
This item was submitted to [Loughborough's Research Repository](#) by the author.
Items in Figshare are protected by copyright, with all rights reserved, unless otherwise indicated.

Volunteering and leisure activity in the UK: A longitudinal analysis of males and females

PLEASE CITE THE PUBLISHED VERSION

<https://doi.org/10.1177/0899764020901815>

PUBLISHER

SAGE Publications

VERSION

AM (Accepted Manuscript)

PUBLISHER STATEMENT

This paper was accepted for publication in the journal *Nonprofit and Voluntary Sector Quarterly* and the definitive published version is available at <https://doi.org/10.1177/0899764020901815>. Users who receive access to an article through a repository are reminded that the article is protected by copyright and reuse is restricted to non-commercial and no derivative uses. Users may also download and save a local copy of an article accessed in an institutional repository for the user's personal reference. For permission to reuse an article, please follow our [Process for Requesting Permission](#).

LICENCE

CC BY-NC-ND 4.0

REPOSITORY RECORD

Downward, Paul, Kirsten Hallmann, and Simona Rasciute. 2020. "Volunteering and Leisure Activity in the UK: A Longitudinal Analysis of Males and Females". figshare. <https://hdl.handle.net/2134/11340092.v1>.

1 **Volunteering and Leisure Activity in the UK:**

2 **A longitudinal analysis of males and females.**

3 Paul Downward¹, Kirstin Hallmann², Simona Rasciute¹

4 ¹Loughborough University, ²German Sport University Cologne

5
6 **Authors' Notes**

7 Paul Downward, School of Sport, Exercise and Health Sciences, Loughborough
8 University, Ashby Road, Loughborough, Leicestershire, LE11 3TU; E-mail:
9 P.Downward@lboro.ac.uk; Phone: +44 1509 226365

10 Kirstin Hallmann, Institute of Sport Economics and Sport Management, German
11 Sport University Cologne, Am Sportpark Muengersdorf 6, Cologne 50933; E-mail:
12 k.hallmann@dshs-koeln.de; Phone: +49-221-4982-6097; Fax: +49-221-4982-8144.

13 Simona Rasciute, School of Business and Economics, Loughborough University, ,
14 Ashby Road, Loughborough, Leicestershire, LE11 3TU; E-mail: S.Rasciute@lboro.ac.uk;
15 Phone: +44 1509 223620

16
17 **Short Biographies**

18 Dr. Paul Downward is a Professor of economics at Loughborough University. His research
19 interests include the determinants and impacts of volunteering in organisations and events
20 and sport, exercise and leisure time behaviour and impacts on health, well-being, human and
21 social capital.

22 Dr. Kirstin Hallmann is a senior lecturer at German Sport University Cologne. Her research
23 interests include volunteer management, sport consumer behavior, elite sports, sport events,
24 and sport tourism.

25 Dr. Simona Rasciute is a senior lecturer in economics at Loughborough University. Her
26 research focusses on the application of discrete choice econometric models to investigate
27 leisure time behaviour as well as health and well-being.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

Abstract

Theory recognises the need to account for the allocation of time across activities as a potential constraint on volunteering. Drawing on the British Household Panel Survey (BHPS), for the first time this paper examines the decision to volunteer by males and females accounting for their engagement in other leisure activities that also involve discretionary time. Instrumental variable panel-data estimates reveal that it is only for females that volunteering is influenced by the choice of other leisure activities. This implies that males have more autonomy over their volunteering decision relative to their other leisure behaviour compared to females. For males this greater autonomy suggests that volunteering is more closely linked to the concept of ‘serious leisure’ and a form of work as it is more distinct from other leisure activities. These differences have implications for volunteer recruitment.

Keywords

Volunteering, leisure time, panel data, gender differences

Introduction

1
2 Volunteering is an essential feature of society and cuts across many sectors including sport
3 and leisure, health, education and social care, with individuals volunteering in varied
4 activities according to their age and life-stages (Lukka & Ellis Paine, 2001). For example, in
5 2014-15 in the UK, 59% of the population volunteered informally and 42% formally, which
6 reflects a stable if fluctuating feature of society (Cabinet Office, 2015)¹. Various policies
7 have underpinned the need to promote volunteering in the UK. These range from initial
8 piecemeal charitable activity from the end of the second-world war up to the 1970s, the
9 consolidation of a wider institutionally based voluntary sector as part of social welfare reform
10 from the mid-1970s up to 1997, through to the ‘Third-Way’ of the New Labour Government
11 from 1997 and the ‘Big Society’ initiative of the former Conservative-Liberal Democrat
12 government (Alcock, Kendal & Parry, 2012). Whilst the ‘Third-Way’ comprised explicit
13 policy and government engagement with the voluntary sector to promote civic and
14 democratic renewal, the ‘Big Society’ initiative adopted a ‘bottom up’ stance in which
15 voluntary initiatives and activity could be viewed as potential replacements for ‘top-down’
16 state initiatives, arguing of the need to regenerate civic engagement (Alcock, Kendall, &
17 Parry, 2012; Civil Exchange, 2015). However, it has also been argued that that there is need
18 for further enhancement of volunteering precisely because such wide and varied policy
19 initiatives have failed (Civil Exchange, 2015). There is recognition that volunteering is now
20 needed more than ever in a civic context to help to fill the gaps left by cuts to public services
21 because of austerity (Lup & Booth, 2019).

22 The aim of this paper, therefore, is to revisit the determinants of volunteering in the
23 UK, through a key empirical contribution, to further inform volunteering recruitment and
24 promotion in the light of the pressing generally accepted policy need for a greater volunteer
25 base. There is a considerable literature exploring the motivations for volunteering (e.g.,

1 Cabrera, Marrero, & Carballeira, 2014; Chen & Chen, 2011; Clary & Snyder, 1999;
2 Lockstone-Binney, Holmes, Smith, Baum, & Storer, 2015) and determinants of volunteering
3 (e.g., Bauer, Bredtmann, & Schmidt, 2013; Dawson & Downward, 2013; Hallmann, 2015;
4 Taylor, Panagouleas, & Nichols, 2012; Ziemek, 2006). Surprisingly, however, whilst there is
5 an important growing literature that examines how family and social-economic transitions
6 influence volunteering in a longitudinal setting (Einolf, 2018; Lancee & Radl, 2014; Nesbit,
7 2012), there is no research that examines the longitudinal choice to volunteer specifically in
8 connection with the opportunity to allocate leisure time. The research that exists, moreover,
9 focusses on sports participation and volunteering only in a cross-sectional context (Dawson &
10 Downward, 2013). Yet core theoretical perspectives directly acknowledge that volunteering
11 requires both the desire and capacity to allocate non-obligatory time. This raises the
12 possibility that potentially being part of the same choice sets over which individuals allocate
13 their time as, for example, implied by theory discussed in the next section, other leisure could
14 be either a substitute for volunteering by competing for time, or be complementary to it, if the
15 leisure activities promote prosocial behaviour. Previous theoretical and empirical research
16 has also suggested that there are gender differences in prosocial behaviour, becoming a
17 volunteer or not (Bauer et al., 2013; Eagly, 2009; Eagly & Crowley, 1986; Einolf, 2011; Fyall
18 & Gazley, 2015; Taylor et al., 2012) and subsequently allocating time to volunteering
19 (Burgham & Downward, 2005; Einolf, 2011). Therefore, the two related research questions
20 addressed in this paper are: ‘What is the relationship between volunteering and other leisure
21 choices?’ and, ‘Are there significant differences in the relationship between volunteering and
22 other leisure choices between males and females?’ To answer these questions, the paper
23 makes use of longitudinal data from the British Household Panel Survey (BHPS) in a panel-
24 data analysis of volunteering behaviour in the light of choices to undertake other leisure
25 activities.

