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Abstract

Previous research from the US suggests that volunteers' time contributions have declined during a period when participation rates have risen. Scholars have offered various possible explanations for this trend, including generational differences, socioeconomic changes, and family life changes. In Europe, previous research has shown that participation rates have risen in most countries, but little work has addressed trends in volunteers' time contributions. In this paper, we use survey data from Denmark merged with data from administrative registers covering the 2004-2012 period to show that, similar to the trend in the US, Danish volunteers' time contributions have declined as participation rates have risen. Our results suggest that this decline is partially explained not by socioeconomic or family life changes but by weakening organizational attachment measured by a decline in volunteers' propensities to be members of the organizations for which they volunteer. On these grounds, we argue that an important consequence of weakening organizational attachment is that volunteers' contributions of time decline.

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Introduction

The trends in volunteering in Western societies have received considerable attention in recent years. As an activity that shows concern for the public good without monetary recompense, volunteering is considered an important example of civicmindedness that is necessary for the production and reproduction of democratic values and social capital (Putnam 1993; Putnam, 1995; Putnam, 2000; Warren, 2001). Putnam and others have thus caused widespread concern by arguing that people in the US, especially the younger generations, are less civicminded than previous generations (Putnam 1995; Goss, 1999; Putnam, 2000). This concern is also present in Europe, where similar trends in declining civicmindedness have been anticipated (Stolle and Hooghe, 2005).

Despite the widespread concern that active participation in voluntary associations would decline, based on the highly influential work of Putnam (1995; 2000), the empirical evidence is far from conclusive. Using data from the General Social Survey for the 1974-1995 period, Rotolo (1999) showed that voluntary association participation initially dipped in the first ten years but then increased in the US. Later research from the US also suggests that voluntary association participation has in fact increased and not decreased (Andersen, Curtis and Grabb, 2006; Brudney and Gaskin, 2006). Previous research from a European context based on the European Values Study has shown that voluntary association participation rates have risen in most countries. So far, this finding has led some researchers to the optimistic conclusion that European scholars and policy makers have been unduly worried about the anticipated decline in civicmindedness (Dekker and van den Broek, 2005, 2006).

However, this optimistic conclusion has been based on trends in people's propensity to volunteer, but little work has addressed trends in volunteers' time contributions. An exception is the study by Andersen, Curtis, and Grabb (2006), which shows that volunteers' time contributions have declined in the US but remained relatively stable in Great Britain and the Netherlands. However,

similar to the trends in the US, previous descriptive evidence from Denmark suggests that the participation rate has risen from 28 percent in 1993 (Anker and Nielsen, 1993) to 35 percent in 2012 (Fridberg and Henriksen, 2014), whereas volunteers' contributions of time appear to have declined during the same period. This development might cause renewed concern because a decline in the amount of time volunteers spend in associations casts doubt on the sustainability of voluntary associations' capability to provide social services and it questions whether associations can retain their ability to socialize volunteers to embrace values of civicmindedness, cooperation, democracy, and community and to spawn further civic engagement (Alexander *et al.*, 2012).

Explanations for the decline in volunteers' time contributions in the US include generational differences (Goss, 1999; Putnam, 2000), socioeconomic changes (Rotolo and Wilson, 2004), and family life changes (Andersen, Curtis and Grabb, 2006). However, our results suggest that the decline in Denmark is partially explained not by socioeconomic or family life changes but by weakening organizational attachment measured by a decline in volunteers' propensities to be members of the organizations for which they volunteer. We thereby make an important contribution to the sociological literature on volunteering by showing that the decline in volunteers' time contributions in Denmark during a time of rising participation rates can be attributed to weakening organizational attachment.

We also show that young volunteers' time contributions have declined regardless of weakening organizational attachment, socioeconomic, and family life changes. Thus, we cannot rule out that generational differences in values that buttress active participation in voluntary associations also constitute an important piece of the puzzle explaining why volunteers' time contributions have declined in Denmark.

Weakening Organizational Attachment

To explain why volunteers' time contributions have declined during a period when participation rates have risen, we look to scholars who argue that the attachment between various types of associations, e.g., homeowner associations, housing associations, patient associations, sports associations, leisure associations, political associations, or community groups and volunteers, is weakening as a result of relatively abstract social processes such as modernization and individualization (Hustinx and Lammertyn, 2003; Torpe, 2003; Wollebæk and Selle, 2003; Hustinx, 2005; Lorentzen and Hustinx, 2007; Tranvik and Selle, 2007; Hustinx, 2010a, 2010b). Organizational attachment is a multifaceted concept that among other things encompasses emotional attachment between the volunteer and the organization, but in this paper, we narrow our empirical focus to the role of membership, which can be viewed as the institutionalized tie between volunteers and organizations (Wollebæk, Selle, and Lorentzen, 2000; Tranvik and Selle, 2007; Hustinx, 2010b).

Traditionally, especially in Scandinavia, where approximately 90 percent of the population is a member of at least one association (Selle et al. Forthcoming), the act of volunteering has been tightly coupled to membership in an organization (Klausen and Selle, 1996; Lorentzen and Hustinx, 2007; Tranvik and Selle, 2007; Henriksen, Smith and Zimmer, 2012). Membership has been suggested to be a source of stability for volunteering because members express greater loyalty to the organizations they volunteer for than do nonmembers (Wollebæk et al. 2015). Moreover, research suggests that in earlier times, active participation in voluntary associations emanated more or less automatically from membership (Torpe, 2003). However, in recent years, a number of scholars have suggested that volunteering increasingly occurs without membership in an organization, suggesting that the ties between organizations and volunteers are weakening in Scandinavia (Torpe, 2003; Wollebæk and Selle, 2003; Tranvik and Selle, 2007; Qvist et al. Forthcoming).

The weakening of organizational attachments may imply that individuals are less committed to traditional core activities of organizations that require a binding commitment and are time-consuming, such as serving on a board of directors (Preston and Brown, 2004; Balduck, Rossem, and Buelens, 2009). Instead, volunteers increasingly engage in activity-based and project-oriented forms of participation in diverse organizational settings that offer a greater amount of flexibility because they can be performed without membership and can be more easily quit if they are no longer considered interesting or they conflict with work or family obligations (Hustinx and Lammertyn, 2003).

Conceptual Model

Based on this theoretical discussion, our conceptual model of the decline in volunteers' contributions of time appears in graphic form in Figure 1.

*** Figure 1 here ***

Figure 1. Theoretical model with path coefficients to be estimated. The theoretical model hypothesizes that the decline in volunteers' time contributions during the period from 2004 to 2012 is mediated by a decline in volunteers' propensity to be members of the organizations for which they volunteer, which subsequently affects their propensity to serve on the board of directors.

As observed, we hypothesize that volunteers' propensities to be members of the organization for which they volunteer declined during the 2004-2012 period, which in turn negatively affected volunteers' propensities to engage in binding and time-consuming activities within the organization, measured as serving on a board of directors. Accordingly, we hypothesize that a decline in the volunteers' propensities to be members of the organization for which they

5

volunteer and thus their propensity to serve on the board of directors mediated (or explained) the decline in volunteers' contributions of time.

Admittedly, the period indicator to some extent remains a black box in the sense that it captures all changes in volunteers' contributions of time during the 2004-2012 period that cannot be attributed to socioeconomic or family life changes. For example, these changes could be due to abstract social processes such modernization and individualization. However, our paper is limited in scope in the sense that we do not directly attempt to operationalize these abstract and vaguely defined social processes but instead measure them by proxy as the changes that occurred during the period of investigation that cannot be attributed to socioeconomic and family life changes.

Young Generations and Weakening Organizational Attachment

The continuous succession of generations has been suggested to accelerate the process of weakening organizational attachment because processes of modernization and individualization affect younger generations more than older generations (Torpe, 2003; Wollebæk and Selle, 2003; Dekker and van den Broek, 2006). In support of this assumption, Wollebæk & Selle (2003) found that younger generations in Norway ascribe less importance to membership and express weaker loyalty toward particular organizations than do their older counterparts, and they linked this value shift to the demise of some of the traditional organizations in Norway. Torpe (2003) found that from 1979 to 1998 in Denmark, the number of organizational memberships dropped among young people aged 20-29 years but was stable or rose among people of all other age groups.

