

The Voluntary Sector and Volunteering Research Conference 2014
Final paper submission

Full title of paper	Volunteering Participation in Scotland: An Analysis of Linked Social Survey and Administrative Data
---------------------	---

	Attending Conference (Y/N)	
Author (s) name, organisation and email	1. Kathleen Doyle Volunteer Scotland Kathleen.Doyle@VolunteerScotland.org.uk	Y
	2. Alasdair Rutherford University of Stirling ar34@stir.ac.uk	Y
	3. Diarmuid McDonnell University of Stirling diarmuid.mcdonnell@stir.ac.uk	Y

150 word abstract for inclusion in the conference programme	<p>The squeeze on government spending has focussed policy makers' attention on the role of voluntary participation in the provision of public services, leading to greater funding scrutiny and a need to understand how communities can participate in sustainable public services. This policy shift towards co-production assumes that levels of volunteering and its distribution in all localities can meet this demand. This paper explores data on volunteering participation in Scotland to identify the determinants of volunteering supply. We combine social survey data from the Scottish Household Survey 2007 to 2011 with linked local area aggregate administrative data from the Scottish Index of Multiple Deprivation (SIMD) and the Scottish Charity Register. It examines both participation decisions and number of hours volunteered. The findings show that urban/rural differences persist even after controlling for local area characteristics. While participation rates are higher in rural areas, the intensity of individual volunteering is no different.</p>
---	---

--	--

Number of words (between 2,500-4,500 words not including cover page and references)	3,891
--	-------

Date submitted	30 th July 2014
----------------	----------------------------

Paper

Volunteering Participation in Scotland: An Analysis of Linked Social Survey and Administrative Data

Kathleen Doyle
Volunteer Scotland

Alasdair Rutherford
University of Stirling

Diarmuid McDonnell
University of Stirling

The squeeze on government spending has focussed policy makers' attention on the role of voluntary participation in the provision of public services, leading to greater funding scrutiny and a need to understand how communities can participate in sustainable public services. This policy shift towards co-production assumes that levels of volunteering and its distribution in all localities can meet this demand. This paper explores data on volunteering participation in Scotland to identify the determinants of volunteering supply. It examines both participation decisions and number of hours volunteered. The findings show that urban/rural differences persist even after controlling for local area characteristics. While participation rates are higher in rural areas, the intensity of individual volunteering is no different.¹

Keywords: Volunteering, Participation, Co-production, Urban/Rural

¹ The project was funded by the Applied Quantitative Methods Network (AQMeN) in 2011 and 2013. The authors are also grateful to the Scottish Government for their help in data matching.

I INTRODUCTION

The financial crisis, and ensuing recession, has focussed policy makers' attention on the role of voluntary and civic participation in the provision of public services. This has led to greater funding scrutiny and a need to understand how communities, individuals and volunteers can participate in, shape and support sustainable public services. This policy shift towards a co-production agenda assumes that levels of volunteering and its distribution in all localities can meet this demand now and in the future. However, voluntary participation varies across space, and across the demographic and socio-economic characteristics of communities. In order to understand the impact that this shift in public service provision will have it is necessary to understand the determinants of volunteering participation, and explain its geographical distribution.

In this paper data from five years of the Scottish Household Survey (SHS) are combined with local area statistics from the Scottish Index of Multiple Deprivation (SIMD) and local aggregate measures of charitable activity from the Scottish Charity Register in order to explore the determinants of volunteering in both the demand and supply sides. This project explores variations of volunteering participation across space, and in particular investigates the significantly higher levels of volunteering participation observed in rural Scotland.

The question addressed here is: does volunteering participation vary significantly in intensity and character between local areas, once the characteristics of individuals and communities have been taken into account?

The findings show that voluntary participation is significantly higher in more rural and more remote areas, even after controlling for the demographic and socioeconomic characteristics of local areas. While these urban/rural differences in participation rates are significant, there is no significant difference in the number of hours of volunteering once local area differences are controlled for. Greater voluntary activity in rural areas is characterised by greater numbers of people being involved, rather than by more intensive participation of individual volunteers.