Literature Review

Core theories

Volunteering can be understood from a number of theoretical perspectives. A social-psychological approach, drawing upon social role theory, provides a strong argument for focussing on the different genders in volunteering (Eagly, 1987; Eagly, Wood, & Diekmann, 2000; Fyall & Gazley, 2015; Switzer, Switzer, Stukas, & Baker, 1999). Social role theory maintains that an individual's volunteering activity might initially begin because of external stimulation, for example stemming from familial or social norms (Eagly, 1987). In this context, it is argued that women are socialised to help through caring behaviour (emotional support, physical care) often within the context of family, whereas men tend to be more task-oriented and also focus on activities for strangers (Eagly & Crowley, 1986). Consequently, repeated experience of these behaviours leads to the 'internalisation' of volunteering such that it becomes part of the identity of the individual, which in turn sustains the activity (Finkelstein, Penner, & Brannick, 2005). From a gerontological perspective, selectivity theory maintains that, across the lifespan, choices are made by individuals to select in and out of activities. Typically, less social interaction is chosen with ageing, but this does not necessarily apply to volunteering, though its form might change. According to this perspective, change occurs across the life course because individuals re-evaluate the relevance of the goals of their social interactions, and also the means by which the form of interaction achieves their goals (Carstensen, 1992). This suggests that individuals might adapt the role that they play in a voluntary organisation or change where they might choose to volunteer. Some of the life-course research discussed in the next section that explores life transitions can be understood from this perspective.

In this research, as the focus is upon the allocation of non-obligated time, two further theories are of specific relevance. These are the serious-leisure perspective of Stebbins (1982,

1 1992) and the economic time allocation model of Becker (1965, 1974). Both theories focus
2 on the alternative uses of non-obligated time. For Stebbins (1996), formal volunteering
3 involves serious leisure in that the acquisition and expression of specialist skills, knowledge
4 and experience is involved. Importantly this implies that volunteering involves both self-
5 interest and career orientation as well as altruism. Arguably, moreover, self-interest could be
6 the ultimate driver of such behaviour even though altruism might have been the initial motive
7 for volunteering and remains important to it. This is because obligations derived through
8 volunteering are self-imposed. Consequently, volunteering then carries both personal rewards
9 (e.g., self-interest and recreation) and social rewards (e.g., social interaction). Consequently,
10 for Stebbins (1996, p. 218) ‘true leisure, including career volunteering, contains a substantial
11 degree of choice’. It is important to note therefore, that self-interest and altruism are not
12 incompatible. This is because altruism in itself is rewarding (Stebbins, 1996).

13 The symbiosis of altruism and self-interest also lies at the heart of the economic time
14 allocation model of behaviour in which individuals maximise their own welfare. This model
15 has been identified as relevant to understanding volunteering (Govekar & Govekar, 2002)
16 and has been applied to analyse volunteer behaviour (Dawson & Downward, 2013;
17 Downward, Dawson, & Dejonghe, 2009; Hallmann, 2015; Hallmann, Downward, &
18 Dickson, 2018). In the seminal economic time allocation model, Becker (1965) argues that
19 time and income are the central resources available to individuals to produce the commodities
20 and activities that form part of their choice set, and which are subsequently consumed.
21 Essentially individuals balance the allocation of time and income required across
22 commodities and activities in order to maximise their welfare which, similar to the
23 socialisation for males and females suggested in social role theory (Eagly, 1987), can vary
24 between genders. Consequently, Becker (1974) indicates that such production-consumption
25 behaviour could imply investment in personal and social characteristics, that is human and

1 social capital, that are found to be desirable by individuals. This means that there are
2 potentially both complementarities and opportunity costs involved in allocating time to
3 different leisure activities, of which volunteering could be one. Significantly, within this
4 approach, Becker (1974, 1976) conceptualises altruism as an activity which stems from an
5 individual's willingness to sacrifice their own consumption to increase the consumption of
6 others, which clearly resonates with the serious-leisure perspective. Moreover, Stebbins
7 (2013) has argued that both the economic and serious-leisure perspectives are not
8 incompatible as a foundation on which to understand volunteering. This is because
9 volunteering involves the allocation of time to non-obligatory and un-coerced activities that
10 are intentionally productive but also altruistic. Intentionally productive here implies that there
11 are 'beneficial social consequences of volunteering' (Stebbins, 2013, p. 342). Consequently,
12 although simply helping out or informally volunteering is not considered to be serious-
13 leisure, but which is naturally part of the economic approach to volunteering, it is nonetheless
14 still a time allocation issue as recognised by Stebbins (1996).

15 The upshot of this brief discussion is that all of the theoretical perspectives on
16 volunteering which are widespread in the literature, but particularly the serious leisure and
17 time allocation approach, recognise the potential importance of leisure time to volunteering
18 and this underpins the need to investigate the relationship between volunteering and leisure
19 activities. Moreover, an important feature of all approaches, but particularly the time
20 allocation and social role theories, is that they provide a direct rationale for expecting gender
21 differences in volunteering. In the time allocation case, this is because of differences in the
22 investment in relevant human and social capital and hence capacity for volunteering. In the
23 social role case, this is because it is argued that people occupy different social and economic
24 positions across their life course. As gender specific roles develop in wider society both of
25 these perspectives indicate that this will affect volunteering (Einolf, 2018). Theoretically,

1 therefore, it is to be expected that volunteering and other leisure behaviours will differ
2 between the genders and this needs to be investigated (Eagly & Crowley, 1986).

3

4 **Empirical work**

5 In general, the empirical work addressing volunteering focusses on individual level correlates
6 measuring the socio-demographic and economic status of volunteers. This is supported by
7 research that also investigates psychological influences on behaviour. In the latter case
8 research typically identifies motivations like prestige, making friends, sharing values, career
9 and personal enhancement/job training, socialising, and being protective of others (Aydinli et
10 al., 2016; Cabrera et al., 2014; Carpenter & Myers, 2010; Clary & Snyder, 1999; Handy et
11 al., 2010; Ziemek, 2006). These factors resonate strongly with the personal and social
12 rewards identified by Stebbins as noted above.

13 In contrast, the literature reveals variation in the relationships between socio-
14 demographic correlates and volunteering. For instance, Nichols and Shepard (2006) suggest
15 that volunteers are often middle aged, whereas Wymer (1998) notes that volunteers tend to
16 be older. Moreover, the literature identifies that females tend to volunteer more than males,
17 though males tend to volunteer more in sport than females and in more formal roles
18 (Downward, Lumsdon, & Ralston, 2005; Hallmann, 2015). Consequently, drawing on social
19 role theory, Wymer (2011) indicates that males prefer positions which gives them authority
20 whilst females prefer positions where they can develop relational ties.

21 More consistent results are evident for economic based determinants of volunteering,
22 and which are congruent with the time allocation approach. One example is that income and
23 time have been observed as substitutes in (the production of) volunteering. Consequently
24 education – that is linked to income – and income typically have a positive correlation with
25 volunteering (Janoski & Wilson, 1995; Taylor et al., 2012) but part-time employees volunteer

1 significantly more than full-time employees (Einolf, 2011; Sundeen, Garcia, & Raskoff,
2 2009; Wymer & Samu, 2002). Individuals who are retired and unemployed also volunteer
3 more than those who are employed (Taylor et al., 2012). These results are suggestive of
4 greater free-time availability for those earning less.