According to Hustinx (2010b), young people today increasingly choose flexible, easy, nondemanding voluntary tasks with easy entry-exit options to cope with uncertain and fluid educational systems and labor markets. Thus, the traditional membership model – with rules and regulations and time-consuming tasks and duties – might increasingly conflict with younger

generations' everyday lives. On these grounds, we further hypothesize that the indirect effect of the decline in the propensity for volunteers to be members of the organization for which they volunteer, and in turn their propensity to serve on the board of directors, is stronger among young people than that among older people.

Co-occurring Socioeconomic and Family Life Changes in Denmark

The socioeconomic explanation of Rotolo & Wilson (2004) and the family life changes explanation of Andersen, Curtis, & Grabb (2006) are both plausible explanations for the decline in volunteers' time contributions from the 1960s to the 1990s in the US. During this period, an increasing share of American women who were highly active in voluntary associations entered the paid labor market. This development probably caused them to decrease the amount of time they spent volunteering because of increasing pressure to pursue paid employment while balancing their parental responsibilities, as argued by Andersen, Curtis, & Grabb (2006). However, for a number of reasons, we argue that socioeconomic changes and family life changes are unlikely candidates for explaining the recent decline in volunteer time contributions in Denmark.

First, in contrast to the situation in the US from the 1960s to the 1990s, the dual-breadwinner family structure was prevalent in Denmark throughout the period of 2004-2012, and the share of women who worked part time for family reasons in Denmark was very low (Jensen *et al.*, 2017). Since these structures did not change during the relatively short period we investigate, it is unlikely that the decline in volunteers' contributions of time can be explained by increasing time pressures on Danish women with both paid employment and parental responsibilities. We do not rule out that Denmark experienced socioeconomic or family life changes with potential consequences for civic engagement in the 2004-2012 period. However, such changes were minor and differed markedly from developments in the US from the 1960s to the 1990s.

One such socioeconomic change may involve the length of the work week. A Danish time-use study suggests that average weekly work hours among the employed increased from 37.7 hours in 2001 to 39.3 in 2008/09 based on responses to survey questions. However, based on time-diary data, the same study indicates that work hours declined from 34.49 hours in 2001 to 33.19 hours in 2009 (Bonke, 2012a). Based on these conflicting results, it is difficult to hypothesize how changes in work hours during the period of investigation might have affected the amount of time spent volunteering.

Another, and perhaps the most significant, socioeconomic change in Denmark and other Western societies during the period of investigation has been the expansion of education (Gesthuizen, Van Der Meer and Scheepers, 2008). This expansion could be expected to drive up participation rates because education provides people with resources and civic skills that qualify them for volunteer work (Brady, Verba and Schlozman, 1995; Wilson and Musick, 1997). In Denmark, educational expansion during the period of investigation was extensive. The share of the population aged 25 to 64 with a long-cycle higher education increased from 6.5 percent in 2004 to 9.6 percent in 2012. Conversely, the share of the population aged 25 to 64 with no labor-market-qualifying education dropped from 32.4 percent in 2004 to 27.0 percent in 2012. [1] However, evidence from the Netherlands suggests that people with higher education are more likely to volunteer, but among volunteers, those with a higher education do not contribute more hours than do volunteers with less education (van Ingen and Dekker, 2011).

One change in family life during the period was that the share of the population that was married declined, and people generally had children later in life and fewer of them. In Denmark, the share of married people declined from 51 percent in 2004 to 49 percent in 2012.[2] Moreover, the share of households without children increased slightly from 70.1 percent in 2004 to 70.4 percent in 2012.[3] This development could affect volunteers' time contributions because the decision to

allocate time to volunteering is linked to major lifecycle events such as getting married and having children (Nesbit, 2012). Previous research shows that having pre-school-age children in the household significantly decreases the time that parents spend volunteering (van Ingen and Dekker, 2011; Qvist, 2015). In contrast, having school-age children in the household has been found to increase parents' participation in volunteering through their children's leisure and school activities (Rotolo and Wilson, 2007). However, this parental status does not seem to affect the amount of time spent volunteering (van Ingen and Dekker, 2011; Qvist, 2015)

If these socioeconomic or family life changes explain the decline in volunteers' contributions of time in Denmark, we should expect the decline to disappear when socioeconomic and family characteristics are controlled for in multivariate analyses.

Data, Measures, and Analytical Strategy

Data

For our analyses, we rely on the Danish Volunteer Survey, which is a representative survey of the Danish population aged 16-85.[4] The Danish Volunteer Survey is a repeated cross-sectional survey that includes a longitudinal component. The first survey wave, collected in 2004, had 3,134 respondents (with a response rate of 75 percent). Of these, 1,981 respondents who had not exceeded the age limit agreed to participate again in the second wave in 2012. The second wave collected in 2012, thus had 1,981 respondents who participated in both waves and a refresher sample of respondents from new cohorts and a random sample of respondents from other cohorts. Comparisons with population data from Statistics Denmark suggests that both waves can be used as representative cross-sections of the Danish population (Fridberg and Henriksen, 2014). The data in both waves were collected by the Danish National Centre for Social Research. The exceptionally

high response rates are the result of a meticulous data collection procedure, which involved multiple contact attempts and personal follow-up interviews at the home addresses of individuals who could not be reached by telephone.

To create our analysis data, we first pooled the data from the two waves, which resulted in 5,943 observations, of which 2,064 were from volunteers. After removing 95 observations from individuals who did not report a valid number of hours, the number of observations that included a valid number of volunteer hours was 1,966. After further removing observations with missing data on any of the variables we use in the analysis and after removing four outlier observations of volunteer hours exceeding 2,500 per year, we end up with an analysis sample of 1,942 observations. To adjust for some of the observations being clustered within individuals, we used cluster-robust standard errors in the analysis.

Measures

The dependent variable is the total number of hours the volunteers reportedly contributed within the previous year. The observations are heavily skewed to the right because most volunteers contribute only a modest number of hours, while a small group of volunteers contribute many hours. To circumvent these problems, we used the natural logarithm of hours in the multivariate analyses.

In each of the two survey waves, the respondents were asked about their volunteering within 14 different areas corresponding to the International Classification of Nonprofit Organizations (ICNPO) (Salamon and Anheier, 1992). For each area, the respondent was asked, 'Do you volunteer within the area of [insert area]?' If the response was yes, then the respondent was asked, 'Have you volunteered in this area within the previous year?' For each area, the respondent was given 3 to 4 examples of volunteer activities within that particular area.[5] Next, the respondents who had volunteered within the previous year were asked, 'How many hours in total?'

For our purpose, a great advantage of the measure is that volunteering is not by design restricted to occurring in a voluntary organization: it can also occur in a less traditional private or public setting. Moreover, the respondent was first asked about participation in volunteering and subsequently asked whether the volunteer work is performed as a member of the organization. This procedure allowed us to capture not only traditional member-based volunteering in voluntary associations but also volunteering without formal membership, which is key in our analysis.

The hypothesized mediators of the decline in volunteers' contributions of time was measured using two indicator variables: membership in the organization for which the respondent volunteers, and serving on the board of directors. In both waves of the survey and for each area, the respondents were first asked about their participation in voluntary activities and then, conditional on a positive answer, were asked about their member status and whether they serve on the board of directors. To construct a membership indicator, we assigned the respondent a code of 1 if he or she answered positively to participation in volunteering in at least one area and subsequently indicated that they were a member of the organization for which they volunteered in at least one area; otherwise, we assigned a code of 0. Similarly, to construct an indicator for a board of directors, we assigned the respondent a code of 1 if he or she answered positively to participation in volunteering in at least one area and subsequently indicated that they served on the board of directors in at least one area; otherwise, we assigned a code of 0.