This persistence of spatial differences in volunteering participation presents both challenges and opportunities for policy makers. It suggests that there may be untapped potential to encourage members of urban communities to increase their involvement in voluntary activity. However, it also suggests that the burden of policy moves towards co-production and voluntary involvement in public service provision may fall disproportionately on some communities.

The rest of this paper is organised as follows. Firstly, there is a discussion of the literature on the determinants of volunteering supply. Secondly, the data and methods used are outlined, and the characteristics of volunteering in Scotland are described in order to address the possible explanations for geographical differences. Thirdly, individual level data is used to

control for demographics, a mixture of individual and local area data to control for socio-economic characteristics, and local area data to partly control for volunteering demand. Lastly, the implications of these findings are discussed, and the paper concludes.

II LITERATURE ON VOLUNTARY PARTICIPATION

Understanding how the characteristics of individuals contribute to their propensity to volunteer can help explain why participation might vary between communities. What determines the decision by an individual to volunteer? This question has been addressed most widely by sociologists, economists, and political scientists. The existing literatures focus on the effect that individual characteristics have on volunteering propensity, but lacks a consistent ‘theory of the volunteer’. This highlights the complexity of the different motivations for volunteering, and the key themes are discussed here.

When considering the social conditions that determine volunteering the most common understanding is the human capital approach. This approach differs slightly within each discipline as each defines volunteering differently. Economics sees volunteering as unpaid work and impure altruism; Sociology - social cohesion and social welfare; Political Science - citizenship and democracy. Furthermore, there are alternative paradigms through which volunteering can be viewed (Rochester, Paine, Howlett, & Zimmeck, 2010). The ‘dominant paradigm’ describes volunteering as an altruistic act to help others, usually performed in the context of an organisation or group. The civil society paradigm treats voluntary participation as being rooted in self-help and mutual aid, emphasising collaboration and working together. A third paradigm, volunteering as serious leisure, as an activity undertaken for enjoyment but which has a prosocial purpose.

It is widely argued that higher social and economic status is associated with volunteer participation (Wilson, 2000). This is supported by various arguments. Loseke (1997) argues that individuals with high financial and human capital status have a greater surplus to offer as volunteers. High socioeconomic status individuals are more likely to join groups and organisations (including attending church) and so formal volunteering is just one example of this behaviour (Farmer, 2006; Jones, 2006; Wilson & Janoski, 1995). Rather than the broad conceptualisation of human capital, a large literature focuses on the determinants of human capital such as education, income, age, gender, marital status. There is also a literature that considers the direct role of social networks which can be seen as a component of human capital. Each will be briefly outlined below.

McPherson & Rotolo (1996) has argued that education is the most consistent predictor of volunteering. As years of education increases, the likelihood of volunteering increases (Hustinx, Cnaan, & Handy, 2010) and many arguments have been put forward to explain this, from education increasing self-confidence (Brady, Verba, & Schlozman, 1995) and education increasing the broad measure of human capital. It is widely accepted that income affects the

supply of volunteering, often based on the above argument that increasing financial capital permits more volunteering (Menchik & Weisbrod, 1987). However this picture is not so clear, as a higher income increases the opportunity cost of unpaid work; Freeman (1997) has found a negative relation between wage income and volunteering.

Marital status has been shown to impact on the decision to volunteer. A married individual is more likely to volunteer (Wilson, 2000) particularly if their spouse already volunteers (Freeman, 1997). The presence of children is more complicated than marital status. Young children put a constraint on volunteering (Damico, Damico, & Conway, 1998) but overall the presence of children at home makes volunteering for the parent more likely (Wuthnow, 1998).

Beyond the demographic and socio-economic characteristics of individuals, there are large variations in volunteering participation across space. Volunteering is often found to be more common in rural environments (Chase-Ziolek & Striepe, 1999; Timbrell, 2006). While this may be explained by differences in demographics between urban and rural areas, there are also a number of theories as to why participation might vary by geography. Most discussions of the rural/urban distinction for volunteering focus on the different socioeconomic characteristics for each area. Rural communities show stronger and broader social capital (Hurtado, Kawachi, & Sudarsky, 2011; Ziersch, Baum, Darmawan, Kavanagh, & Bentley, 2009), increasing the potential for volunteering in the rural communities.