5 The literature also suggests that these relationships could be quite complex. For
6 example, it may be that more females are in part-time employment than males and this
7 prompts the greater volunteering of females in general (Taniguchi, 2006). Moreover, males
8 have also been identified as generally less likely to donate money compared to women (De
9 Wit & Bekkers, 2016; Mesch, Rooney, Steinberg, & Denton, 2006; Ranganathan & Henley,
10 2008). In this regard, Andreoni and Vesterlund (2001) argue that females exercise more
11 altruism in the light of rising opportunity costs, but males are more altruistic if opportunity
12 costs are lower (see also Cappellari, Ghinetti, & Turati, 2011). This suggests that male
13 altruism is more resource sensitive.

14 Moreover, in contrast to much of the above literature which has a cross-sectional
15 emphasis, an important literature has developed to identify how socio-demographic
16 transitions across the life-course influence volunteering. It has been shown that the birth of a
17 child, divorce and widowhood can reduce volunteering (Nesbit, 2012) but as a child ages
18 volunteering can subsequently increase (Einolf, 2018) and particularly for female
19 volunteering compared to males (Lancee & Radl, 2014). These results are consistent with
20 both role selection and, consequently, a reallocation of resources such as time through the life
21 course.

22 In the analysis that follows differences between male and female volunteering is
23 investigated in a longitudinal setting as well, but with the novel feature of focussing on the
24 links between volunteering and leisure time activities, which theory suggests could be
25 important because of their potential competing uses of time in leisure, and, furthermore, that

1 the allocation of time will vary across males and females. As Downward and Rasciute (2010)
2 show in a non-volunteering context, individuals substitute their time across a range of leisure
3 activities. Accounting for the other uses of leisure time by individuals is thus important for
4 the analysis of volunteering. Separate models are thus estimated for males and females
5 following (e.g., Taniguchi, 2006).

6 **Data and Methods**

7 **Measurement**

8 In this research, longitudinal data from the British Household Panel Survey (BHPS) are
9 employed to provide a causal analysis of volunteer decisions in the light of alternative leisure
10 choices and controlling for key individual and socio-economic circumstances. The BHPS
11 began in 1991-1992 and was repeated annually in waves 1 to 18 until the survey ceased as an
12 independent entity and merged with ‘Understanding Society’, which is a new longitudinal
13 study, in 2010-2011.² The survey involved a face-to-face interview with each household
14 member older than 16 years of age. Approximately 5,000 households were surveyed in each
15 wave of a nationally representative sample, with each wave then comprising approximately
16 10,000 cases. Surveying took place between September and the end of the following April
17 each year. Some data appear on each wave of data as ‘core questions’ with others appearing
18 on selected waves as ‘rotating questions’.

19 Leisure activity including volunteering was a rotating question and appeared every
20 two years since wave 6 in 1996-1997. The volunteer question asks ‘how frequently do you do
21 unpaid voluntary work?’, with responses (and values) given as: ‘at least once a week (4)’, ‘at
22 least once a month (3)’, ‘several times a year (2)’, ‘once a year or less (1)’ and ‘never/almost
23 never (0)’.³ This is a relatively narrow conception of volunteering and certainly does not
24 capture the range of possibilities of activity that could be said to comprise volunteering, but it
25 has been used in volunteering research before, in connection with impacts on employment,

1 and clearly captures the sense of volunteering as indicated in section 2.1 (Paine, McKay, &
2 Moro, 2013). The questions on leisure changed with the onset of ‘Understanding Society’.
3 Consequently, it is the question from the BHPS component of the data that forms the
4 dependent variable for the current research (see also Lup & Booth, 2019). The other measures
5 of leisure time behaviour that could influence the volunteering decision, with the same format
6 of responses and the preceding clause ‘how frequently do you...?’ include:⁴

- 7 1. Play sport or go walking or swimming
- 8 2. Go to watch live sport
- 9 3. Go to the cinema
- 10 4. Go to a concert, theatre or other live performance
- 11 5. Have a meal in a restaurant, cafe or pub
- 12 6. Go for a drink at a pub or club
- 13 7. Work in the garden
- 14 8. Do DIY, home maintenance or car repairs
- 15 9. Attend leisure activity groups
- 16 10. Attend meetings for local groups

17
18 It proved necessary to eliminate the last wave of the data for 2008-2009. This is
19 because of serious anomalies in the response to the frequency of ‘play sport or go walking or
20 swimming’ variable.⁵ Table 1 includes the variables that are used to control for observed
21 confounding effects in the analysis and comprise variables contained in the dataset which, as
22 identified in Sections 2, are likely to be linked to volunteering. The sample statistics are
23 based on the sample used in estimation which was $n=52,253$. This reduction in sample size
24 from the total available of 92,929 is due to the removal of the last wave of data, as indicated
25 above, some missing values across the correlates, but also due to the necessary use of lagged
26 variables in the analysis as discussed further below.

27 INSERT TABLE 1 ABOUT HERE

28

29 **Participant characteristics and behaviour**

30 Table 1 reveals that volunteering is typically undertaken once a year or less, though
31 there is a clear skew in behaviour, which is consistent with having both regular and irregular

1 volunteers in society. The other leisure variables were additively combined into more
2 aggregate categories to capture distinct aspects of leisure time in the light of multicollinearity.
3 Consequently, ‘Sport’ captures the behaviour from activities 1 and 2; Entertainment activities
4 3 and 4, EatDrinkout activities 5 and 6, GardenDIY activities 7 and 8; and, ClassGroup
5 activities 9 and 10. The minimum and maximum possible values of these variables, based on
6 the sums of their values, are consequently 0 and 8, whereas it is 0 and 4 for volunteering. The
7 results reveal that each of these activities is much more prevalent than volunteering even for
8 the least prevalent leisure activity and allowing for the different scales of measurement.

9 The data show that 45% of the sample is male and the average age is approximately
10 48 years. Total monthly incomes are approximately £1,250 with the standard deviation
11 showing an expected skew. Approximately 14% of households have children between the
12 ages of birth and 4 years old. Approximately 25% of households have children aged between
13 5 and eleven years old, with 5% having children between 16 years and 18 years of age.
14 Approximately 41% of the sample has higher education (that is of at least Bachelor’s degree
15 level or equivalent), and 58% of the households include married individuals (as opposed to
16 being separated, divorced or widowed). Households are also comprised of approximately
17 59% of individuals who are either self-employed, full or part-time employed, with
18 approximately 23% retired, 8% looking after the family or home and 3% students. 4% of the
19 sample has a long-term illness or disability.

20 INSERT TABLE 2 ABOUT HERE

21 Table 2 presents the engagement in other leisure activities for both volunteers and non-
22 volunteers for males and females. The table reveals the temporal stability of engagement for
23 both males and females, with few obvious differences other than there being some evidence
24 that males participate more in sport and other leisure activities than females regardless of
25 volunteering (Downward & Rasciute, 2015). An exception is the category ClassGroup in

1 which females participate more than males regardless of volunteering or not. This suggests
2 some relatively distinct aspect of this behaviour, especially for females. It is also clear that
3 volunteers also participate more in other leisure activities than non-volunteers. Some research
4 undertaking multivariate analysis has identified this in the case of sport (Dawson &
5 Downward, 2013). Dawson and Downward (2013) argue that this could be due to the
6 preferences of those who engage in the activities as well as access to resources.
7 Consequently, income is positively related to increases in both activities and, moreover, there
8 are clear gender differences with males engaging more in of both activities⁶. It is important,
9 thus, to explore the relationships between volunteering and leisure generally.

