background of the retired respondents.

For the 2003 survey, households were selected by randomly picking addresses from all postal delivery points. In 2007, respondents were selected through stratified two-step sampling. First, a number of municipalities were selected (larger municipalities had a larger chance of being selected), in which subsequently households were selected to participate in the survey by randomly picking addresses. Both strategies lead to a representative sample of the Dutch male population. A total of 20,572 households were selected for participation, of which a total of 12,623 actually participated, leading to an overall response rate of 61.4 per cent which is relatively high compared to analogous surveys in the Netherlands (De Leeuw & De Heer, 2001).

For this study, men aged 50–70 were selected from the sample (3308). The minimum was set at 50 since in

the Netherlands the mean retirement age at the time of the survey was around 58 (Siermann & Dirven, 2005) with many people retiring earlier. At age 65 a person becomes eligible for a public pension, and it is the mandatory retirement age for most occupations. Above age 70 retirement is in a more distant past and health issues often restrict people in their activities. The age range thus captures both retirees and paid workers of comparable ages.

Only men were selected since, unfortunately, the data do not include information on the number of hours worked prior to retirement. For retirement to indicate a substantial transition from paid work to leisure it must then be assumed that, when still working, retirees put in a significant number of hours. For men within the age range this is an acceptable assumption, but since the majority of women in those birth cohorts are not in paid employment, and those that are work in small part-time jobs (Van der Valk & Boelens, 2004), they are not included in the sample.

Other cases dropped from the sample include respondents that indicated never having worked (42), being unemployed and looking for a job (64), or disabled (216). People reporting retirement but the end of their last paid work spell before the age of 53 are omitted from the sample (139). This group mainly consists of people who quit working early in life because of health issues or an unemployment spell that endured, but now consider themselves retired. Finally, missing information on the (current or last) occupation or other variables caused 182 cases, or 6 per cent of the sample, to be dropped, leading to a final sample size of 2665. Within this sample there are 1823 people in paid employment, and 842 people in (early) retirement.

3.2. Dependent variable

To measure volunteering, people were asked to indicate the average number of hours per week that they spent on unpaid voluntary work. This question was positioned in the questionnaire so that it clearly concerned formal volunteering such as activities for organizations of which the respondent was a member. Of the number of hours, the natural logarithm was used since the distribution is positively skewed with most respondents reporting none or a small number of hours, and a few reporting a full work week of volunteering. Furthermore, the step from 1 to 2 h of volunteering per week is quite substantive, while for instance the step from 30 to 31 h – although equal in absolute terms – is relatively much less sizable. In other words, steps higher in the distribution

Table 1
Descriptive statistics of used variables.

Variable	Mean	SD	Description
Volunteering	1.82	5.05	Question: <i>How many hours a week do you do unpaid voluntary work?</i> Range 0 – 60.
Volunteering (ln)	0.46	0.86	See: volunteering. Of this the natural logarithm was computed. Range (0 – 4.11).
Retired	0.32	0.46	0 = working, including small part-time jobs. 1 = not working, respondent indicates ‘retired/early retirement’ most applicable to their situation (as opposed to unemployed/looking for a job; housewife/houseman; disabled; student/pupil; other).
Low education	0.35	0.48	Indicator for highest completed level of education. 1 = Elementary school, lower vocational.
Middle education	0.35	0.48	See Low education. 1 = (preparatory) middle-level vocational education; higher secondary education.
High education	0.30	0.46	See Low education. 1 = higher vocational; university or higher.
ISEI	49.56	16.67	International Socio-Economic Index of occupational status (ISEI). Range: 16 – 88.
ISEI, standardized	0.00	1.00	See ISEI. Range (–2.02 to 2.30).
Non-manual labor	0.59	0.49	Discriminator for type of work. 0 = manual labor; 1 = non-manual labor. Based on ISCO typification and job description.
Hampered by handicap	0.19	0.40	Question: <i>Are you hindered in performing your daily activities by a long-term physical affliction or handicap?</i> 1 = yes.
Partner in household	0.87	0.34	Indicator for a partner living in the household of the respondent. 1 = yes.
Children in household	0.26	0.44	Indicator for children living in the household of the respondent. 1 = yes.
Urbanization degree	0.00	1.00	Measure for degree of urbanization based on postal code (5 point scale), standardized. Range (–1.52 to 1.62).
Income sufficiency	0.00	1.00	Question: <i>How easy or hard is it for your household to make ends meet with the total income?</i> Answer categories: <i>Very easy, easy, not easy or hard, hard, very hard.</i> Standardized, range (–3.39 to 1.48).
Age	0.00	1.00	Standardized, range (–1.46 to 1.98).
Wave 2007	0.05	1.00	Indicator for wave of data collection. –1 = 2003; 1 = 2007