Timbrell (2006) shows that the nature of volunteering differs between urban and rural environments. Rural volunteering tends to be broad, with more people contributing across multiple organisations, but for few hours per week. Urban volunteering is deep, with fewer individuals working with fewer organisations but with a greater time commitment per week.

An alternative explanation for higher volunteering in rural areas comes from the economics literature, suggesting that volunteering participation will be higher in rural areas due to the higher transaction costs of providing public services (Valentinov, 2009). In more remote areas where the costs of providing public services is too high there is an incentive for communities to cooperate locally through voluntary organisations in order to provide services.

The volunteering literature predicts that participation will vary across demography, socio-economics, and local area characteristics, but proposes a range of explanations for these variations. Differences in participation between communities may be explained by differences in the characteristics of the members of those communities. Next, is an exploration of the extent to which the characteristics of local communities have an impact on individual volunteering participation, beyond the characteristics of the individual and household. In doing this, a better understanding of regional and local variation in participation is developed, and the consequences that this might have for policies promoting greater reliance on voluntary action.

III DATA AND METHODOLOGY

The survey data used in this paper is from the Scottish Household Survey (SHS) between 2007 and 2011. The SHS is a continuous survey of households in Scotland, sampling around 31,000 households over a two year period. The module including questions on volunteering is asked of half the SHS sample.

Question design

As not everyone shares the same definition of what constitutes volunteering the wording of a volunteering question is very important. The volunteering questions in the SHS have undergone periodic revision, making comparisons across longer time periods difficult. The questions have been stable since 2007, with only minor amendments to categories. The questions are asked of one random adult aged over 16 within the household.

The SHS captures volunteering in the past 12 months through a two-stage question. This two-stage approach tackles some of the problems in identifying activities that respondents may not think of as volunteering. In asking about unpaid help for groups and organisations this question captures participation in formal volunteering. It would however not necessarily capture involvement in informal volunteering that takes place outside the context of a group or organisation.

Respondents who answer ‘yes’ to either of these questions are coded as having volunteered in the past year. They are then asked a succession of more detailed questions about the types of volunteering they have undertaken.

Volunteers are also asked about the number of hours they have spent in the previous month volunteering. This question provides a measure of intensity of voluntary participation.

Administrative data was then matched to the individual survey data in order to provide measures of the characteristics of local areas. This administrative data is drawn from the Scottish Index of Multiple Deprivation and from the Scottish Charity Register.

Local area data from the Scottish Index of Multiple Deprivation (SIMD) was matched to individual SHS records by a statistician in the Scottish Government. The Scottish Index of Multiple Deprivation combines 38 indicators across 7 domains, namely: income, employment, health, education, skills and training, housing, geographic access and crime. The income domain combines measures of the number of adults and children in households receiving income support, pension credits, job seekers allowance and tax credits. The employment domain includes the unemployment claimant count, recipients of incapacity and disablement benefits. The health domain combines a range of health indicators including mortality ratio, alcohol and drug-related hospital episodes, mental health, and low-birth-weight births. The education domain covers school pupil performance and absence, higher education enrolment, and numbers with no qualifications. The housing domain includes a

measure of overcrowding, and households without central heating. The geographic access to services domain combines drive times and public transport times to GPs, schools, and shopping and post offices. The crime domain includes crime rates for house breaking, drug offences, assault and vandalism.

Five of the domains (income, employment, health, housing, geographic access to services) are included in the model as measures of need, and used as proxies for the demand for volunteers. Two of the domains (education, crime) are included as proxies for social capital in communities. The inclusion of these fine measures of deprivation across seven domains enables the inclusion of a basket of proxies for volunteering demand in local areas.

The Scottish Charity Register is a register of all charities in Scotland maintained by the Office of the Scottish Charity Regulator (OSCR). Any organisation wishing to operate as a charity must apply to OSCR for inclusion in the Register. The Register contains details of 20,000 Scottish charitable organisations, including their location, financial data, beneficiary groups and charitable purposes.