To control for socio-economic changes, we include educational attainment, employment status, and income quintile. Educational attainment is based on information from administrative registers and is measured as the highest completed education, assigned to one of the following five categories: no education (reference), vocational training, short-cycle higher education, medium-cycle higher education, and long-cycle higher education. Employment status is based on survey information and is measured as a categorical variable with seven categories: working more than full

time (40 + hours), working full time (30-40 hours) (reference), working part time (1-29 hours),

unemployed, student, homemaker including care for people on parental leave, and pensioner

including age and disability pensions. Income is based on information from administrative registers

and is measured as annual income standardized to 2012 prices. We use quintiles of income because

relative income is assumed to be more important than absolute income in predicting time spent in

volunteering.

To control for family life characteristics, we include an indicator for being married and a

categorical variable that captures the ages of children in the household. The indicator for being

married is based on information from administrative registers and is coded as 1 if the respondent is

married and 0 if not. The ages of children in the household are based on survey information and

were measured as a categorical variable with four categories: no children (reference), pre-school-

age children (0-6 years), school-age children (7-18 years), and both pre-school- and school-age

children.

Finally, our models include controls for being an immigrant, gender, and age. Table 1

provides descriptive statistics of all variables separately for 2004 and 2012.

*** Table 1 here ***

Analytical Strategy

Previous studies of trends in time use for volunteering have modeled participation in volunteering

and time use with single-index models such as the Tobit model (e.g., Rotolo & Wilson, 2004) or a

generalized linear model of the gamma family with a log link (e.g., Andersen et al., 2006).

However, an important drawback of single-index models is that they rely on the strong assumption

that a single set of factors affects both the decision to volunteer and the amount of time spent in the

same direction and with the same magnitude (Forbes and Zampelli, 2011). This assumption is too restrictive because empirical work shows that several factors affect the likelihood of participation but not time use among participants and vice versa (van Ingen and Dekker, 2011; Forbes and Zampelli, 2014; Qvist, 2015).

Because our focus is on explaining the decline in volunteers' time contributions, we rely exclusively on the sample of volunteers in the multivariate analysis. We are aware that using only the subsample of volunteers might cause selection problems if people select to volunteer due to unobserved characteristics that are also correlated with their contributions of time. To investigate whether selection caused bias in our models, we estimated a Heckman selection model; the results indicate that selection was not present (see table A1 in the online supplement).

Our aim is to investigate whether and to what extent the decline in volunteers' time contributions is mediated (or explained) by a decline in the propensity for volunteers to be members of the organization for which they volunteer, which subsequently affects the volunteers' propensities to serve on the board of directors. Therefore, we estimate the path coefficients of the sequential mediation model depicted in Figure 1 with an ordinary least squares (OLS) regression (for details on sequential mediation models, see Hayes, 2018). Specifically, we estimate the path coefficients of the sequential mediation model using the following three linear equations:

$$\text{member} = \alpha_0 + \alpha_1 T_{2012} + \mathbf{A}'X + \varepsilon_1 \tag{1}$$

$$\text{board} = \delta_0 + \alpha_2 T_{2012} + \delta_1 \text{member} + \mathbf{D}'X + \varepsilon_2 \tag{2}$$

$$\ln(\text{hours}) = \beta_0 + \gamma_1 T_{2012} + \beta_1 \text{member} + \beta_2 \text{board} + \mathbf{D}'X + \varepsilon_3 \tag{3}$$

where T_{2012} is an indicator variable for the time period; X is a vector of control variables including socioeconomic factors, family life characteristics, demographics and indicators for area of volunteering; and ε_1, ε_2, and ε_3 are random error terms. As shown in Figure 1, there are four distinct pathways from the period indicator to volunteers' contributions, of time of which three

pathways are indirect and one is direct. Using the product-of-coefficients method, the first indirect effect (period → member → hours) is calculated as the product of $\alpha_1 \times \beta_1$, the second indirect effect (period → board → hours) is calculated as the product of $\alpha_2 \times \beta_2$, and the third (period → member → board →hours) is calculated as the product of $\alpha_1 \times \delta_1 \times \beta_2$. The sum of the three indirect effects is equal to the total indirect effect, and the coefficient γ_1 provides an estimate of the direct period effect from 2004 to 2012. Finally, the sum of the total indirect effect and the direct effect is equal to the total effect.[6] To assess the significance of the indirect effects, we use bootstrapped standard errors because the sampling distribution of an estimated indirect effect is almost always skewed (Hayes, 2018).

Finally, to investigate whether the total indirect period effect is stronger among young people, we estimate separate models for different age groups including the young (16-35 years), the middle aged (36-65 years), and the old (> 65 years), which correspond to the three major stages of life.

Results

Initially, we note that, consistent with our theoretical expectations, the descriptive statistics in Table 1 suggest that the share of volunteers who are members of the organization for which they volunteer declined from 79 percent in 2004 to 69 percent in 2012, and the share of volunteers who serve on a board of directors declined from 53 percent to 51 percent. During the same period, the natural logarithm of volunteers' average annual contributions of hours declined from 4.04 in 2004 to 3.90 in 2012. We report the mean of the natural logarithm of volunteers' contributions of hours rather than the mean of the volunteers' contributions of hours in levels because the distribution of hours is heavily skewed to the right (for the sample mean and median in levels, see the endnotes).[7]

Table 2 shows the estimated path coefficients and the total, direct, and indirect effects calculated from these coefficients, controlled for educational level, employment status, income, marital status, age of children in the household, immigrant status, gender, and age (complete OLS regression tables are available in Table A2 in the online supplement).

The total effect suggests that volunteers' contributions of time declined approximately 16 percent from 2004 to 2012 (($e^{-0.178}$ - 1) $\times$ 100 = 16 percent). To examine whether and to what extent our model can explain this decline, we first inspect the path coefficients. The path coefficients in Table 2 suggest that the propensity for volunteers to be a member of the organization for which they volunteer declined approximately 8 percentage points from 2004 to 2012. Moreover, the path coefficients indicate that volunteers who are members of the organization for which they volunteer are 23 percentage points more likely to serve on the organization's board of directors. Finally, the table suggests that volunteers who are members of the organizations for which they volunteer contribute 59 percent more hours than volunteers who are not members (($e^{0.466}$ - 1) $\times$ 100 = 59 percent), and volunteers who serve on the board of directors contribute 23 percent more hours than volunteers who do not serve (($e^{0.209}$ - 1) $\times$ 100 = 23 percent). The sum of the two coefficients implies that volunteers who serve on the board in addition to being a member contribute 96 percent more hours than volunteers who are neither a member nor serve on the board (($e^{(0.466+0.209)}$ - 1) $\times$ 100 = 96 percent). Since our estimates suggest that volunteers who are members spend significantly more time than nonmembers and that volunteers' propensities to be members declined significantly from 2004 to 2012, we have preliminary evidence that the decline in volunteers' contributions of time is partly explained by an indirect effect via weakening organizational attachment. However, to examine the significance and relative impact of this weakening, we inspect the estimated indirect effect in more detail.

15

The estimated total indirect effect suggests that approximately 21 percent of the total decline in the volunteers' contributions of time is explained by the mediators. Surprisingly, however, we learn that one specific indirect effect (period → member → hours) alone comprises 20 percent of the indirect effect, suggesting that the vast majority of the decline in volunteers' contributions of time is explained by the decline in volunteers' propensities to be members but not through its subsequent effect on their propensities to serve on a board of directors. We return to the theoretical implications of this finding in our concluding discussion.

*** Table 2 here ***

To investigate whether the indirect effect of the decline in volunteers' propensities to be members of the organization is stronger among the young generations, we estimate separate models for the young (16-35 years), the middle-aged (36-65 years), and the old (> 65 years), presented in Table 3 (complete OLS regression tables are available in Table A3 in the online supplement). The separate models reveal some interesting results. First, we note that the estimated total period effect is strongest among the young. The coefficient suggests that young volunteers' time contributions declined approximately 27 percent from 2004 to 2012 ($(e^{-0.314} -) \times 100 = 27$ percent). The total indirect effect suggests that approximately 22 percent of this decline is explained by the mediators. However, it is also true that almost all the total indirect effect among the young consists of the specific indirect effect *period → member → hours*. Moreover, we note that the direct period effect is relatively strong and explains approximately 78 percent of the total decline in the young volunteers' contributions of time. This finding suggests that a relatively large proportion of the decline in young volunteers' contributions of time is explained by factors other than the decline in their propensities to be members and to serve on a board of directors.