10 **Data analysis**

11 The following general regression model, in equation 1, was used to model volunteer
12 behaviour.

$$13 \quad V_{it} = \sum \delta_k X_{it} + \sum \theta_j Z_i + \mu_i + \varepsilon_{it} \quad (1)$$

14 Here, volunteering, V , is shown to depend on the observable individual characteristics
15 ‘ X ’ that might influence the behaviour for individual ‘ i ’ over time ‘ t ’. These influences would
16 include income, education, the presence of children, marital status and employment status, as
17 indicated earlier, as well as the other leisure time behaviour of the individual. ‘ Z ’ in contrast,
18 is gender which does not vary over time. μ_i is an unobserved person specific and time
19 invariant effect on volunteering and ε_{it} is an idiosyncratic disturbance term. As the data to be
20 examined is longitudinal, Ordinary Least Squares (OLS) estimation is inefficient relative to
21 random or fixed effects panel estimators. The differences implied in the variance of the errors
22 associated with repeated measures on the same individual, which reflects unobserved
23 heterogeneity, are not accounted for in OLS. In such circumstances, for example, the random
24 effects estimator would produce consistent estimates that are more efficient than OLS.
25 However, both estimators also assume that that the unobserved heterogeneity is not correlated

1 with the observed variables in the model. If there is correlation the OLS estimator is biased
2 and the random effects model inconsistent. The fixed effects panel estimator is then preferred
3 as it produces consistent estimates. The Hausman test can be used to choose between the
4 random and fixed effects estimators and by implication OLS, by testing the difference
5 between the coefficients on the time-varying variables in the random and fixed effects cases.
6 Difference between them implies that the unobserved effects in the panel model are not
7 exogenous otherwise the random and fixed effects models' time varying coefficients would
8 be the same. The Hausman test [$\chi^2(27) = 1,556.16$ ($p \leq 0.001$)] rejects the equivalence of
9 coefficients suggesting that the fixed effects (FE) estimator is preferred. This is the approach
10 that has been adopted in the emergent longitudinal literature, noted above, to account for
11 omitted variable bias to improve insight into volunteering from socio-demographic transitions
12 (Einolf, 2018; Lancee & Radl, 2014).

13 However, as implied in the theoretical accounts of volunteering above, it is also to be
14 expected that bias from endogeneity will be present when examining the impact of other
15 leisure activities on volunteering, in comparison to the case of analysing socio-demographic
16 transitions. This is because both volunteering and other leisure could be directly related as
17 examples of simultaneous discretionary time allocation. In contrast, it is much less likely that
18 volunteering would influence socio-economic transitions. Hence, in the current context,
19 because of the problem of endogeneity between the dependent variable and leisure correlates
20 instrumental variables (IV) estimation is used (Wooldridge, 2010).

21 Instrumental variables are linked to the endogenous correlates (i.e. other leisure
22 activities) but only indirectly to the dependent variable (i.e. volunteering). Lagged values of
23 the other leisure activities are used as instruments as they have statistically occurred prior to
24 the current volunteering decision but remain likely to be connected to current other leisure
25 activity through habit (as for example indicated in the stable behaviour implied in Table 2). A

1 variable estimates are also insignificant, which means that the set of instrumental variables
2 are orthogonal to the errors in the volunteering equations. Finally, because the dependent
3 variable is not a strictly scaled variable, with likely impacts on heteroscedasticity, robust
4 standard errors are used to construct inferences in all estimators, and to control for other
5 potential heterogeneities in the idiosyncratic disturbances.

6 INSERT TABLE 3 ABOUT HERE

7 The significant socio-demographic variables across the estimates are to an extent
8 consistent with the theoretical and empirical literature identified earlier and particularly the
9 role that time might play in volunteering as indicated by the serious leisure and economic
10 time-allocation perspectives. Being employed, for example, consistently reduces the
11 frequency of volunteering, across all the models, which could be linked to the availability of
12 time. However, having a higher income is shown to have a negative effect on female
13 volunteering only. This is suggestive of a trade-off between the use of leisure time and that
14 allocated to earn money. In contrast, income has a positive effect in the male instrumental
15 variable regression, which suggests, following the economic time allocation approach, that
16 higher incomes can support the allocation of time to volunteering and that resource
17 opportunity cost trade-offs are not as important for male volunteering in contrast to the
18 literature (Janoski & Wilson, 1995; Taylor et al., 2012).

19 INSERT TABLE 3 ABOUT HERE

20 There is evidence of a quadratic effect of ageing on volunteering for the whole sample
21 and males and females. The implied effect is ‘U’ shaped. This means that volunteering
22 initially declines with age and then eventually rises again. This finding differs from previous
23 cross-sectional findings that volunteers are more likely to be middle or older aged (Nichols &
24 Shepard, 2006; Wymer, 1998) but, of most importance, is consistent with other longitudinal
25 research on volunteering and ageing (Nesbit, 2012). There is also evidence that having

1 younger children can reduce the incidence of volunteering in the whole sample, regardless of
2 estimator. However, the instrumental variable estimates show that this effect is contrasted by
3 more volunteering being linked to the presence of older aged children and this is specifically
4 the case for females. Collectively, these results are suggestive of general time constraints
5 from familial activity associated with young children reducing volunteering. However,
6 females might engage in volunteering as their children age. This is likely to reflect the
7 children taking part in activities which are supported by females and congruent with Becker's
8 (1991) intra-family resource allocation model, and identified empirically in Burgham and
9 Downward (2005) and Einolf (2018). These results are also consistent with social role theory,
10 and the different family roles that develop through socialisation between the genders.
11 Moreover, overall these results suggest that for males a higher income can support increased
12 volunteering, potentially through a higher wage rate and less work as might be implied in the
13 time-allocation approach. However, in contrast for females there is a need to redirect time in
14 employment and household time to support more volunteering. This mirrors to some extent
15 the findings of Taniguchi (2006) who has found, for instance, that females working part-time
16 have a positive relationship with volunteering and student and retired males and females are
17 equally willing to volunteer. The lack of significance of not being employed or being retired
18 on volunteering could be due to such individuals having less access to social networks
19 through work which can support volunteer engagement (Musick & Wilson, 2008).