Data Merging

For this project assistance was received from the Scottish Government to merge in the local area data, matched to individual survey records at the data zone level. Data zones are groups of Census output areas, covering the whole of Scotland and nested within local authority boundaries, which have populations of between 500 and 1,000 household residents. In addition, they have compact shape and contain households with similar social characteristics. There are 6,505 data zones across Scotland, they are a stable geography and can be used to analyse change over time.

The SIMD statistics within each domain are combined to calculate a score, and datazones are then ranked by these scores. The variables for each domain in this paper are centiles of the datazone ranking.

The Scottish Charity Register was used to produce aggregate statistics of the number of charities for each beneficiary group and charitable purpose and these were produced at the 'intermediate zone' level. Intermediate zones are groups of data zones covering small areas, each containing at least 2,500 individuals.

This set of local area statistics at the lower data zone level and higher intermediate zone level was matched by Scottish Government analysts to individual respondents in the survey data based on their home address. No identifying information was provided to the author.

Descriptives

Descriptive statistics on volunteering in the SHS have been produced by the Scottish Government (2007; 2009). Some basic descriptives are first described here, before proceeding to a more in-depth analysis of the factors affecting volunteering participation.

Around a third of adults in Scotland say that they have volunteered in the past 12 months, as shown in Table 1. This figure has held fairly steady for several years. Participation is slightly higher for women (31.8%) than men (28%). Volunteering participation increases significantly as rurality increases, and also suggests that it increases as accessibility decreases from as low as 25.7% for men in large urban areas to as high as 51.8% for women in very remote rural areas.

Table 1: Volunteering Participation by Rurality & Gender

On average male volunteer spend about 11.1 hours and female volunteers 9.7 hours volunteering in a month. Hours spent volunteering are highest for both men and women in very remote rural areas, but the difference is not very significant.

Methodology

The analysis begins by firstly examining the factors influencing the participation decisions. Secondly, it examines the factors affecting intensity of participation, measured by the number of hours volunteered.

Volunteer participation is estimated by a binary logistic regression of volunteering on a range of individual, household and geographical characteristics. The regression of volunteering hours is estimated by Ordinary Least Squares. The key test in these regressions is the extent to which an urban/rural difference in participation remains once individual and community characteristics are controlled for.

IV RESULTS

Volunteering Participation

Table 2 shows the estimation results for the logistic model of volunteering participation. Women are more likely to volunteer than men. There is very little variation in volunteering probability across the age categories, with participation lowest for those aged 25 to 39 years, and not significantly declining in later life until over 75 years. Education is a significant predictor of volunteering, with participation increasing with the level of individual's highest qualifications. Income is positively correlated with volunteering participation, through both home ownership and household income. Individuals in couples are less likely to volunteer than those living alone. Having children makes individuals more likely to volunteer than those without. Reported religious affiliation is positively correlated with volunteering participation.

Individuals in rural areas are significantly more likely to volunteer than those living in more urban areas. Within the urban/rural category, participation also increases with remoteness, with individuals in the most remote rural areas 2.3 times more likely to volunteer than those in large urban areas. Of the seven SIMD dimensions three are statistically significant.

Individuals living in areas with higher levels of education, and those living in areas with better health, are more likely to volunteer. Perhaps surprisingly, we find that individuals living in lower income areas are more likely to volunteer, given their other characteristics. As the positive effect of household income on volunteering participation is controlled for, there is a relative income effect; e.g. for a given level of household income and individual living in a more deprived area is more likely to volunteer than an individual living in a wealthier area. This suggests that relative income is important; it is the relatively wealthy that are most likely to volunteer.

Controlling for the local area characteristics does have a small downward effect on the rurality coefficients, suggesting that local area differences explain part of the rurality effects. Controlling for the characteristics of locally-based charitable organisation explains even more of the urban/rural difference in participation, with individuals in the most rural areas now only 1.7 times more likely to volunteer than those in urban areas. However, significant effects of rurality on participation remain.