16

Next, we note that the estimated total period effect among the middle-aged is relatively strong and significantly negative. Interestingly, the estimate of this total effect is approximately half of that of the young, but the bootstrapped confidence intervals of the two estimated total effects clearly overlap. The coefficient of the total effect among the middle-aged suggests that their volunteer time contributions declined approximately 15 percent (($e^{-0.159}$-) $\times$ 100 = 15 percent). The estimate of this total indirect effect suggests that approximately 19 percent of this decline is explained by the mediators, but the bootstrapped confidence interval barely contains zero. However, for the middle-aged, the point estimate of the specific indirect effect *period → member → hours* is slightly larger than the total indirect effect with a bootstrapped confidence interval that does not contain zero. These results suggest that the specific indirect effect explains approximately 20 percent of the decline in volunteers' contributions of time.

Finally, we note that the estimated total period effect among the old volunteers is positive but that the confidence interval clearly contains zero. Moreover, we learn that among the old, the estimated coefficient of the membership indicator is insignificant. Since the old volunteers' time contributions did not significantly decline during the 2004-2012 period and membership seems to have little effect on their volunteer time, our theoretical model does not seem to apply to old volunteers (> 65 years).

*** Table 3 here ***

Conclusion and Discussion

We set out to explain recent trends in volunteers' contributions of time in Denmark. The results suggest that, similar to what seems to be the case in the US, young and middle-aged volunteers' time contributions have declined during a period when participation rates have risen. Our results suggest that this decline is partially explained not by socioeconomic or family life changes, as

argued in the case of the US, but by a decline in the propensity for volunteers to be members of the organizations for which they volunteer.

Although we believe our results constitute an important piece of the puzzle explaining why volunteers' time contributions have declined in Denmark during a period when participation rates have risen, our study has limitations. One limitation is that the majority of the decline in volunteer time contributions is left unexplained in our model. This shortcoming implies that processes other than weakening organizational attachment must be factored in to provide a more complete explanation of the decline in volunteer time. Our results suggest a relatively strong direct period effect, particularly among young volunteers, which indicates that the decline has been more pronounced among young volunteers, regardless of weakening organizational attachment, socioeconomic changes, and family life changes. Based on the data at hand, we therefore cannot rule out that generational differences in the values that buttress civicmindedness also partly explain the decline in young volunteers' time contributions, as argued by Putnam and others (Putnam, 1995; Goss, 1999; Putnam, 2000). However, in terms of explaining recent trends in volunteering, we believe it is fair to say that the conjectured changes in values that support civicmindedness among younger generations have received much attention at the expense of important structural changes in organizational functioning such as weakening organizational attachment

Another potential limitation of our paper is that people's time spent in volunteering is difficult to measure with precision. Our measure of volunteer time contributions is based on information from a stylized survey question; this type of question is often criticized by proponents of time diaries because of two main problems. First, information from stylized survey questions inevitably suffers to some degree from recall bias: some respondents will fail to recall and report the correct number of hours they spent on the activity in question (Bonke, 2005). Second, some methodologists suggest that stylized survey questions regarding time use are prone to social

desirability bias because some respondents will deliberately overestimate the number of hours to comply with social norms (Bonke, 2005). As a result of these problems, there is general agreement among researchers that information from time-use diaries provides more reliable estimates of time use in populations than estimates based on information from stylized survey questions. Nevertheless, time-diary data may of course also suffer from measurement errors to some degree, and these data also come with problems of their own. Because time-use diary data are so expensive to collect and burdensome for participants, time-diary data are almost exclusively collected as part of large-scale general social investigations without a specific topic of interest as opposed to surveys focused on volunteering that follows the ICNPO standard. As a result, information on volunteer time contained in time-diary data from Denmark and elsewhere is divided into relatively broad categories. For example, the Danish Time Use Study (DTUC) that is part of the Harmonized European Time Use Surveys (HETUS) collects information on various types of work performed as part of an organization but not on whether these activities are performed as a member of the organization for which one volunteers. Thus, when addressing the questions we raise in this paper, we face a trade-off between the detailed information on the dependent variable, including the factors of interest, and quantifying the time spent on volunteering based on a less-than-ideal stylized survey question. Fortunately, however, Kan and Pudney (2008) found, in a methodological comparison of time-use estimates based on data from stylized surveys and time-diaries, that there are systematic errors in information from stylized survey questions regarding time use (assuming that time diary data are error free) but that the main source of error was randomness. Particularly important to our study, Kan and Pudney (2008, p. 125) found that since the majority of the errors are random rather than systematic, coefficient biases are relatively small in studies in which the dependent variable is a time-use estimate based on information from a stylized survey question.

Nonetheless, our results are consistent with previous Danish research based on time diaries that indicates a broad trend in decreasing time spent on 'active leisure activities' including associational life, volunteering, sport, entertainment, dining out, and transportation and increasing time pursuing 'passive leisure activities' including reading, social intercourse, talking on the telephone, TV, IT, games, relaxation, and family care (Bonke 2012b). However, it would be fruitful for future research to address whether the decline in volunteer time contributions that we report in this paper, based on information from a stylized survey question, can be confirmed using other more-ideal methods.

Another limitation of our analysis is that our data only include information at the individual level and not the organizational level. This is a shortcoming since we believe, following Hustinx (2010b) and others, that a more complete explanation for the decline in volunteer time could be achieved by looking at the interdependence between volunteers and the organizational settings in which they are active. We might for instance hypothesize a feedback mechanism in which organizations in response to volunteers' demands for flexibility increasingly offer opportunities to volunteer without membership and organizational duties (Hustinx & Meijs, 2011). Unfortunately, our data do not permit the investigation of organizational-level factors, but future research could benefit from combining information from both the individual- and the organizational level over time.

Despite these limitations, our findings contribute to an important sociological discussion of volunteering concerning whether and to what extent recent processes of weakening organizational attachment lead to a decline in the time that volunteers contribute or whether the process solely alters where and how people volunteer. Some scholars thus argue that the process of weakening organizational attachment does not necessarily entail a decline in volunteer time contributions since new less-formal forms of organization in which membership is not necessarily an integral part of

volunteering will replace the old forms of organization, particularly among younger generations of volunteers (Wuthnow, 1998). We caution against drawing this conclusion since our results suggest that the consequences of weakening organizational attachment are not limited to changes in where and how people participate but also include how much time they participate.

When our results suggest that the decline can be attributed to a decline in volunteers' propensity to volunteer as a member but not through a decline in their propensity to serve on a board of directors, as we hypothesized, we might conclude that the associations' demand for organizational 'core' functions such as a functional board of directors is relatively stable and that these 'core' functions are inevitably time-consuming for the volunteers who undertake these duties. Moreover, as seen from the descriptive statistics in Table 1, the share of volunteers who serve on a board did not decline as steeply as the share who are members of the organization in which they volunteer. When these results are viewed in conjunction, they suggest that the decline in volunteer time can mainly be attributed to an increase in so-called 'peripheral volunteers' who volunteer without membership in the organization. However, our results do not support a decline in contributed time from so-called 'core volunteers' who serve on a board of directors. To address this issue further, we performed two checks of robustness. First, we developed a regression for estimating the period effect on volunteers' contributions of time, controlled for socioeconomic and family life characteristics, but we included only the sample of 'core' volunteers , i.e., those who serve on the board. As expected, this analysis suggests that 'core' volunteers' time contributions did not significantly decline during the period of investigation (see Table A4 in the online supplement). Second, we developed a regression that included only volunteers who, in addition to having volunteered within the previous year, reported that they volunteered within the previous month and the number of hours they volunteered within the last month. These results suggest that among those who volunteered within the previous month, the monthly contributions of time declined

21

significantly, by approximately 11 percent, from 2004 to 2012. However, the estimated coefficients for membership and serving on the board of directors are insignificant and much smaller than the coefficients previously reported in the paper, suggesting that the differences in contributions of time between members and nonmembers are smaller among frequent volunteers than infrequent volunteers (see Table A5 in the online supplement).