20 Focussing upon leisure activities, Table 3 reveals that in the absence of controlling for
21 the endogeneity of leisure, the fixed effects model indicates that some leisure activities are
22 complementary to volunteering. Taken at face value these results (FE, all sample) could
23 suggest that all individuals who volunteer have other leisure activities as part of the same
24 choice set. However, once the simultaneity of the activities is controlled for in the
25 instrumental variable analysis, the only individual activity that is significant is ClassGroup,

1 which switches sign to negative (Antonakis, Bendahan, Jacquart, & Lalive, 2010), and this is
2 the case for females but not males, the distinctiveness of which is indicated in Table 2⁷.
3 Significantly, moreover, a joint test of the omission of the leisure activities from the
4 instrumental variable analyses of male and female volunteers, as indicated by the test for
5 'leisure' at the bottom of Table 3, reveals that *all* of these variables are associated with
6 volunteering for females, but this is not the case for males. Additionally, examination of the
7 correlations between these leisure activities shows that they are all positively correlated with
8 ClassGroup for both males and females. For males the correlations (significance levels) with
9 ClassGroup are: 0.277 (0.000) for Sport; 0.2428 (0.000) for Entertainment; 0.1035 (0.000) for
10 EatDrinkout; and, 0.1063 (0.000) for GardenDIY. For females the correlations with
11 ClassGroup are: 0.2499 (0.000) for Sport; 0.2774 (0.000) for Entertainment; 0.1035 (0.000)
12 for EatDrinkout; and, 0.1538 (0.000) for GardenDIY. This joint correlation between the
13 variables, but their only being jointly significant in the regression analysis for females,
14 suggests that it is only for females that leisure time activity and volunteering are related and
15 part of the same choice set. Moreover, the negative relationship reveals potentially hidden
16 constraints on the behaviour of females compared to males for whom volunteering is more
17 autonomous with respect to their other leisure choices and discretionary time. This result
18 consequently extends the insights of Downward and Rasciute (2010) that leisure choices can
19 be substitutable to include volunteering but, importantly, does so in a causal empirical design
20 and shows that this extension applies only to females. Social role theory insights as well as
21 the specialisation of time-allocation roles between genders are thus supported by the results.
22 Finally, the relative autonomy of volunteering for males compared to females is suggestive of
23 the greater degree of choice of the former as implied in the serious leisure perspective. This is
24 because for males, volunteering is not as conditional on access to other leisure activities as
25 females.

Conclusions

1
2 The aim of this paper is to revisit the determinants of volunteering in the UK, making use of
3 large-scale longitudinal data to explore the role of leisure-time activities on the choice to
4 volunteer. Using panel-data estimates that account for both unobserved heterogeneity as
5 identified as important in the existent longitudinal literature, but also the endogeneity
6 between volunteering and other leisure, which is strongly suggested by existing theoretical
7 accounts of volunteering because of their likely simultaneous determination, the results show
8 that males have more autonomy over their voluntary activity as part of their leisure time than
9 females. It follows that initiatives that seek to raise volunteering need to recognise that
10 females face additional constraints, as leisure time and volunteering are related. As leisure is
11 not obligatory and likely reflects self-interest, this suggests that the promotion of
12 volunteering might be better placed by also drawing on these distinctions in which the leisure
13 role of volunteering is promoted to females as much as altruism and acting for the benefit of
14 others as noted elsewhere in the literature, as reviewed above. For males, however, it seems
15 that greater autonomy of volunteering might be more closely linked with the concept of
16 serious leisure in the sense that there is a greater degree of choice in volunteering relative to
17 leisure. In this case status and career opportunity might be relevant recruitment levers for
18 male volunteering. These results resonate with findings from volunteering at major sports
19 events in which it has been shown that females seek to meet and make friends and socialise,
20 whereas males seek extensions of their careers and labour market activity (Downward et al.,
21 2005).

22 There are, of course, limitations to the above analysis. The type of volunteering
23 explored cannot be distinguished, nor the actual time allocated, and moreover, the distinction
24 between the forms of leisure activity needs further scrutiny. For example, in the first case, the
25 measure of volunteering only captures frequency and not the actual time allocated to

1 volunteering and engaging in the other leisure activities. To the extent that time is positively
2 correlated with the frequency of engagement, in the sense that the latter will be influenced by
3 the overall time budget available to individuals, then this might not be problematic. However,
4 it is possible that individuals might adjust the time allocated to their activities even though
5 the frequency does not change. Data analysis of time-budgets would help to clarify these
6 issues in further research. In the second case, reflecting upon the distinction between the
7 forms of leisure activity, as indicated by Dawson and Downward (2013), some leisure
8 activities such as volunteering and participating in sport could be part of the same
9 engagement and/or be symptomatic of an individual being more or less pro-social and more
10 likely to be recruited to volunteer (Musick & Wilson, 2008). To the extent that links between
11 activities or recruitment to them exist or that an individual's psychological inclination
12 towards pro-social behaviour remains constant over time, then the instrumental variable
13 estimation and fixed effects should control for these influences, though they are worthy of
14 further investigation. In addition, there are various other variables which could be included in
15 the model. These include motives, specific benefits sought, perceived constraints/costs of
16 volunteering, or actual working hours and time to commute to work. In as much that these
17 might be relatively constant over time, then they could also be controlled for in the fixed
18 effects analysis. However, knowledge of actual work time and commute to work time could
19 be of interest to estimate the available leisure time of individuals and how this has an impact
20 on taking part in various leisure activities. Integrating these variables presents a lot of
21 potential for future research. Nonetheless, the above analysis provides some unique insights
22 into volunteering behaviour that is different between the genders and needs to be recognised
23 in strategies seeking to increase volunteering in society.

Endnotes

¹ See also <https://data.ncvo.org.uk/a/almanac18/volunteering-overview-2015-16/> (accessed 24.8.18)

² This is also known as the United Kingdom Household Longitudinal Study (UKHLS)

³ The responses to the question were originally coded as 5 ‘at least once a week’ to 1 ‘Never/almost never’ but were re-coded in the analysis to 4 ‘at least once a week’ to 0 ‘Never/almost never’ so that the lower category made more numerical sense.

⁴ A further leisure activity of ‘Visit friends or relations or have them visit you’ was dropped from the analysis because of extensive missing values.

⁵ In a private communication with the UK Data Service Support team they recognise that they ‘...can't find any explanation for the 2008-2009 results being so different from previous years for some categories of the RLACTA variable. As you mention, there doesn't seem to be any significant changes in the question or response options that might explain it.’ The issue is being addressed now by the survey team. To illustrate the problematic responses, frequencies for each wave for the response ‘At least once a week’ for the periods from 1996-7 to 2008-9 were 4,860, 5,426, 8,089, 8,875, 8,297, 8,701 and 870. This was not a simple recoding problem as the distribution across the range of responses generally varied.

⁶ The time allocation model provides a rationale for this. It is entirely possible that the higher income derives from a higher wage-rate that can generate a higher income, even if less hours are worked. In the current paper, it should be noted that there are significant positive correlations between income, volunteering and other leisure activities. Consequently, the correlations with income are: 0.0178 (0.000) for volunteering; 0.1669 (0.000) for Sport; 0.1855 (0.000) for Entertainment; 0.1837 (0.000) for EatDrinkout; 0.1771 (0.000) for GardenDIY; and, 0.0538 (0.000) for ClassGroup.