Source: AVO2003 and AVO2007 (authors’ calculations).
N of observations is 2665 for all variables.

are relatively smaller and logging the number of hours reflects this relativity, creating a better perspective.

A total of 1954 respondents are not active as volunteers, while 711 people (27 per cent) report some amount of volunteering. Of those who volunteer, the majority (55 per cent) does this for four hours per week or less, 75 per cent for up to eight hours, and less than 9 per cent reports more than 16 h of volunteering per week. On average, volunteers report 6.8 h of volunteering per week, while for the total sample (including non-volunteers) this is 1.8 h. Descriptive statistics and coding properties of volunteering and other variables can be found in [Table 1](#).

3.3. Predictor variables

The survey included the question whether people were in paid employment. If so, people were coded as working, i.e., ‘0’ on the retirement variable. For those indicating not being in paid employment, the question ‘*Which situation is currently most applicable to you?*’ was asked, for which the answer categories were *unemployed/looking for a job; housewife/houseman; disabled; student/pupil; retired/early retirement; other*. Those opting for ‘*retired/early retirement*’ as most

appropriately describing their situation are considered as retired, and coded 1 on the retirement variable. This self-assessed measure of retirement is a reliable operationalization ([Denton & Spencer, 2009](#)). The people in paid employment report an average of 39 *actual* working hours per week, with 10 per cent working less than 3 days (or 24 h) per week.

Educational level was measured by looking at the highest education that a person completed with a diploma. Since it is problematic to interpret this as an interval variable, this was recoded into three exclusive and exhaustive dummy variables. Firstly, people with only elementary or lower secondary education are coded as having a low educational level. People with only a higher secondary or low tertiary diploma fall into the category for middle educational level. Finally, people who completed a higher tertiary education are coded as having a high educational level. Analyses with more specific dummy variables or education as interval variable yielded similar results. See [Table 1](#) for more detailed descriptions of the variables.

The socio-economic status of the occupation (or former occupation) was measured using the International Socio-Economic Index of occupational status, or ISEI ([Ganzeboom, de Graaf, & Treiman, 1992](#)). This measure

could be derived from the International Standard Classification of Occupations (ISCO) code that was available in the data and is of proven validity (Ganzeboom et al., 1992; Treiman, 1977). The ISEI is a powerful internationally comparable continuous measure for socio-economic status, which basically summarizes occupational distinctions in a single parameter. By looking at the occupational group, education and income that accompany specific occupations, Ganzeboom et al. (1992) were able to assign socio-economic status scores to every ISCO code. The original ISEI variable runs from 16 (lowest status) to 90 (highest) and was standardized for the current analyses.

Through the standardized coding of the occupations, the data indirectly include information on specific work attributes (occupation related skills, work activities) which makes it possible to distinguish between occupations that entail mostly manual or non-manual labor. This information was cross-checked with the job descriptions given by the respondents (captured in several string variables) for face validity. This way every respondent was coded as either 0 or 1 for manual and non-manual labor, respectively.

An alternative approach to occupational status is the categorical class scheme developed by Erikson, Goldthorpe, and Portocarero (1979), or the EGP categories. The EGP approach is more discrete, assuming up to ten clearly distinguishable social categories (Ganzeboom et al., 1992). Although this method has its strengths, it would call for a large number of dummy variables in the analyses, thusly causing power problems by splitting up the group of retirees into relatively small factions. Moreover, by using both ISEI and manual versus non-manual work as indicators for occupational status and class, this study captures several of the underlying dimensions of the EGP scheme, in particular the manual/non-manual class line and the underlying status differences within the manual and non-manual class (Erikson et al., 1979).