The implications of our results are not clear-cut. At first, we might worry that the capacity of the volunteer sector as providers of leisure activities or social services is hampered by the rise in peripheral volunteers, and in turn, the decline in volunteers' contributions of time. However, the downward trend in volunteers' contributions of time might be held in check by a countervailing trend toward increasing professionalism and time efficiency among 'core volunteers' (Hustinx and Meijs, 2011). However, as emphasized in the introduction, sociologists do not only attach importance to the volunteer sector because of its productive capacity as a provider of services but instead emphasize the sector's role in the production and reproduction of civic engagement, democratic values, and social capital. Thus, in a time of optimism regarding rising volunteer participation rates in Europe, our results might cause concern in that they suggest that the stable or rising participation rates might be masking qualitative changes in the attachment between volunteers and organizations, which could potentially erode organizations' abilities to socialize their volunteers.

Notes

1. Our calculations are based on numbers from StatBank Denmark provided by Statistics Denmark (www.statistikbanken.dk/hfu1; www.statisbanken.dk/hfudd10).

2. Our calculations are based on numbers from StatBank Denmark provided Statistics Denmark (statistikbanken.dk/BEF1A; statistikbanken.dk/FOLK1A).

3. Our calculations are based on numbers from Statbank Denmark provided by Statistics Denmark (statistikbanken.dk/FAM55N).

4. The survey data used in this paper can be obtained free of charge from the Danish Data Archive.

5. For example, for the area of culture, we provide four concrete examples of organizations one could volunteer for: museums, local history archives, choirs, theatre. We provide similar examples for each of the areas of volunteering.

6. The total effect can also be obtained from a reduced form of Equation 3 that do not include the mediators (the indicators of membership and serving on a board of directors).

7. The mean volunteer time contribution declined from 133 hours in 2004 to 127 in 2012, and the median volunteer time contribution declined from 60 in 2004 to 50 in 2012, but these figures should be interpreted with caution.

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Table 1. Descriptive Statistics

Variables	2004		2012	
	Mean	SD	Mean	SD
Ln(Volunteer hours)	4.04	1.40	3.90	1.48
Education				
No education	0.23	0.42	0.20	0.40
Vocational training	0.43	0.50	0.38	0.49
Short-cycle higher education	0.05	0.21	0.05	0.22
Medium-cycle higher education	0.21	0.41	0.23	0.42
Long-cycle higher education	0.08	0.27	0.14	0.35
Employment status				
Working: 40 < hours	0.25	0.43	0.23	0.42
Working: 40 < hours	0.25	0.43	0.23	0.42
Working: 30-40 hours	0.40	0.49	0.34	0.47
Working: 1-29 hours	0.05	0.22	0.06	0.23
Unemployed	0.05	0.22	0.06	0.23
Student	0.10	0.30	0.10	0.30
Pensioner	0.15	0.36	0.21	0.41
Homemaker	0.01	0.09	0.01	0.08
Income decile	3.35	1.47	3.19	1.54
Married	0.57	0.50	0.58	0.49
Children				
No children	0.63	0.48	0.63	0.48
Pre-school children	0.10	0.29	0.07	0.26
School-children	0.19	0.40	0.21	0.41
Both types of children	0.08	0.28	0.08	0.28
Immigrant	0.04	0.20	0.03	0.17
Male	0.54	0.50	0.49	0.50
Age	44.49	15.14	47.90	16.17
Member	0.79	0.41	0.69	0.46
Board of directors	0.53	0.50	0.51	0.50
Volunteer area				
Culture	0.10	0.30	0.14	0.35
Sports	0.32	0.47	0.31	0.46
Other recreation	0.13	0.34	0.09	0.28
Education and research	0.10	0.30	0.13	0.33
Health	0.08	0.28	0.11	0.32
Social services	0.08	0.28	0.10	0.30
Environment	0.01	0.11	0.02	0.13
Development and housing	0.18	0.38	0.15	0.36
Union	0.08	0.27	0.04	0.21
Law and advocacy	0.01	0.12	0.02	0.13
Politics	0.03	0.18	0.02	0.15
International	0.05	0.21	0.04	0.21
Religion	0.06	0.24	0.06	0.25
Other	0.07	0.26	0.10	0.30

Table 2. Path coefficients and summary of total, direct, and indirect effects

Variables	Dependent variable					Summary	
	Member		Board		Hours	Estimate	Bootstrapped 95 % CI	Percentage of total effect
2012	-0.076*** (0.018)		0.011 (0.019)		-0.141* (0.057)			
Member			0.231*** (0.024)		0.466*** (0.078)			
Board					0.209** (0.068)			
Total, direct, and indirect effects								
Total effect						-0.178	[-0.299; -0.057]	100
Direct effect						-0.141	[-0.261; -0.021]	79
Total indirect effect						-0.037	[-0.061; -0.013]	21
2012 → Member → Hours						-0.035	[-0.057; -0.014]	20
2012 → Board → Hours						0.002	[-0.007; 0.012]	-1
2012 → Member → Board → Hours						-0.007	[-0.007; -0.001]	2

Cluster-robust standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. The models used to obtain path coefficients controls for education, employment status, income quintile, marital status, children in the household, immigrant status, gender, age, and volunteer area. Full models including coefficients for control variables are available in Table A2 in the online supplement. Bootstrap confidence intervals (CI) are based on 5000 repetitions.

Table 3. Path coefficients and summary of total, direct, and indirect effects by age group

	Young (16-35 years)								
	Dependent variable						Summary		
Variables	Member		Board		Hours		Estimate	Bootstrapped 95 % CI	Percentage of total effect
2012	-0.102**	(0.036)	-0.032	(0.040)	-0.248*	(0.113)			
Member			0.245***	(0.045)	0.631***	(0.148)			
Board					0.041	(0.129)			
Total, direct, and indirect effects									
Total effect							-0.314	[-0.551; -0.077]	100
Direct effect							-0.248	[-0.485; -0.011]	78
Indirect effect							-0.066	[-0.126; -0.007]	22
2012 → Member → Hours							-0.064	[-0.122; -0.006]	21
2012 → Board → Hours							-0.001	[-0.015; 0.013]	1
2012 → Member → Board → Hours							-0.001	[-0.008; 0.006]	0
	Middle aged (36-65 years)								
	Dependent variable						Summary		
Variables	Member		Board		Hours		Estimate	Bootstrapped 95 % CI	Percentage of total effect
2012	-0.069**	(0.024)	0.020	(0.025)	-0.128	(0.071)			
Member			0.221***	(0.031)	0.467***	(0.099)			
Board					0.268**	(0.088)			
Total, direct, and indirect effects									
Total effect							-0.159	[-0.311; -0.007]	100
Direct effect							-0.128	[-0.277; 0.022]	81
Indirect effect							-0.031	[-0.064; 0.002]	19
2012 → Member → Hours							-0.032	[-0.059; -0.005]	20

Variables							Estimate	Bootstrapped 95 % CI	Percentage of total effect
2012 → Board → Hours							0.005	[-0.011; 0.020]	-3
2012 → Member → Board → Hours							-0.004	[-0.001; 0.000]	3

	Old (> 65 years)								
	Dependent variable						Summary		
Variables	Member		Board		Hours		Estimate	Bootstrapped 95 % CI	Percentage of total effect
2012	-0.078	(0.052)	0.081	(0.057)	0.172	(0.174)			
Member			0.223***	(0.064)	-0.036	(0.220)			
Board					0.211	(0.182)			
Total, direct, and indirect effects									
Total effect							0.189	[-0.171; 0.548]	100
Direct effect							0.172	[-0.190; 0.534]	91
Indirect effect							0.016	[-0.049; 0.081]	8
2012 → Member → Hours							0.003	[-0.043; 0.048]	2
2012 → Board → Hours							0.017	[-0.028; 0.063]	9
2012 → Member → Board → Hours							-0.004	[-0.014; 0.007]	-2