1 ⁷ Although the research focusses on the joint effect of the leisure activity variables on
2 volunteering, some idea of the scale of the effect can be established through the elasticity of
3 response in volunteering to a change in engagement in ClassGroup, the significant variable
4 for females. This measures the proportionate change in volunteering following a
5 proportionate change in engagement with evening classes and groups evaluated at their mean
6 value. This is calculated to be -0.38. This means that a ten percent increase in the frequency
7 of engagement with evening classes and groups leads to a 3.8 percent fall in volunteering.
8 This suggests that volunteering is relatively insensitive to changes in the leisure activity.
9

References

- 1
- 2 Alcock, P., Kendall, J., & Parry, J. (2012). From the third sector to the Big Society:
3 consensus or contention in the 2010 UK General Election? *Voluntary Sector Review*,
4 3(3), 347-363. doi:10.1332/204080512X658054
- 5 Andreoni, J., & Vesterlund, L. (2001). Which is the fair sex? Gender differences in altruism.
6 *The Quarterly Journal of Economics*, 116(1), 293-312.
- 7 Antonakis, J., Bendahan, S., Jacquart, P., & Lalive, R. (2010). On making causal claims: A
8 review and recommendations. *The Leadership Quarterly*, 21(1086-1120).
- 9 Aydinli, A., Bender, M., Chasiotis, A., van de Vijver, F. J. R., Cemalcilar, Z., Chong, A., &
10 Yue, X. (2016). A Cross-Cultural Study of Explicit and Implicit Motivation for Long-
11 Term Volunteering. *Nonprofit and Voluntary Sector Quarterly*, 45(2), 375-396.
12 doi:10.1177/0899764015583314
- 13 Bauer, T. K., Bredtmann, J., & Schmidt, C. M. (2013). Time vs. money — The supply of
14 voluntary labor and charitable donations across Europe. *European Journal of Political*
15 *Economy*, 32(0), 80-94. doi:<http://dx.doi.org/10.1016/j.ejpoleco.2013.06.006>
- 16 Baum, C. F., Schaffer, M. E., & Stillman, S. (2003). Instrumental variables and GMM:
17 Estimation and testing. *The Stata Journal*, 3(1), 1-31.
- 18 Becker, G. S. (1965). A theory of the allocation of time. *The Economic Journal*, 75(3), 493-
19 517.
- 20 Becker, G. S. (1974). A theory of social interactions. *Journal of Political Economy*, 82(6),
21 1063-1093.
- 22 Becker, G. S. (1976). Altruism, egoism, and genetic fitness: economics and sociobiology.
23 *Journal of Economic Literature*, 14(3), 817-826.
- 24 Becker, G. S. (1991). *A treatise on the family*. Cambridge, MA: Harvard University Press.
- 25 Burgham, M., & Downward, P. (2005). Why volunteer, time to volunteer? A case study from
26 swimming. *Managing Leisure*, 10(2), 79-93.
- 27 Cabinet Office. (2015). Community Life Survey: 2014 – 2015 Statistical Bulletin. Retrieved
28 from
29 [https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/447010](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/447010/Community_Life_Survey_2014-15_Bulletin.pdf)
30 [/Community_Life_Survey_2014-15_Bulletin.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/447010/Community_Life_Survey_2014-15_Bulletin.pdf)
- 31 Cabrera, M., Marrero, R. J., & Carballeira, M. (2014). Volunteer's motives and subjective
32 well-being. *Personality and Individual Differences*, 60, Supplement(0), S77.
33 doi:<http://dx.doi.org/10.1016/j.paid.2013.07.346>
- 34 Cappellari, L., Ghinetti, P., & Turati, G. (2011). On time and money donations. *The Journal*
35 *of Socio-Economics*, 40(6), 853-867.
36 doi:<http://dx.doi.org/10.1016/j.socec.2011.08.013>
- 37 Carpenter, J., & Myers, C. K. (2010). Why volunteer? Evidence on the role of altruism,
38 image, and incentives. *Journal of Public Economics*, 94(11/12), 911-920.
39 doi:<http://dx.doi.org/10.1016/j.jpubeco.2010.07.007>
- 40 Carstensen, L. L. (1992). Selectivity theory: Social activity in life-span context. In K. W.
41 Schaie (Ed.), *Annual Review of Gerontology and Geriatrics* (Vol. 11, pp. 195-217).
42 New York: Springer.
- 43 Chen, L.-J., & Chen, J. S. (2011). The motivations and expectations of international volunteer
44 tourists: A case study of “Chinese Village Traditions”. *Tourism Management*, 32(2),
45 435-442. doi:<http://dx.doi.org/10.1016/j.tourman.2010.01.009>
- 46 Civil Exchange. (2015). Whose Society? The Final Big Society Audit. Retrieved from
47 [http://www.civilexchange.org.uk/wp-content/uploads/2015/01/Whose-Society_The-](http://www.civilexchange.org.uk/wp-content/uploads/2015/01/Whose-Society_The-Final-Big-Society-Audit_final.pdf)
48 [Final-Big-Society-Audit_final.pdf](http://www.civilexchange.org.uk/wp-content/uploads/2015/01/Whose-Society_The-Final-Big-Society-Audit_final.pdf)

- 1 Clary, E. G., & Snyder, M. (1999). The motivations to volunteer: Theoretical and practical
2 considerations. *Current Directions in Psychological Science*, 8(5), 156-159.
- 3 Dawson, P., & Downward, P. (2013). The Relationship Between Participation in Sport and
4 Sport Volunteering: An Economic Analysis. *International Journal of Sport Finance*,
5 8(1), 75-92.
- 6 De Wit, A., & Bekkers, R. (2016). Exploring Gender Differences in Charitable Giving: The
7 Dutch Case. *Nonprofit and Voluntary Sector Quarterly*, 45(4), 741-761.
8 doi:10.1177/0899764015601242
- 9 Downward, P., Dawson, A., & Dejonghe, T. (2009). *Sport Economics. Theory, Evidence and*
10 *Policy*. Oxford: Butterworth-Heinemann.
- 11 Downward, P., Lumsdon, L., & Ralston, R. (2005). Gender differences in sports event
12 volunteering: insights from Crew 2002 at the XVII Commonwealth Games.
13 *Managing Leisure*, 10(4), 219-236.
- 14 Downward, P., & Rasciute, S. (2010). The Relative Demands for Sports and Leisure in
15 England. *European Sport Management Quarterly*, 10(2), 189-214. Retrieved from
16 <http://www.informaworld.com/10.1080/16184740903552037>
- 17 Downward, P., & Rasciute, S. (2015). Exploring the covariates of sport participation for
18 health: an analysis of males and females in England. *Journal of Sport Sciences*, 33(1),
19 67-76.
- 20 Eagly, A. H. (1987). *Sex differences in social behavior: A social-role interpretation*.
21 Hillsdale: Lawrence Erlbaum Associates.
- 22 Eagly, A. H. (2009). The his and hers of prosocial behavior: An examination of the social
23 psychology of gender. *American Psychologist*, 64(8), 644-658. doi:10.1037/0003-
24 066X.64.8.644
- 25 Eagly, A. H., & Crowley, M. (1986). Gender and helping behavior: A meta-analytic review
26 of the social psychological literature. *Psychological Bulletin*, 100(3), 283-308.
27 doi:<http://dx.doi.org/10.1037/0033-2909.100.3.283>
- 28 Eagly, A. H., Wood, W., & Diekmann, A. B. (2000). Social role theory of sex differences and
29 similarities: A current appraisal. In T. Eckes & H. M. Trautner (Eds.), *The*
30 *developmental social psychology of gender* (pp. 123-174). Mahwah, NJ: Lawrence
31 Erlbaum Associates, Inc.
- 32 Einolf, C. J. (2011). Gender Differences in the Correlates of Volunteering and Charitable
33 Giving. *Nonprofit and Voluntary Sector Quarterly*, 40(6), 1092-1112.
34 doi:10.1177/0899764010385949
- 35 Einolf, C. J. (2018). Parents' Charitable Giving and Volunteering: Are They Influenced by
36 Their Children's Ages and Life Transitions? Evidence From a Longitudinal Study in
37 the United States. *Nonprofit and Voluntary Sector Quarterly*, 47(2), 395-416.
38 doi:10.1177/0899764017737870
- 39 Finkelstein, M. A., Penner, L. A., & Brannick, M. T. (2005). Motive, role identity, and
40 prosocial personality as predictors of volunteer activity. *Social Behavior and*
41 *Personality: an international journal*, 33(4), 403-418. doi:10.2224/sbp.2005.33.4.403
- 42 Fyall, R., & Gazley, B. (2015). Applying Social Role Theory to Gender and Volunteering in
43 Professional Associations. *Voluntas: International Journal of Voluntary and*
44 *Nonprofit Organizations*, 26(1), 288-314. doi:10.1007/s11266-013-9430-1
- 45 Govekar, P. L., & Govekar, M. A. (2002). Using Economic Theory and Research to Better
46 Understand Volunteer Behavior. *Nonprofit Management and Leadership*, 13(1), 33-
47 48. doi:10.1002/nml.13104
- 48 Hallmann, K. (2015). Modelling the decision to volunteer in organised sports. *Sport*
49 *Management Review*, 18(3), 448-463. doi:<http://dx.doi.org/10.1016/j.smr.2014.12.003>