In the analyses several controls are used. Household composition is captured by including whether a partner or children are present: the majority of the respondents lives with a partner and without children in the household (see Table 1). To control for opportunity structures the degree of urbanization and income sufficiency are included in all models. Physical constraints are controlled for by a variable that indicates whether respondents report structurally being hampered by physical afflictions. Age effects are captured by the standardized age variable. Alternative methods (i.e., age dummies, squared age variable) were checked but did not substantially change the outcomes of the analyses.

The average age in the sample is 58.5 years, with 55.6 years for paid workers and 64.7 for retirees. Detailed descriptions and coding properties of all variables can be found in Table 1.

3.4. Method

Since the largest proportion of the people in the sample (73 per cent) report doing no volunteering work at all, the dependent variable – logged volunteering hours – is strongly truncated toward zero. For that reason, tobit analyses are more appropriate and useful compared to standard ordinary least squares (OLS) regression models. The tobit model was specially developed for censored or truncated data, and essentially combines logit and standard OLS regression techniques (McDonald & Moffitt, 1980; Roncek, 1992; Tobin, 1958). It assumes that a large number of observations cluster at a limiting value, often zero (as in the current case).

The interpretation of tobit coefficients is fundamentally different from standard OLS coefficients. Although tobit analysis produces a single coefficient per predictor in the model, the tobit coefficient can basically be divided into two parts: one part for the portion of respondents above the censoring limit, i.e., people already volunteering in this study, and one part for the group at the censoring point, i.e., people not volunteering. In other words, the tobit coefficients in this study break down into an hours coefficient, and a probability coefficient. Formulas and derivatives to distinguish between these groups and correctly interpret the tobit coefficients were provided by McDonald and Moffitt (1980, p. 319) and Maddala (1986, pp. 149–160). For cases above the limit, or those reporting volunteering, the change in the expected value of y (hours volunteering) is given by:

$$\frac{\delta E y^*}{\delta X_1} = B_1 \times \left[1 - \left(z \times \frac{f(z)}{F(z)} \right) - \frac{f(z)^2}{F(z)^2} \right] \quad (1)$$

And for those at the limit, reporting no volunteering:

$$\frac{\delta F(z)}{\delta X_i} = B_i \times \frac{f(z)}{\sigma}, \quad (2)$$

with B_1 being the tobit coefficient for a specific independent variable, z being the z -score corresponding with the area below the normal curve, $F(z)$ being the function of the cumulative normal distribution related to the proportion of cases above the limit – i.e., an area under the normal curve, $f(z)$ being the value of the derivative of the normal curve at a specific location, and σ is the standard deviation of the error term (Roncek, 1992, p. 304).

As has been shown by McDonald and Moffitt (1980), $F(z)$ can be easily found by looking at the distribution of the dependent variable, or more precisely the proportion of cases above the limit. In the current case, 711 of the 2665 people in the sample report doing at least 1 h of volunteering per week, so the proportion of cases above the limit, $F(z)$, is 0.267. This leads to an area under the normal curve of 0.5 (the midpoint of the curve) $- 0.267 = 0.233$. This in turn is associated with a z -score of -0.62 (negative because of $F(z)$ is below the midpoint of the curve) and an ordinate $f(z)$ of 0.329. Filling in the formula delivers

$$\begin{aligned} \frac{\delta E y^*}{\delta X_1} &= B_1 \times \left\{ 1 - \left[(-0.62) \times \frac{0.329}{0.267} \right] - \frac{(0.329)^2}{(0.267)^2} \right\} \\ &= B_1 \times 0.25 \end{aligned}$$

This means that the proportion of the coefficient that holds for cases above the censoring point is 0.25. Since z , $f(z)$, and $F(z)$ are *always* the same for the sample in this study, to obtain the coefficient of *any* independent variable for the group above zero hours, the original tobit coefficient needs to be multiplied by 0.25.