Cluster-robust standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. The models used to obtain path coefficients for the young and middle-aged controls for education, employment status, income quintile, marital status, children in the household, immigrant status, gender, age, and volunteer area. The model used to obtain path coefficients for the old education, income quintile, marital status, immigrant status, gender, age, and volunteer area, because very few respondents in the oldest age group were still active in the labor market or had children in the household. Full models including coefficients for control variables are available in Table A3 in the online supplement. Due to the relatively modest sample sizes and many parameters to be estimated, the bootstrapped confidence intervals (CI) are based on fewer than 5,000 repetitions. In the model for the young, one or more parameters could not be estimated in 757 bootstrap replications; the bootstrapped confidence interval is therefore based on 4,243 complete replications. In the model for the middle-aged one or more parameters could not be estimated in 2 bootstrap replications; the bootstrapped confidence interval is therefore based on 4,998 complete replications. In the model for the old one or more parameters could not be estimated in 2,609 bootstrap replications; the bootstrapped confidence interval is therefore based on 2,391 complete replications.
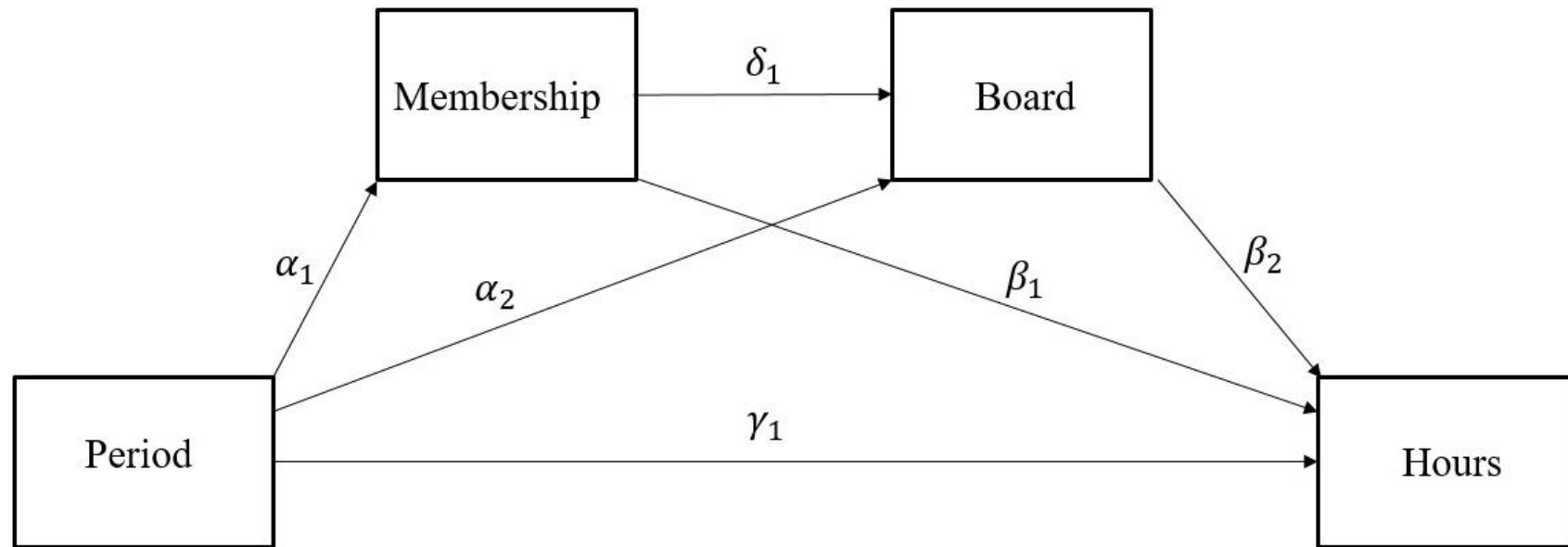
Figure 1. Theoretical model with path coefficients to be estimated. The theoretical model hypothesizes that the decline in volunteers' time

contributions during the period from 2004 to 2012 is mediated by a decline in volunteers' propensity to be members of the organizations

for which they volunteer, which subsequently affects their propensity to serve on the board of directors.

Online supplement to the research article "The Consequences of Weakening Organizational Attachment for Volunteering in Denmark, 2004-2012" Published in *European Sociological Review.*

Table A1. Heckman selection model predicting Ln(hours)

	Dependent variable			
	Ln(hours)		Volunteer	
2012	-0.139*	(0.057)	-0.018	(0.031)
Education (ref. = no education)				
Vocational training	-0.015	(0.090)	0.116*	(0.049)
Short-cycle higher education	0.050	(0.163)	0.174	(0.099)
Medium-cycle higher education	-0.059	(0.108)	0.355***	(0.062)
Long-cycle higher education	-0.000	(0.133)	0.444***	(0.082)
Employment status (ref. = Working: 30-40 hours)				
Working: 40 < hours	-0.102	(0.079)	0.119*	(0.052)
Working: 1-29 hours	0.312*	(0.140)	0.018	(0.083)
Unemployed	0.313*	(0.151)	0.136	(0.089)
Student	0.160	(0.148)	0.133	(0.079)
Pensioner	0.385*	(0.150)	-0.077	(0.087)
Homemaker	0.452	(0.478)	-0.074	(0.205)
Income quintile	0.012	(0.030)	0.029	(0.020)
Married	-0.025	(0.073)	0.035	(0.044)
Children (ref. = no children)				
Pre-school children	-0.131	(0.117)	-0.042	(0.069)
School-children	-0.011	(0.089)	0.236***	(0.052)
Both types of children	0.023	(0.121)	0.406***	(0.078)
Immigrant	-0.023	(0.180)	-0.142	(0.103)
Male	0.116	(0.069)	0.121**	(0.040)
Age	0.004	(0.004)	0.003	(0.002)
Volunteer area				
Culture	0.807***	(0.096)		
Sports	0.936***	(0.076)		
Other recreation	0.730***	(0.096)		
Education and research	0.488***	(0.090)		
Health	-0.295*	(0.116)		
Social services	0.836***	(0.108)		
Environment	0.465	(0.256)		
Development and housing	0.060	(0.086)		
Union	0.501***	(0.125)		
Law and advocacy	0.795**	(0.242)		
Politics	0.945***	(0.165)		
International	0.464**	(0.157)		
Religion	1.053***	(0.123)		
Other	0.880***	(0.116)		
Member	0.465***	(0.078)		
Board of directors	0.208**	(0.068)		
Moral commitment			0.386***	(0.036)
Constant	2.513***	(0.341)	-1.185***	(0.121)
Rho	-0.075 (0.135)			
Log-likelihood	-6707.608			
Observations	5717			

Note: Cluster-robust standard errors in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. It is possible to control for each of the 14 volunteer areas without a reference category, because perfect collinearity is not present because some respondents volunteer within more than one area. To ensure that the selection model is identified an instrumental variable is needed that is assumed to affect the decision to volunteer, but not the amount of time that the volunteer contributes. Our choice of instrument is based on the assumption that the decision to volunteer, in addition to resources, is guided by values whereas the decision of how many hours to contribute is mostly based on available free time. In the selection equation, we therefore added an instrumental variable that measures whether the respondent fully agrees that the voluntary sector would still be needed if the public sector took care of all of its duties, because we assume that this variable captures whether the respondent finds the voluntary sector fundamentally valuable. We coded respondents as 1 if they answered that they fully agree that the voluntary sector would be needed even if the public sector took care of all of its duties; otherwise, we coded them 0.

Table A2. Full regression models predicting membership, board, and ln(hours).