- 1 Hallmann, K., Downward, P., & Dickson, G. (2018). Factors influencing time allocation of
 2 sport event volunteers. *International Journal of Event and Festival Management*,
 3 9(3), 316-331. doi:doi:10.1108/IJEFM-01-2018-0004
- 4 Handy, F., Cnaan, R. A., Hustinx, L., Kang, C., Brudney, J. L., Haski-Leventhal, D., . . .
 5 Zrinscak, S. (2010). A Cross-Cultural Examination of Student Volunteering: Is It All
 6 About Résumé Building? *Nonprofit and Voluntary Sector Quarterly*, 39(3), 498-523.
 7 doi:10.1177/0899764009344353
- 8 Janoski, T., & Wilson, J. (1995). Pathways to voluntarism: Family socialization and status
 9 transmission models. *Social Forces*, 74(1), 271-292. doi:10.1093/sf/74.1.271
- 10 Lancee, B., & Radl, J. (2014). Volunteering over the Life Course. *Social Forces*, 93(2), 833-
 11 862. doi:10.1093/sf/sou090
- 12 Lockstone-Binney, L., Holmes, K., Smith, K., Baum, T., & Storer, C. (2015). Are All My
 13 Volunteers Here to Help Out? Clustering Event Volunteers by Their Motivations.
 14 *Event Management*, 19(4), 461-477. doi:10.3727/152599515X14465748512605
- 15 Lukka, P., & Ellis Paine, A. (2001). An Exclusive Construct? Exploring different cultural
 16 concepts of volunteering. *Voluntary Action*, 3(3), 87-109.
- 17 Lup, D., & Booth, J. E. (2019). Work and Volunteering: Longitudinal Relationships between
 18 Work-Related Experiences and Volunteering Behaviour. *British Journal of Industrial*
 19 *Relations*, 0(0). doi:doi:10.1111/bjir.12421
- 20 Mesch, D. J., Rooney, P. M., Steinberg, K. S., & Denton, B. (2006). The Effects of Race,
 21 Gender, and Marital Status on Giving and Volunteering in Indiana. *Nonprofit and*
 22 *Voluntary Sector Quarterly*, 35(4), 565-587. doi:10.1177/0899764006288288
- 23 Musick, M., & Wilson, J. (2008). *Volunteers: A social profile*. Bloomington (IN):
 24 University Press.
- 25 Nesbit, R. (2012). The Influence of Major Life Cycle Events on Volunteering. *Nonprofit and*
 26 *Voluntary Sector Quarterly*, 41(6), 1153-1174. doi:10.1177/0899764011429181
- 27 Nichols, G., & Shepard, M. (2006). Volunteering in sport: the use of ratio analysis to analyse
 28 volunteering and participation. *Managing Leisure*, 11(4), 205-216.
- 29 Paine, A. E., McKay, S., & Moro, D. (2013). Does volunteering improve employability?
 30 Insights from the British Household Panel Survey and beyond. *Voluntary Sector*
 31 *Review*, 4(3), 355-376.
- 32 Ranganathan, S. K., & Henley, W. H. (2008). Determinants of charitable donation intentions:
 33 A structural equation model. *International Journal of Nonprofit and Voluntary Sector*
 34 *Marketing*, 13(1), 1-11.
- 35 Stebbins, R. A. (1982). Serious leisure: A conceptual statement. *Pacific Sociological Review*,
 36 25(2), 251-272.
- 37 Stebbins, R. A. (1992). *Amateurs, professionals and serious leisure*. Montreal: McGill-
 38 Queen's Press.
- 39 Stebbins, R. A. (1996). Volunteering: A Serious Leisure Perspective. *Nonprofit and*
 40 *Voluntary Sector Quarterly*, 25(2), 211-224. doi:10.1177/0899764096252005
- 41 Stebbins, R. A. (2013). Unpaid work of love: defining the work-leisure axis of volunteering.
 42 *Leisure Studies*, 32(3), 339-345. doi:10.1080/02614367.2012.667822
- 43 Sundeen, R. A., Garcia, C., & Raskoff, S. A. (2009). Ethnicity, acculturation, and
 44 volunteering to organizations: A comparison of African Americans, Asians,
 45 Hispanics, and Whites. *Nonprofit and Voluntary Sector Quarterly*, 38(6), 929-955.
 46 doi:10.1177/0899764008322779
- 47 Switzer, C. L., Switzer, G. E., Stukas, A. A., & Baker, C. E. (1999). Medical Student
 48 Motivations to Volunteer. *Journal of Prevention & Intervention in the Community*,
 49 18(1-2), 53-64. doi:10.1300/J005v18n01_05

- 1 Taniguchi, H. (2006). Men's and Women's Volunteering: Gender Differences in the Effects of
2 Employment and Family Characteristics. *Nonprofit and Voluntary Sector Quarterly*,
3 35(1), 83-101. doi:10.1177/0899764005282481
- 4 Taylor, P. D., Panagouleas, T., & Nichols, G. (2012). Determinants of sports volunteering
5 and sports volunteer time in England. *International Journal of Sport Policy and*
6 *Politics*, 4(2), 201-220. doi:10.1080/19406940.2012.656679
- 7 Wooldridge, J. M. (2010). *Econometric analysis of cross section and panel data*. Cambridge,
8 MA: MIT Press.
- 9 Wymer, W. W. (1998). Youth development volunteers: Their motives, how they differ from
10 other volunteers and correlates of involvement intensity. *Journal of Nonprofit and*
11 *Voluntary Sector Marketing*, 3(4), 321-336.
- 12 Wymer, W. W. (2011). The Implications of Sex Differences on Volunteer Preferences.
13 *Voluntas: International Journal of Voluntary and Nonprofit Organizations*, 22(4),
14 831-851. doi:10.1007/s11266-010-9174-0
- 15 Wymer, W. W., & Samu, S. (2002). Volunteer Service as Symbolic Consumption: Gender
16 and Occupational Differences in Volunteering. *Journal of Marketing Management*,
17 18(9-10), 971-989. doi:10.1362/0267257012930358
- 18 Ziemek, S. (2006). Economic analysis of volunteer's motivations – A cross-country study.
19 *The Journal of Socio-Economics*, 35(3), 532-555.
20