Table 2: Logit Regression of Volunteering Participation

Volunteering Hours

Table 3 contains the estimation results for volunteering hours. There is no significant gender difference in number of hours volunteered. Having children significantly reduces the number of hours spent volunteering by around 2 hours per month, with greater numbers of children having a bigger effect. Age has little effect on volunteering hours until post-retirement age; those aged 65 years and over volunteer significantly more hours, peaking with those aged 60-69 years giving an additional 4.5 hours per month on average. There is no significant link between income and hours spent volunteering, although individuals outside the labour market are likely to volunteer longer hours. Reported religion is positively associated with volunteering hours, as is education.

No evidence of any effect of rurality or accessibility on the number of hours volunteered is found. Similarly, there is little impact found on volunteering hours of controlling for local area characteristics.

Table 3: OLS Regression of Volunteering Hours

V DISCUSSION

As described in the volunteering literature, the analysis shows that individual characteristics such as gender, age, and education are important in determining volunteering participation. Household characteristics such as relationship status and number of children also have a significant effect. The characteristics of the neighbourhoods in which people live then have a further impact on participation. This analysis has shown that even after controlling for a wide

range of individual and household characteristics there still remains a sizable urban/rural difference in participation. Furthermore, controlling for local differences in neighbourhood characteristics reduces but does not eliminate this urban/rural effect.

The social benefits of volunteering are suggested by the higher participation of those living alone. From an opportunity cost perspective the higher participation of individuals with children is surprising; however it seems likely that having children provides more opportunities to volunteer, and that this social network effect dominates. The opportunity cost of volunteering when individuals have children can be seen in the negative effect that having children has on the number of hours committed to volunteering.

Higher income and education groups have higher volunteering participation rates. In addition, the levels of health and education in the local area also have positive impact on participation. Within the model this could be explained by both lower search costs of finding volunteer opportunities through higher levels of human and social capital. However, it should be noted that some research (F. M. Smith, Timbrell, Woolvin, Muirhead, & Fyfe, 2010) suggests that there are greater levels of informal volunteering in more deprived areas and that some of these activities may not be picked up in the survey.

Volunteering participation is significantly higher in rural Scotland than urban areas. This is the case even after controlling for the income and demographic differences that may be present, and is despite potentially greater costs in travel. Those in the most remote rural areas have even higher participation still.

The difference in urban/rural volunteering participation is slightly reduced but not eliminated by controlling for a range of local area characteristics. This suggests that the participation differences are not explained either by differences in demographics between urban and rural communities, or in differences in community characteristics such as health, education or deprivation. Controlling for the numbers and types of charities based locally has a much greater effect in explaining the urban/rural differences in participation, but does not remove the difference completely.

There does not however seem to be an urban/rural difference in the number of hours spent volunteering. This suggests that the significant difference between urban and rural areas lies in the decision to participate, rather than in the intensity of participation. So while a much greater proportion of the population in rural areas are volunteering, individually they are not volunteering any more hours.

VI CONCLUSION

This paper has explored the extent to which a range of demographic and economic variables can explain volunteering; both the decision to participate and the extent of participation. It has shown that volunteering in Scotland is in line with many of the theoretical predictions

and empirical findings from other volunteering studies. Of particular interest in the Scottish context is the urban/rural difference in participation, which remains even after many other observable characteristics have been controlled for. The contribution of this paper has been to attempt to control for local area characteristics in order to explain the geographical variation in participation. Even after controlling for these local measures of need, significant differences in urban/rural participation remain. Through examining the extent of participation it has shown that this urban/rural difference is present only in the decision to participate, and does not appear to affect the scope of involvement.

The findings suggest that there is a dual explanation for higher rural volunteering participation: greater levels of social capital; and increased supply of voluntary opportunities linked to service provision. Both of these factors play a role in the decisions of individuals to volunteer.

The geography of volunteering suggests that the supply of volunteering varies across space, dependent on both the characteristics of the local population and the local area. As such, policies to increase voluntary participation in public service provision are likely to be more successful in some areas than others. This could occur in one of two ways. Communities with existing higher levels of participations may be better equipped to absorb additional voluntary roles, as the social connections and support structures are already in place. Alternatively, these communities may already be at capacity, with available volunteers unable to take on any more responsibility for public service provision. More urban communities may have untapped potential but weaker networks, while more rural communities have better connections but risk overloading individuals. Regardless, different approaches will need to be taken by policy makers that take account of the local context if volunteering is to be supported; and if the impacts of cuts in formal service provision are not to fall disproportionately on some communities.