Variables	Member		Board		Ln(hours)	
			Dependent variable			
2012	-0.076***	(0.018)	0.011	(0.019)	-0.141*	(0.057)
Education (ref. = no education)						
Vocational training	0.044	(0.027)	0.049	(0.029)	-0.007	(0.088)
Short-cycle higher education	-0.029	(0.050)	0.108*	(0.048)	0.063	(0.160)
Medium-cycle higher education	0.046	(0.030)	0.113**	(0.035)	-0.034	(0.100)
Long-cycle higher education	0.026	(0.037)	0.127**	(0.040)	0.030	(0.120)
Employment status (ref. = Working: 30-40 hours)						
Working: 40 < hours	0.001	(0.024)	0.022	(0.026)	-0.094	(0.077)
Working: 1-29 hours	-0.011	(0.048)	0.043	(0.048)	0.315*	(0.140)
Unemployed	-0.023	(0.047)	-0.061	(0.048)	0.324*	(0.151)
Student	0.063	(0.044)	-0.035	(0.047)	0.168	(0.146)
Pensioner	-0.029	(0.044)	-0.071	(0.050)	0.378*	(0.150)
Homemaker	-0.082	(0.115)	0.006	(0.118)	0.446	(0.479)
Income quintile	0.015	(0.010)	0.010	(0.010)	0.014	(0.030)
Married	-0.003	(0.022)	0.079**	(0.024)	-0.023	(0.073)
Children (ref. = no children)						
Pre-school children	-0.057	(0.037)	0.037	(0.041)	-0.133	(0.117)
School-children	-0.093***	(0.026)	0.006	(0.028)	0.006	(0.083)
Both types of children	-0.125**	(0.041)	0.019	(0.039)	0.050	(0.110)
Immigrant	-0.045	(0.053)	-0.154**	(0.052)	-0.034	(0.179)
Male	0.019	(0.020)	-0.009	(0.022)	0.126	(0.066)
Age	0.003**	(0.001)	0.001	(0.001)	0.004	(0.004)
Volunteer area						
Culture	0.094**	(0.030)	0.088**	(0.032)	0.809***	(0.096)
Sports	0.215***	(0.023)	0.002	(0.027)	0.937***	(0.076)
Other recreation	0.203***	(0.030)	0.100**	(0.033)	0.731***	(0.096)
Education and research	-0.066*	(0.033)	0.342***	(0.032)	0.487***	(0.090)
Health	-0.070*	(0.033)	-0.060	(0.033)	-0.294*	(0.116)
Social services	0.026	(0.036)	0.148***	(0.037)	0.835***	(0.108)
Environment	0.093	(0.081)	0.099	(0.076)	0.462	(0.256)
Development and housing	0.278***	(0.022)	0.389***	(0.028)	0.058	(0.087)
Union	0.244***	(0.029)	0.270***	(0.038)	0.499***	(0.125)
Law and advocacy	0.215***	(0.057)	0.014	(0.073)	0.796***	(0.241)
Politics	0.200***	(0.044)	0.140*	(0.059)	0.945***	(0.165)
International	0.078	(0.045)	-0.041	(0.046)	0.463**	(0.157)
Religion	0.228***	(0.034)	0.056	(0.048)	1.056***	(0.123)
Other	0.030	(0.037)	0.097**	(0.038)	0.881***	(0.116)
Member			0.231***	(0.024)	0.466***	(0.078)
Board of directors					0.209**	(0.068)
Constant	0.413***	(0.068)	0.007	(0.069)	2.370***	(0.225)
Adj. R^2	0.150		0.244		0.204	
Observations	1942		1942		1942	

Note: Cluster-robust standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. It is possible to control for each of the 14 volunteer areas without a reference category, because perfect collinearity is not present because some respondents volunteer within more than one area.

Table A3. Full regression models predicting membership, board, and ln(hours) by age group.

	Young			Middle-aged			Old		
	Dependent variable			Dependent variable			Dependent variable		
	Member	Board	Ln(hours)	Member	Board	Ln(hours)	Member	Board	Ln(hours)
2012	-0.102** (0.036)	-0.032 (0.040)	-0.248* (0.113)	-0.069** (0.024)	0.020 (0.025)	-0.128 (0.071)	-0.078 (0.052)	0.081 (0.057)	0.172 (0.174)
Education (ref. = no education)									
Vocational training	0.059 (0.053)	0.090 (0.053)	0.287 (0.167)	0.022 (0.035)	0.024 (0.039)	-0.034 (0.116)	0.015 (0.062)	-0.000 (0.068)	-0.113 (0.198)
Short-cycle higher education	-0.148 (0.089)	0.086 (0.081)	0.160 (0.345)	-0.029 (0.061)	0.089 (0.062)	0.133 (0.178)	0.281** (0.096)	0.194 (0.193)	0.528 (0.616)
Medium-cycle higher education	0.047 (0.066)	0.180** (0.068)	0.219 (0.207)	0.019 (0.038)	0.052 (0.044)	-0.054 (0.127)	0.043 (0.072)	0.091 (0.087)	0.234 (0.226)
Long-cycle higher education	-0.040 (0.085)	0.224** (0.084)	0.269 (0.251)	0.033 (0.046)	0.100* (0.049)	0.101 (0.145)	0.006 (0.106)	0.022 (0.103)	-0.577 (0.345)
Employment status (ref. = Working: 30-40 hours)									
Working: 40 < hours	0.035 (0.051)	-0.009 (0.055)	-0.128 (0.167)	-0.016 (0.028)	0.033 (0.030)	-0.097 (0.087)			
Working: 1-29 hours	0.004 (0.104)	-0.112 (0.104)	0.358 (0.316)	-0.032 (0.058)	0.076 (0.058)	0.297 (0.158)			
Unemployed	0.145 (0.083)	-0.020 (0.089)	0.232 (0.252)	-0.088 (0.057)	-0.094 (0.058)	0.424* (0.191)			
Student	0.124* (0.058)	0.024 (0.064)	-0.005 (0.203)	0.074 (0.128)	0.135 (0.170)	0.536 (0.410)			
Pensioner	-0.048 (0.254)	0.002 (0.146)	1.125*** (0.282)	-0.057 (0.056)	-0.016 (0.061)	0.434* (0.196)			
Homemaker	0.184 (0.348)	-0.308* (0.146)	1.062 (0.659)	-0.087 (0.127)	0.126 (0.183)	0.643 (0.489)			
Income quintile	0.033 (0.022)	-0.008 (0.022)	-0.071 (0.067)	0.011 (0.011)	0.011 (0.012)	0.033 (0.035)	0.008 (0.035)	0.082* (0.041)	0.248* (0.121)
Married	-0.050 (0.050)	0.055 (0.059)	0.171 (0.165)	-0.002 (0.027)	0.091** (0.030)	0.013 (0.086)	0.018 (0.058)	-0.083 (0.063)	-0.166 (0.190)
Children (ref. = no children)									
Pre-school children	-0.044 (0.054)	0.105 (0.059)	-0.308 (0.170)	-0.053 (0.057)	-0.106 (0.064)	-0.070 (0.175)			
School-children	-0.093 (0.070)	0.001 (0.072)	0.097 (0.221)	-0.079* (0.033)	-0.038 (0.036)	-0.081 (0.102)			
Both types of children	-0.027 (0.074)	0.070 (0.089)	0.044 (0.217)	-0.146** (0.054)	-0.059 (0.051)	-0.114 (0.153)			
Immigrant	-0.065 (0.100)	-0.201* (0.092)	-0.329 (0.348)	-0.031 (0.061)	-0.155* (0.061)	0.039 (0.207)	0.121 (0.126)	-0.133 (0.136)	0.631 (0.367)
Male	0.017 (0.038)	-0.017 (0.040)	0.208 (0.124)	0.008 (0.026)	-0.025 (0.027)	0.203* (0.085)	0.065 (0.056)	0.082 (0.063)	-0.419* (0.181)
Age	0.002 (0.005)	0.012* (0.005)	-0.017 (0.017)	0.004 (0.002)	-0.002 (0.002)	-0.005 (0.007)	-0.004 (0.006)	-0.009 (0.006)	-0.005 (0.019)
Volunteer area									
Culture	-0.060 (0.081)	0.060 (0.077)	1.573*** (0.219)	0.137*** (0.035)	0.106* (0.041)	0.647*** (0.120)	0.190** (0.067)	0.030 (0.073)	0.706*** (0.214)
Sports	0.406*** (0.048)	-0.025 (0.057)	1.291*** (0.162)	0.153*** (0.028)	0.001 (0.031)	0.935*** (0.091)	0.204** (0.070)	0.136 (0.101)	0.381 (0.224)
Other recreation	0.374*** (0.059)	0.068 (0.070)	1.357*** (0.198)	0.166*** (0.037)	0.105* (0.044)	0.567*** (0.115)	-0.010 (0.087)	0.092 (0.087)	0.488 (0.278)
Education and research	0.050 (0.061)	0.285*** (0.065)	0.926*** (0.174)	-0.093* (0.041)	0.393*** (0.038)	0.393*** (0.115)	-0.115 (0.157)	-0.019 (0.153)	0.104 (0.340)
Health	-0.061 (0.059)	-0.077 (0.062)	-0.255 (0.208)	-0.072 (0.042)	-0.090* (0.041)	-0.383* (0.141)	-0.034 (0.107)	0.128 (0.104)	0.201 (0.307)
Social services	0.019 (0.077)	0.249*** (0.072)	1.005*** (0.207)	0.010 (0.050)	0.114* (0.052)	0.827*** (0.150)	0.044 (0.076)	0.056 (0.079)	0.617** (0.212)
Environment	0.398** (0.137)	-0.012 (0.188)	1.148* (0.542)	0.059 (0.109)	0.186* (0.073)	0.241 (0.285)	0.072 (0.176)	-0.060 (0.203)	0.549 (0.490)
Development and housing	0.462*** (0.053)	0.288*** (0.067)	0.248 (0.203)	0.249*** (0.026)	0.412*** (0.032)	0.087 (0.101)	0.234*** (0.064)	0.383*** (0.084)	-0.026 (0.244)
Union	0.346*** (0.089)	0.300** (0.102)	0.582 (0.408)	0.240*** (0.031)	0.259*** (0.042)	0.510*** (0.133)	0.054 (0.109)	0.370*** (0.095)	1.053** (0.328)
Law and advocacy	0.323* (0.144)	-0.132 (0.146)	1.617** (0.627)	0.182** (0.063)	0.065 (0.083)	0.600** (0.226)	0.357*** (0.100)	-0.531*** (0.132)	-0.328 (0.389)
Politics	0.305*** (0.090)	0.195 (0.113)	1.164*** (0.318)	0.233*** (0.049)	0.117 (0.068)	1.077*** (0.214)	-0.023 (0.143)	0.093 (0.150)	0.640* (0.303)
International	0.048 (0.085)	-0.050 (0.069)	0.106 (0.225)	0.136* (0.057)	0.014 (0.068)	0.596** (0.207)	0.035 (0.134)	-0.076 (0.124)	0.980* (0.393)
Religion	0.401*** (0.101)	0.162 (0.107)	1.610*** (0.291)	0.231*** (0.040)	0.036 (0.055)	0.922*** (0.153)	0.156 (0.092)	-0.003 (0.102)	0.996*** (0.271)
Other	0.044 (0.082)	0.142* (0.071)	1.142*** (0.218)	0.070 (0.044)	0.132** (0.049)	0.829*** (0.153)	-0.098 (0.095)	-0.159* (0.076)	0.472 (0.282)
Member		0.245*** (0.045)	0.631*** (0.148)		0.221*** (0.031)	0.467*** (0.099)		0.223*** (0.064)	-0.036 (0.220)
Board of directors			0.041 (0.129)			0.268** (0.088)			0.211 (0.182)
Constant	0.238 (0.154)	-0.247 (0.147)	2.591*** (0.504)	0.436*** (0.118)	0.201 (0.129)	2.720*** (0.407)	0.930* (0.451)	0.648 (0.442)	3.913** (1.413)
Adj. R²	0.236	0.260	0.284	0.147	0.243	0.206	0.053	0.169	0.080
Observations	517	517	517	1167	1167	1167	258	258	258