For the cases at the censoring point, or those reporting zero hours of volunteering, the effect of an independent variable on the *probability* of volunteering can be calculated by using equation (2). Because *sigma* does change with different tobit analyses on the same sample – albeit only slightly in this study – it is not possible to deliver a single value with which all coefficients can be multiplied. This will be done in the results section.

4. Results

Table 2 provides confirmation of the general retirement hypothesis: retirement positively affects volunteering. Model 1 is essentially a baseline model with retirement, educational level, occupational status, the manual – non-manual distinction, and the control variables included. The coefficient for retirement is highly significant, and remains so in the other models, including those with interactions. Although the size of this coefficient may differ along educational or occupational lines, retirees seem to spend at least some of their new leisure time by engaging in volunteer work.

The tobit coefficient for retirement in model 1 is 1.12 ($p < 0.001$). Using the proportion calculated earlier, this translates into a coefficient of 0.28 for the group above the censoring point, or those reporting volunteering activity ($1.12 \times 0.25 = 0.28$). This is 32 per cent more ($\exp^{0.28} = 1.32$) in terms of hours per

week. For people reporting no volunteering there is a 16 per cent higher probability of being a volunteer when they are retired ($B_1 \times (f(z)/\sigma) \times 100 = 1.12 \times (0.329/2.35) \times 100 = 15.7$).

Model 1 also corroborates other results found in earlier research, namely that educational level and occupational status positively influence involvement in volunteering. For high versus low education, the tobit coefficient in model 1 is 0.62 ($p < 0.001$), which means a coefficient of 0.16 for the group above the censoring point. This translates into 17 per cent higher volunteering hours. Within the inactive group, a 9 per cent higher probability of being a volunteer for higher educated people versus lower educated people is found. Smaller but significant differences are found for middle versus low education. The type of work (manual versus non-manual) also appears to matter for volunteering, as the significant coefficient implies ($B = 0.45$, $p < 0.05$). When this variable is left out of the model, the occupational status (ISEI) coefficient is also significant ($B = 0.24$, $p < 0.01$; not shown in table).

The educational diversity hypothesis is tested in model 2. Significant coefficients for retirement and educational level are produced again, but no significant interactions of retirement and education are found. This indicates that the effect of retirement does not differ across educational groups, which contradicts Hypothesis 2a.

Models 3 and 4 test the occupational diversity hypothesis and offer convincing confirmations: retirees from occupations with higher status will volunteer more. Firstly, model 3 presents support for hypothesis 2b by showing the effect of retirement ($B = 1.09$, $p < 0.001$), as well as a significant interaction of retirement and ISEI ($B = 0.34$, $p < 0.01$). The interpretation is that a standard deviation of difference in status equals a difference in the retirement coefficient of 0.34, since status was standardized for the analyses. The coefficient for retirement in model 3 relates to people with a standardized ISEI value of 0, i.e., an average status. The unstandardized ISEI ranges from 16 to 88, with a mean of 49.6 and a standard deviation of 16.7. Thus, for people with the lowest ISEI – or about two standard deviations below the mean – the coefficient for retirement is $1.09 - (2 \times 0.34) = 0.41$, while for the highest levels of occupational status this is $1.09 + (2 \times 0.34) = 1.77$. These are tobit coefficients, so the interpretation is that for volunteers the coefficients of retirement are 0.10 and 0.44 for the lowest and highest ISEI groups, respectively. In other terms – for those above the censoring limit, the lowest ISEI retirees do 11 per cent more ($\exp^{0.10} = 1.11$) volunteering than their working peers,

Table 2
Results of tobit regressions of logged volunteering hours per week, including interactions.