Identifying knowledge gaps which if addressed could better support policy and practice development

1. Exploring spatial variation of volunteering participation in other geographies

While there is a growing body of evidence in Scotland exploring the differences in the nature and extent of volunteering between urban and rural communities, those working locally – local government, community planning partners, Third Sector Interfaces and so on - need a greater understanding of volunteering participation within and between other geographies like local authority areas in order to make informed decisions about volunteer development.

2. Improving how volunteering is measured in Scotland

Understanding volunteering participation in Scotland through statistical means is currently limited as the household survey captures only formal volunteering through organisations or groups. An informal measure of volunteering would allow for a more in depth and nuanced

understanding of the nature and extent of volunteering participation. In addition, it would more adequately recognise and value the diversity of voluntary activity across all individuals and communities in Scotland.

REFERENCES

References

- Brady, H. E., Verba, S., & Schlozman, K. L. (1995). Beyond ses: A resource model of political participation. *The American Political Science Review*, 89(2), pp. 271-294.
- Chase-Ziolek, M., & Striepe, J. (1999). A comparison of urban versus rural experiences of nurses volunteering to promote health in churches. *Public Health Nursing*, 16(4), 270-279. doi:10.1046/j.1525-1446.1999.00270.x
- Damico, A. J., Damico, S. B., & Conway, M. M. (1998). The democratic education of women: High school and beyond. *Women & Politics*, 19(2), 1-31.
- Farmer, G. (2006). African american males' civic engagement: The importance of social organization involvement and friendship diversity. *Journal of African American Studies*, 10(2), 51-68. doi:10.1007/s12111-006-1003-6
- Flanagan, C. A., Bowes, J. M., Jonsson, B., Csapo, B., & Sheblanova, E. (1998). Ties that bind. *Journal of Social Issues*, 54(3), 457-475. doi:10.1111/j.1540-4560.1998.tb01230.x
- Freeman, R. B. (1997). Working for nothing: The supply of volunteer labor. *Journal of Labor Economics*, 15(1, Part 2: Essays in Honor of Yoram Ben-Porath), pp. S140-S166.
- Gaskin, K., & Volunteer Centre UK. (1995). In Smith J. D. (Ed.), *A new civic europe? : A study of the extent and role of volunteering* Volunteer Centre UK.
- Hurtado, D., Kawachi, I., & Sudarsky, J. (2011). Social capital and self-rated health in colombia: The good, the bad and the ugly. *Social Science & Medicine*, 72(4), 584-590. doi:10.1016/j.socscimed.2010.11.023

- Hustinx, L., Cnaan, R. A., & Handy, F. (2010). Navigating theories of volunteering: A hybrid map for a complex phenomenon. *Journal for the Theory of Social Behaviour*, 40(4), 410-434. doi:10.1111/j.1468-5914.2010.00439.x
- Jackson, E. F., Bachmeier, M. D., Wood, J. R., & Craft, E. A. (Spring 1995). Volunteering and charitable giving: Do religious and associational ties promote helping behavior? *Nonprofit and Voluntary Sector Quarterly*, 24(1), 59-78.
doi:10.1177/089976409502400108
- Jones, K. S. (2006). Giving and volunteering as distinct forms of civic engagement: The role of community integration and personal resources in formal helping. *Nonprofit and Voluntary Sector Quarterly*, 35(2), 249-266. doi:10.1177/0899764006287464
- Karniol, R., Grosz, E., & Schorr, I. (2003). Caring, gender role orientation, and volunteering. *Sex Roles*, 49(1), 11-19. doi:10.1023/A:1023953401662
- Loseke, D. R. (1997). The whole spirit of modern philanthropy: The construction of the idea of charity, 1912-1992. *Social Problems*, 44(4), 425-444.
- Marwell, G. (1993). In Oliver P. (Ed.), *The critical mass in collective action : A micro-social theory*. Cambridge: Cambridge University Press.
- McPherson, J. M., Popielarz, P. A., & Drobnic, S. (1992). Social networks and organizational dynamics. *American Sociological Review*, 57(2), pp. 153-170.
- McPherson, J. M., & Rotolo, T. (1996). Testing a dynamic model of social composition: Diversity and change in voluntary groups. *American Sociological Review*, 61(2), pp. 179-202.