Note: Cluster-robust standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. It is possible to control for each of the 14 volunteer areas without a reference category, because perfect collinearity is not present because some respondents volunteer within more than one area. The model for the old does not control for employment status and children in the household, because the vast majority of observations are from pensioners without children in the household.

Table A4. OLS regression model predicting ln(hours) using only the sample of volunteer who serves on the board of directors.

	Dependent variable	
	Ln(hours)	
2012	0.004	(0.075)
Education (ref. = no education)		
Vocational training	-0.048	(0.122)
Short-cycle higher education	0.041	(0.181)
Medium-cycle higher education	0.070	(0.135)
Long-cycle higher education	-0.058	(0.146)
Employment status (ref. = Working: 30-40 hours)		
Working: 40 < hours	-0.071	(0.096)
Working: 1-29 hours	0.283	(0.160)
Unemployed	0.228	(0.217)
Student	0.464*	(0.212)
Pensioner	0.358	(0.201)
Homemaker	0.711	(0.537)
Income quintile	0.037	(0.038)
Married	-0.050	(0.092)
Children (ref. = no children)		
Pre-school children	-0.209	(0.157)
School-children	0.023	(0.106)
Both types of children	0.004	(0.144)
Immigrant	-0.347	(0.275)
Male	0.279**	(0.085)
Age	0.005	(0.005)
Volunteer area		
Culture	0.667***	(0.119)
Sports	0.789***	(0.092)
Other recreation	0.613***	(0.120)
Education and research	0.361***	(0.106)
Health	0.255	(0.142)
Social services	0.668***	(0.130)
Environment	0.337	(0.273)
Development and housing	-0.047	(0.095)
Union	0.442***	(0.130)
Law and advocacy	0.597*	(0.249)
Politics	0.996***	(0.189)
International	0.612**	(0.225)
Religion	0.803***	(0.164)
Other	0.718***	(0.145)
Member	0.413***	(0.119)
Board of directors	2.517***	(0.321)
Adj. R^2	0.198	
Observations	1011	

Note: Cluster-robust standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. It is possible to control for each of the 14 volunteer areas without a reference category, because perfect collinearity is not present because some respondents volunteer within more than one area.

Table A5. OLS regression predicting monthly contributions of time among those who have volunteered within the last month

Variables	Dependent variable Ln(hours)	
2012	-0.111*	(0.052)
Education (ref. = no education)		
Vocational training	0.019	(0.079)
Short-cycle higher education	0.060	(0.135)
Medium-cycle higher education	-0.108	(0.090)
Long-cycle higher education	-0.018	(0.105)
Employment status (ref. = Working: 30-40 hours)		
Working: 40 < hours	-0.158*	(0.067)
Working: 1-29 hours	0.043	(0.121)
Unemployed	0.028	(0.142)
Student	0.103	(0.136)
Pensioner	0.152	(0.125)
Homemaker	0.331	(0.438)
Income quintile	-0.012	(0.027)
Married	-0.130*	(0.062)
Children (ref. = no children)		
Pre-school children	-0.179	(0.102)
School-children	-0.062	(0.072)
Both types of children	-0.062	(0.109)
Immigrant	0.332*	(0.147)
Male	0.120*	(0.058)
Age	0.006	(0.003)
Volunteer area		
Culture	0.890***	(0.098)
Sports	0.944***	(0.078)
Other recreation	0.660***	(0.098)
Education and research	0.505***	(0.084)
Health	0.343*	(0.140)
Social services	0.633***	(0.101)
Environment	0.534	(0.325)
Development and housing	0.259**	(0.086)
Union	0.472***	(0.110)
Law and advocacy	0.799***	(0.241)
Politics	1.099***	(0.172)
International	0.822***	(0.166)
Religion	0.750***	(0.118)
Other	0.861***	(0.108)
Member	0.101	(0.067)
Board of directors	0.021	(0.063)
Constant	1.095***	(0.207)
Adj R^2	0.184	
Observations	1426	

Note: Cluster-robust standard errors in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. It is possible to control for each of the 14 volunteer areas without a reference category, because perfect collinearity is not present because some respondents volunteer within more than one area.