	Model 1	Model 2	Model 3	Model 4	Model 5
Retired (vs working)	1.12*** (0.18)	0.97*** (0.26)	1.09*** (0.18)	0.69** (0.25)	1.02** (0.32)
Middle education (vs low)	0.41** (0.16)	0.51** (0.19)	0.49** (0.15)	0.40* (0.16)	0.41* (0.20)
High education (vs low)	0.62*** (0.19)	0.97*** (0.19)	0.72*** (0.18)	0.69*** (0.18)	0.83*** (0.23)
ISEI (std ^a)	0.11 (0.09)		0.12 (0.09)		−0.02 (0.12)
Non-manual labor (vs manual)	0.45* (0.18)			0.33 (0.17)	0.30 (0.23)
Retired × Middle education		0.39 (0.30)			−0.07 (0.33)
Retired × High education		0.15 (0.31)			−0.57 (0.38)
Retired × ISEI			0.34** (0.12)		0.34 (0.19)
Retired × Non-manual labor				0.68** (0.26)	0.40 (0.38)
Hampered by handicap (vs not)	−0.09 (0.15)	−0.09 (0.15)	−0.11 (0.15)	−0.10 (0.15)	−0.11 (0.15)
Partner in household (vs no)	0.05 (0.18)	0.09 (0.18)	0.07 (0.18)	0.06 (0.18)	0.07 (0.18)
Children in household (vs no)	0.29 (0.16)	0.31 (0.16)	0.30 (0.16)	0.30 (0.16)	0.29 (0.16)
Urbanization degree (std ^a)	−0.16** (0.06)	−0.14* (0.06)	−0.15* (0.06)	−0.15** (0.06)	−0.16** (0.06)
Income sufficiency (std ^a)	0.05 (0.06)	0.09 (0.06)	0.05 (0.06)	0.05 (0.06)	0.04 (0.06)
Age (std ^a)	0.01 (0.09)	0.02 (0.09)	0.01 (0.09)	0.01 (0.09)	0.01 (0.09)
Wave 2007	0.23** (0.07)	0.22** (0.07)	0.22** (0.07)	0.23** (0.07)	0.23** (0.07)
Retired × Wave 2007	−0.32** (0.12)	−0.31* (0.12)	−0.34** (0.12)	−0.33** (0.12)	−0.34** (0.12)
Constant	−2.49*** (0.25)	−2.41*** (0.24)	−2.28*** (0.23)	−2.44*** (0.23)	−2.47*** (0.27)
<i>Sigma</i>	2.35	2.35	2.35	2.35	2.34
Log likelihood	−2477	−2478	−2475	−2478	−2472
Likelihood ratio Chi-square	164***	161***	168***	162***	174***
<i>N</i>	2665	2665	2665	2665	2665

Standard errors in parentheses. Author's calculations.

^a Standardized variable.

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.

while the highest ISEI retirees do 55 per cent more. These are substantial differences. Finally, with regard to the non-volunteers, the probabilities of being a volunteer in retirement are 6 ($0.41 \times (0.329/2.35) \times 100 = 5.74$) and 25 per cent higher than being a volunteer in paid work (for the lowest and highest ISEI groups, respectively). These substantial differences are graphically depicted in Fig. 1.

Model 4 further tests hypothesis 2b by including an interaction with the alternative measure for occupational status, manual versus non-manual work, and provides additional support for this hypothesis. Former non-manual workers are more active as volunteers in retirement than former manual workers. The coefficient for retirement ($B = 0.69, p < 0.01$) now holds for (former) manual workers, while the coefficient for non-manual