- Menchik, P. L., & Weisbrod, B. A. (1987). Volunteer labor supply. *Journal of Public Economics*, 32(2), 159-183. doi:DOI: 10.1016/0047-2727(87)90010-7
- Midlarsky, E. (1994). In Kahana E. (Ed.), *Altruism in later life*. Thousand Oaks ; London: Sage.
- Rochester, C., Paine, A. E., Howlett, S., & Zimmeck, M. (2010). *Volunteering and society in the 21st century* Palgrave Macmillan Hampshire.
- Schoenberg, S. P. (1980). Some trends in the community participation of women in their neighborhoods. *Signs*, 5(3, Supplement. Women and the American City), pp. S261-S268.
- Smith, D. H. (Fall 1994). Determinants of voluntary association participation and volunteering: A literature review. *Nonprofit and Voluntary Sector Quarterly*, 23(3), 243-263. doi:10.1177/089976409402300305
- Smith, F. M., Timbrell, H., Woolvin, M., Muirhead, S., & Fyfe, N. (2010). Enlivened geographies of volunteering: Situated, embodied and emotional practices of voluntary action. *Scottish Geographical Journal*, 126(4), 258 <last_page> 274.
doi:10.1080/14702541.2010.549342
- Taniguchi, H. (2006). Men's and women's volunteering: Gender differences in the effects of employment and family characteristics. *Nonprofit and Voluntary Sector Quarterly*, 35(1), 83-101. doi:10.1177/0899764005282481
- Timbrell, H. (2006). *Scotland's volunteering landscape: The nature of volunteering*. Unpublished manuscript.

Valentinov, V. (2009). Third sector organizations in rural development: A transaction cost perspective. *Agricultural and Food Science*, 18(1), 3-15.

doi:10.2137/145960609788066825

Wilson, J. (2000). Volunteering. *Annual Review of Sociology*, 26(1), 215.

Wilson, J., & Janoski, T. (1995). The contribution of religion to volunteer work. *Sociology of Religion*, 56(2), 137-152. doi:10.2307/3711760

Wilson, J., & Musick, M. (1997). Who cares? toward an integrated theory of volunteer work. *American Sociological Review*, 62(5), pp. 694-713.

Wuthnow, R. (1998). *Loose connections: Joining together in america's fragmented communities*. Cambridge: Harvard University Press.

Ziersch, A. M., Baum, F., Darmawan, I. G. N., Kavanagh, A. M., & Bentley, R. J. (2009). Social capital and health in rural and urban communities in south australia. *Australian and New Zealand Journal of Public Health*, 33(1), 7-16. doi:10.1111/j.1753-6405.2009.00332.x

TABLES

TABLE 1: VOLUNTEERING PARTICIPATION BY RURALITY & GENDER

Rurality	Volunteer Participation				Volunteer Hours	
	Percent	Male No.	Female Percent	Female No.	Male Mean Hours	Female Mean Hours
Large urban areas	25.7	1,133	28.0	1,679	11.0	9.5
Other urban areas	25.5	979	30.0	1,540	11.6	8.9
Small accessible towns	28.2	330	32.2	494	10.2	10.7
Small remote towns	26.6	112	35.8	180	11.1	10.4
Very remote small towns	32.9	112	36.6	175	9.3	10.7
Accessible rural	33.8	514	38.6	772	10.5	10.2
Remote rural	41.0	183	47.6	288	11.1	9.9
Very remote rural	45.5	368	51.8	473	13.1	10.8
Total	28.0	3,731	31.8	5,601	11.1	9.7

Note: All figures are calculated using the supplied population survey weights.

Volunteer Participation shows the percentage of the population by sex who have volunteered in the previous 12 months. Volunteer Hours shows the mean number of hours volunteered in the previous month.

