TSRC
Informing civil society

Modelling 'volunteering types' in the UK

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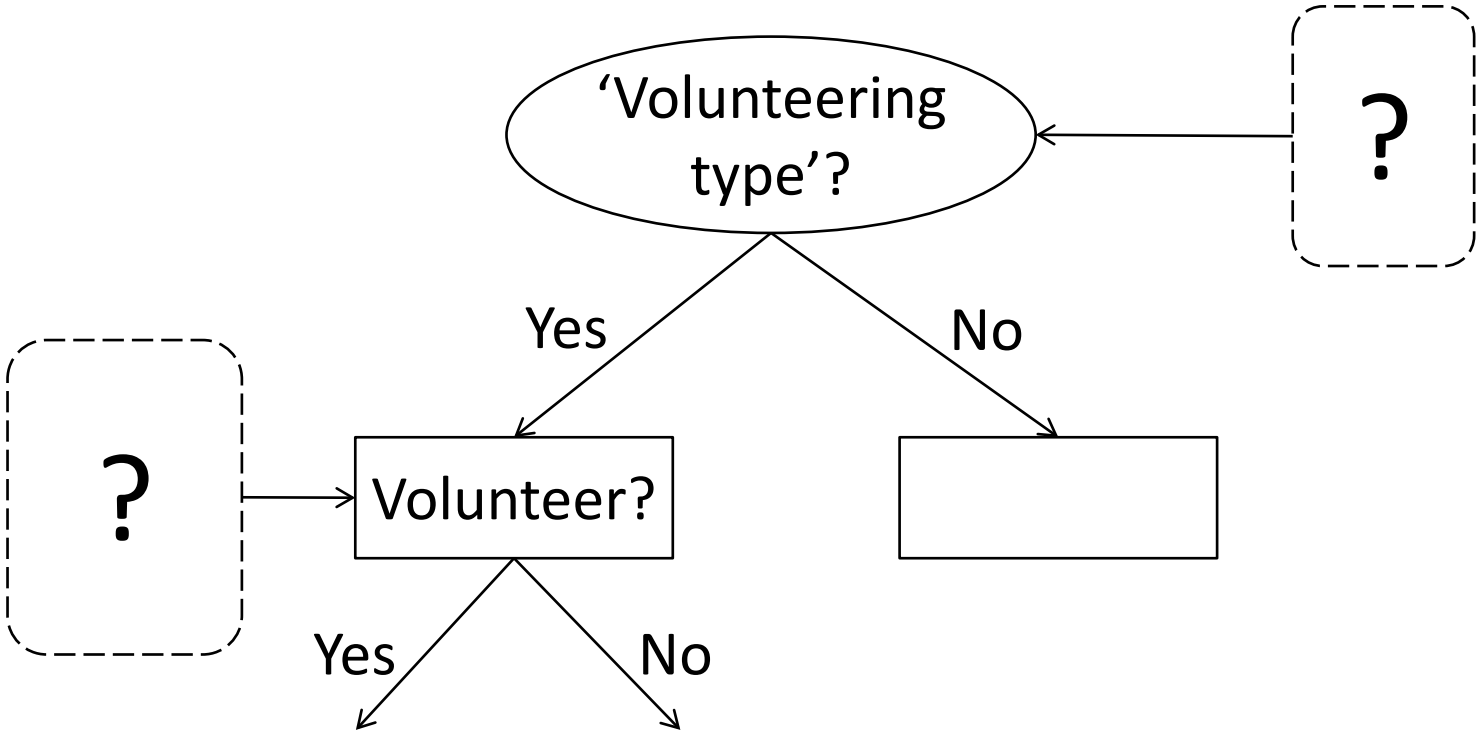
Introduction

We postulate that the UK population can be divided into two groups: the ‘volunteering types’ and those who never volunteer.

Using descriptive statistics and joint regression and association models we investigated:

- the empirical evidence for this division
- what determines membership of the ‘volunteering types’ group
- what factors are associated with volunteering for ‘volunteering types’

Introduction



Data

- The British Household Panel Survey (BHPS) is a multi-purpose study that follows the same representative sample of individuals annually since 1991 in the UK.
- Since 1996, every two years, a question related to voluntary work was included.
- We used biannual data from the BHPS from 1996 to 2008.