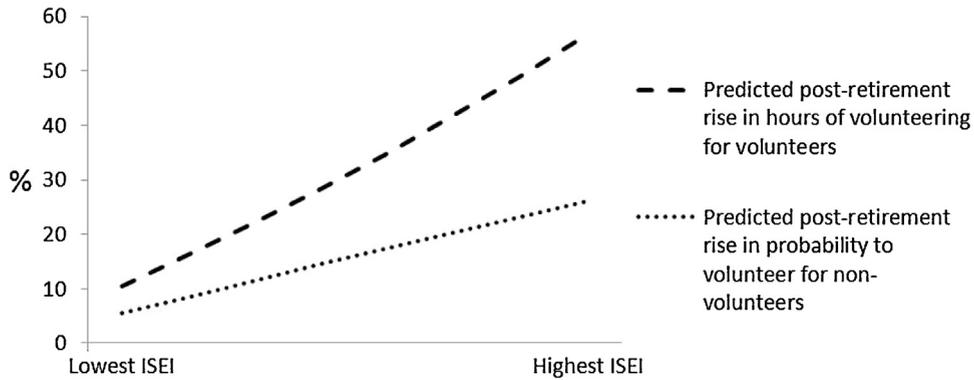


Fig. 1. Predicted post-retirement rise (percentage) in the amount of volunteering for volunteers, and in probability to volunteer after retirement for non-volunteers by ISEI. Note: controls as in Table 2, model 3.

workers can be found by adding this coefficient to the (significant) interaction: $0.69 + 0.68 = 1.37$. For the cases above the censored point, i.e., volunteers, these coefficients are adjusted to 0.17 and 0.34 for manual and non-manual workers, respectively. This translates into 19 (manual) and 40 per cent (non-manual) more volunteering in retirement. For the group of non-volunteers, the probabilities for retirees to be volunteers are 10 (manual) and 19 (non-manual) per cent higher than these probabilities for paid workers. These differences seem somewhat weaker than with the ISEI interaction, but are still consistent with our hypothesis. See Fig. 2 for a graphical depiction of the differences between manual and non-manual workers.

Model 5, finally, is a complete model with all interactions included. The education interaction with retirement remains insignificant, and the interactions with the occupational variables are no longer significant at $p < 0.05$, although the p -value of the ISEI interaction crosses this border only slightly ($p < 0.07$). While this may indicate

that occupational status is more decisive for the retirement effect than the manual/non-manual boundary, this is difficult to determine because of the seeming collinearity. Overall, Table 2 offers strong support for the general retirement hypothesis (H1) and the occupational diversity hypothesis (H2b), but no support for the educational diversity hypothesis (H2a). It seems that occupational background *does*, and educational background *does not* make a difference for volunteering outcomes of retirement.

Finally, all models in Table 2 control for the wave of data collection, as well as an interaction of retirement and wave. This approach was chosen to control for possible differences in volunteering rates between the waves. The coefficients show that there is indeed some variation in volunteering and the retirement effect between the waves. Note that the wave variable is coded -1 for 2003 and 1 for 2007. This means that the retirement coefficient – which holds for ‘wave = 0’ – is essentially a weighted average of the 2003 and 2007 coefficients.

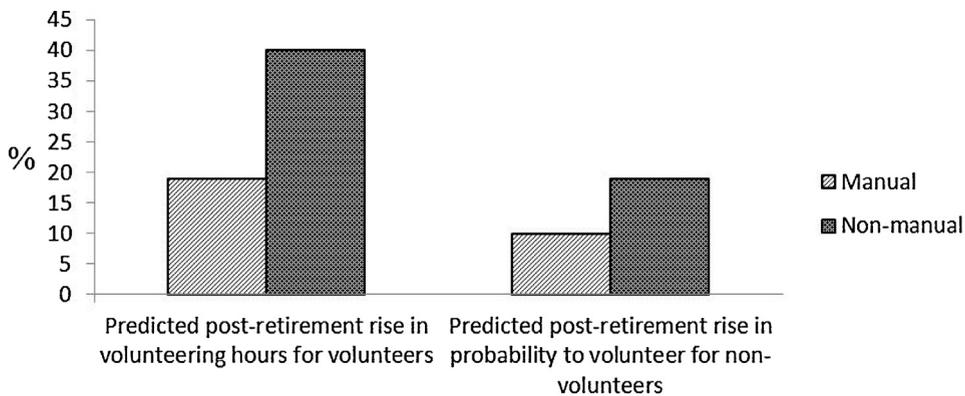


Fig. 2. Predicted post-retirement rise (percentage) in the amount of volunteering for volunteers, and in probability to volunteer after retirement for non-volunteers by type of work. Note: controls as in Table 2, model 4.