(Source: Scottish Household Survey 2007 to 2011)

TABLE 2: LOGIT REGRESSION OF VOLUNTEERING PARTICIPATION

	Model 1: Individual Data	Model 2: Matched local area data	Model 3: Charity data
female	1.135	1.134	1.135
	(0.0454)***	(0.0456)***	(0.0456)***
Children: 1-2	1.255	1.241	1.250
	(0.0687)***	(0.0683)***	(0.0689)***
Children: 3-4	1.266	1.246	1.250
	(0.137)**	(0.135)**	(0.136)**
Area: Other urban	1.000	1.004	0.997
	(0.0463)	(0.0529)	(0.0534)
Area: Small accessible towns	1.124	1.110	1.081
	(0.0761)*	(0.0795)	(0.0788)
Area: Small remote towns	1.194	1.137	1.083
	(0.127)*	(0.124)	(0.121)
Area: Very remote small towns	1.635	1.674	1.518
	(0.219)***	(0.227)***	(0.221)***
Area: Accessible rural	1.298	1.224	1.168
	(0.0769)***	(0.0852)***	(0.0865)**
Area: Remote rural	1.961	1.810	1.648
	(0.186)***	(0.185)***	(0.182)***
Area: Very remote rural	2.261	2.079	1.682
	(0.194)***	(0.207)***	(0.220)***
SIMD: Crime		0.971	1.021
		(0.0964)	(0.103)
SIMD: Geographical Access to Services		0.979	0.942
		(0.0856)	(0.0830)
SIMD: Housing		0.994	1.062

			(0.108)	(0.119)
	SIMD: Education & Skills		2.055	1.934
			(0.313)***	(0.300)***
	SIMD: Health		1.622	1.470
			(0.292)***	(0.265)**
	SIMD: Employment		1.120	1.051
			(0.249)	(0.235)
	SIMD: Income		0.443	0.457
			(0.104)***	(0.108)***
	Charity Beneficiary Groups	-		
	Charitable Purposes	-		
	<i>N</i>	22970	22970	22970
	<i>AIC</i>	25218.2	25146.8	25122.2

Exponentiated coefficients; Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

† Other variables included in the regressions but not reported above include house ownership, marital status, number of children, disability, household work status, household income, occupation, education, religion, ethnicity.

‡ Observations are weighted using the Scottish Household Survey sample weights.

(Source: Scottish Household Survey 2007 to 2011)

TABLE 3: OLS REGRESSION OF VOLUNTEERING HOURS

	Model 1: Individual Data [†]	Model 2: Matched local area data [†]
female	-0.743 (0.598)	-0.706 (0.599)
Children: 1-2	-1.443 (0.816)*	-1.363 (0.816)*
Children: 3-4	-2.072 (1.198)*	-1.856 (1.198)
Area: Other urban	-1.046 (0.664)	-0.505 (0.717)
Area: Small accessible towns	1.098 (1.513)	1.580 (1.569)
Area: Small remote towns	0.580 (1.549)	0.901 (1.571)
Area: Very remote small towns	-1.320 (1.242)	-1.069 (1.344)
Area: Accessible rural	-1.234 (0.748)*	-0.200 (0.927)
Area: Remote rural	-0.524 (1.163)	0.686 (1.315)
Area: Very remote rural	1.263 (1.127)	2.396 (1.339)*
SIMD: Crime	-	-1.799 (1.464)
SIMD: Geographical Access to Services	-	1.097 (1.423)
SIMD: Housing	-	-0.899 (1.462)
SIMD: Education & Skills	-	3.375 (2.349)
SIMD: Health	-	-0.702 (2.711)
SIMD: Employment	-	-1.224 (3.681)
SIMD: Income	-	-0.356 (3.511)
_cons	8.658 (2.932)***	8.146 (3.360)**
<i>N</i>	5361	5361
<i>R</i> ²	0.047	0.049
<i>AIC</i>	45095.9	45099.4

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

[†] Other variables included in the regressions but not reported above include house ownership, marital status, number of children, disability, household work status, household income, occupation, education, religion, ethnicity.

[‡] Observations are weighted using the Scottish Household Survey sample weights.

(Source: Scottish Household Survey 2007 to 2011)