1

Table 1. *Variables for Analysis*

Variable	Description	Scale	Mean	Std. Dev
Volunteering	do unpaid voluntary work	Metric	0.53	1.17
Sport	play or watch sport, go walking or swimming	Metric	3.57	2.22
Entertainment	go to the cinema, theatre, concert etc.	Metric	2.29	1.71
EatDrinkout	Eating and drinking out	Metric	4.78	2.09
GardenDIY	Gardening and DIY	Metric	3.91	2.56
ClassGroup	Attend classes and groups	Metric	1.55	2.13
Sex	Sex of individual (1=male; 0=female)	Binary	0.45	0.50
Age	Age of Individual in years	Metric	48.01	17.78
Agesq	Age squared	Metric	2,620.45	1,833.89
Income	Total income last month (£)	Metric	1,250.17	1,257.85
Ch0to2	Number of children 0 to 2 years old	Binary	0.07	0.26
Ch3to4	Number of children 3 to 4 years old	Binary	0.07	0.26
Ch5to11	Number of children 5 to 11 years old	Binary	0.25	0.60
Ch12to15	Number of children 12 to 15 years old	Binary	0.16	0.44
Ch16to18	Number of children 16 to 18 years old	Binary	0.05	0.23
HE	Higher Education (1=yes; 0 = no)	Binary	0.41	0.49
Married	Married (1=yes; 0=no)	Binary	0.58	0.49
Employed	Employed (1=yes; 0=no)	Binary	0.59	0.49
Retired	Retired (1=yes; 0=no)	Binary	0.23	0.42
Familycare	Look after the family (1=yes; 0=no)	Binary	0.08	0.27
Student	Student (1=yes; 0=no)	Binary	0.03	0.17
Longill	Have long-term illness (1=yes; 0=no)	Binary	0.04	0.21
Owner	Owens or is buying a house (1=yes; 0=no)	Binary	0.77	0.42

2

1 Table 2.

2 *Means of leisure activity by volunteering, gender and year*

	Male					Female				
	1998-1999	2000-2001	2002-2003	2004-2005	2006-2007	1998-1999	2000-2001	2002-2003	2004-2005	2006-2007
<i>Not Volunteer</i>										
Sport	3.76	3.62	3.88	3.91	3.97	2.85	2.81	3.06	3.07	3.22
Entertainment	2.07	1.99	2.13	2.14	2.09	2.08	2.01	2.18	2.24	2.23
EatDrinkout	5.15	5.10	5.10	5.04	5.01	4.50	4.50	4.50	4.47	4.50
GardenDIY	4.56	4.55	4.69	4.49	4.46	3.12	3.13	3.22	3.04	2.98
ClassGroup	0.76	0.74	0.79	0.85	0.81	1.35	1.26	1.27	1.31	1.24
<i>n</i>	2,901	3,233	3,566	4,650	4,560	3,350	3,839	4,263	5,584	5,553
<i>Volunteer</i>										
Sport	4.30	4.27	4.89	4.76	4.90	3.62	3.56	4.05	3.89	4.03
Entertainment	2.60	2.64	3.01	2.80	2.83	2.78	2.75	3.15	3.00	2.94
EatDrinkout	5.16	5.14	5.43	5.19	5.15	4.42	4.46	4.87	4.52	4.51
GardenDIY	5.27	5.46	5.40	5.30	5.26	3.93	3.96	4.21	3.81	3.79
ClassGroup	2.96	3.02	3.07	3.25	3.20	3.51	3.64	3.56	3.80	3.85
<i>n</i>	571	637	1,399	999	1,004	821	914	1,677	1,396	1,336

3

1 Table 3. *Fixed effects panel estimates, instrumental variable estimates of volunteering for the*
 2 *entire sample and separately for males and females*

Variables	(FE) All Sample	(IV FE) All sample	(IV FE) Males	(IV FE) Females
Sports	0.0198*** (6.14)	-0.0291 (-1.07)	-0.0196 (-0.58)	-0.0381 (-0.90)
Entertainment	0.0244*** (4.68)	0.0172 (0.32)	-0.0137 (-0.20)	0.0525 (0.65)
Eatdrinkout	-0.00390 (-1.00)	0.0133 (0.24)	-0.00855 (-0.12)	0.0303 (0.34)
GardenDIY	0.00958*** (2.99)	0.0436 (1.33)	0.0105 (0.28)	0.0604 (1.19)
ClassGroup	0.139*** (33.37)	-0.0866*** (-2.66)	-0.0312 (-0.66)	-0.122*** (-2.77)
Age	0.0190*** (3.24)	0.0223** (2.30)	0.0239** (2.02)	0.0234 (1.58)
Agesq	-0.000235*** (-3.98)	-0.000288*** (-2.94)	-0.000304** (-2.45)	-0.000299** (-2.05)
Income	-0.00000614 (-0.94)	-0.00000522 (-0.65)	0.0000140* (1.70)	-0.0000385** (-1.98)
Ch0to2	-0.0557*** (-3.03)	-0.108** (-2.17)	-0.0948 (-1.54)	-0.0931 (-1.18)
Ch3to4	-0.0171 (-0.90)	-0.0440 (-1.00)	-0.0914 (-1.60)	0.0133 (0.20)
Ch5to11	0.0532*** (3.82)	0.0810*** (4.11)	0.00229 (0.09)	0.147*** (4.84)
Ch12to15	0.0123 (0.82)	0.0418** (2.13)	0.0351 (1.38)	0.0549* (1.86)
Ch16to18	0.0114 (0.48)	0.0223 (0.82)	0.0378 (0.95)	0.0140 (0.36)
He	0.0568* (1.95)	0.0421 (1.28)	0.0254 (0.58)	0.0533 (1.10)
Married	-0.0112 (-0.47)	-0.0546 (-1.33)	-0.0622 (-1.00)	-0.0314 (-0.58)
Employed	-0.0940*** (-2.90)	-0.129*** (-3.41)	-0.109** (-2.19)	-0.151*** (-2.63)
Retired	0.0194 (0.46)	0.0495 (1.04)	0.110 (1.62)	0.0114 (0.17)
Familycare	0.0219 (0.56)	0.0272 (0.62)	0.0160 (0.14)	0.00108 (0.02)
Student	0.0109 (0.20)	-0.0344 (-0.57)	-0.0273 (-0.34)	-0.0747 (-0.83)
Longill	-0.0101 (-0.21)	-0.0380 (-0.69)	0.0391 (0.56)	-0.0819 (-0.98)
Regional Dummies	Yes	Yes	Yes	Yes
<i>n</i>	52,253	52,253	23,520	28,733
<i>Sargan-Hansen</i> $\chi^2(1)$	n/a	0.237	0.469	1.404

<i>Leisure</i>	253.13 ^{***}	9.23 [*]	0.65	10.01 [*]
<i>First stage:</i>	n/a	78.91 ^{***}	39.91 ^{***}	40.81 ^{***}
<i>Sports</i>				
<i>Entertainment</i>	n/a	48.00 ^{***}	24.38 ^{***}	25.46 ^{***}
<i>Eatdrinkout</i>	n/a	23.40 ^{***}	13.29 ^{***}	11.03 ^{***}
<i>GardenDIY</i>	n/a	46.84 ^{***}	23.37 ^{***}	27.94 ^{***}
<i>Classgroup</i>	n/a	67.63 ^{***}	32.69 ^{***}	37.31 ^{***}

t statistics in parentheses * $p < 0.1$, ** $p < 0.05$, *** $p < 0.0$

- 1
- 2
- 3
- 4
- 5