5. Conclusions

The primary contribution of this study lies in the provided insight into the heterogeneity of retirees regarding their post-retirement activities. It corroborates earlier findings that retirement increases volunteering, but more importantly, it provides clear support for the occupational diversity hypothesis that workers from higher status occupations volunteer more after retirement than workers from lower status occupations. Such evidence was *not* found for educational differences. However, education does have a consistent *direct* effect on volunteering. The question raised earlier, namely whether it is mostly education and human capital or rather status and class that are at work as stratifying factors is thus difficult to answer unequivocally. It seems that education remains an important predictor for volunteering in later life, but that the effect of *retirement* is largely determined by occupational status.

The hypotheses were based on two distinct but connected arguments. The general retirement hypothesis argued that retirement means a steep rise in leisure time and the loss of contacts with colleagues. Volunteering offers social relationships as well as a gratifying way to spend leisure time, and can thus accommodate retirees, irrespective of their educational or occupational background. The data clearly supported this hypothesis, since retirement effects were found in all educational and occupational groups.

The occupational diversity hypothesis proposed diversity among retirees from a life course perspective, arguing that the retirement transition is contextually embedded and influenced by personal history. It was theorized that high status occupations are characterized by more complexity, variety and challenges, fuelling the demand for alternative activities that feature these attributes, and that volunteer work fits these needs well. Because of that, retirees from high status occupations were expected to be more involved in volunteering. Again, there was clear support for this hypothesis: the impact of retirement on volunteering was found to be dependent on occupational status, measured in different ways. Thus, with regard to occupational background, this study provides support for the life course perspective in retirement research.

Similarly derived from the life course perspective, the educational diversity hypothesis proposed that the impact of retirement on volunteering would be stronger for higher educational levels. However, while education does seem to boost volunteering directly, the educational level does not appear to moderate the retirement effect. No significant differences were found between lower

and higher educated retirees with regard to their volunteering, which contrasts the findings discussed above. A possible explanation for this could be that at the retirement age, the period of education generally lies around 40 years in the past – years filled with work experiences and career development. In that sense, it can be understood that the more ‘recent’ occupational characteristics *do* seem to influence the relationship between retirement and volunteering while education has already ‘done its work’. Moreover, while retirement denotes the loss of the occupation, the educational level of a retiree is not lost but remains unaffected.

The data used for this study incite some remarks. While the cross-sectional nature makes it difficult to firmly establish causal relations, the findings for the main retirement effect mirror those found with panel data (Hank & Erlinghagen, 2009; Mutchler et al., 2003; Palmore et al., 1984). Another point regards the distinctiveness of the Netherlands with its high volunteering rates (Erlinghagen & Hank, 2006; Hank & Erlinghagen, 2009; Suanet, Broese van Groenou, & Braam, 2009). The results of this study may thus be country specific, as Dutch retirees may experience a strong social norm to volunteer, leading to strong retirement effects on volunteering. However, the position of the Netherlands is not extreme, so it is likely that the results are at least partly representative for other Western countries. Finally, this study was limited to men only. The life course perspective would suggest different retirement outcomes for men and women because of gendered and discrepant life courses. With the rising labor force participation of women and aging of cohorts of working women, this is an interesting topic for future research.

The strength of this study is not only that it adds to the literature by recognizing and revealing the educational and occupational heterogeneity of retirees for volunteering outcomes, it also suggests future research possibilities. From a life course perspective, there are many more outcomes of retirement that can be considered (e.g., well-being; relationships), and a wide range of moderating variables to take into account (e.g., sex; marital or parental status; retirement policies). Further, this study underscores the importance of volunteering for both retirees and society as a whole. Volunteering can be much more than a way to kill time. It can play an important part in the life of a person, providing resources of different kinds and gratifying experiences, irrespective of time investments. Still, it can be argued that the increase in volunteering hours is relatively small considering the total amount of leisure time retirement brings about. This raises the question how retirees fill the remainder of their time. Future research can perhaps

shed light on this matter. Finally, volunteering can benefit society as a whole. This study has re-verified that retirees invest time in volunteering, but revealed that the size of the investment depends on occupational status. Policy makers can take this into account when thinking of strategies to promote volunteering.

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