Data

- “We are interested in the things people do in their leisure time, I'm going to read out a list of some leisure activities. Please look at the card and tell me how frequently you do each one.”

  Do unpaid voluntary work

- The response options are:

  at least once a week
  at least once a month
  several times a year
  once a year or less
  never/almost never

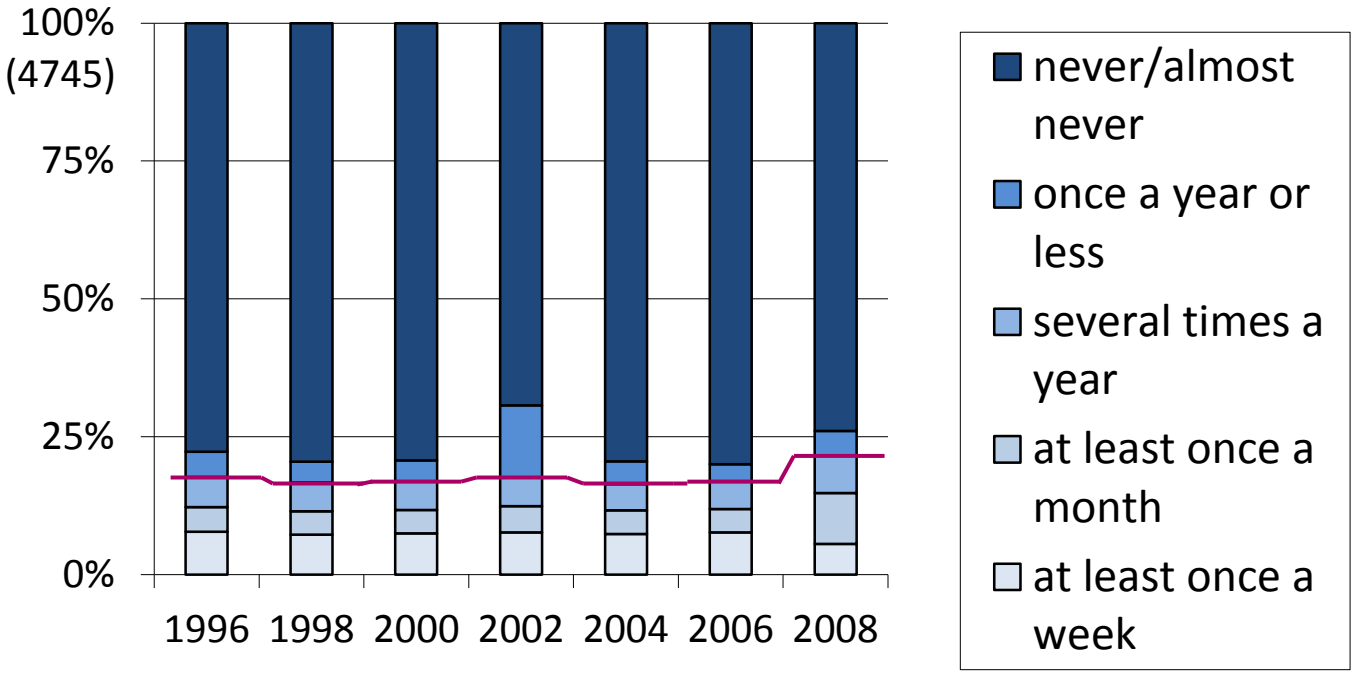
Data

- In the wave corresponding to 2002 the last option was not included so there is a larger proportion of individuals who indicated they volunteered once a year or less.

- Some of the units that answered the voluntary question in 1996 dropout (around 47%). Their influence on results needs to be investigated.

Data-descriptive statistics

Proportion of respondents for different levels of volunteering by time:



Proportion who volunteered:	18	17	17	18	16	17	22

Data-descriptive statistics

- In this study we considered that a person is a **volunteer** if they indicated they volunteered several times a year or more.

- The analysis was performed using 4745 individuals that responded to the volunteering question at the seven waves (complete case analysis); 55% did not volunteer at any wave and only 3% volunteered in all the waves.

Data-descriptive statistics

Transition matrices:

1996		1998 No	1998 Yes
	No	92%	8%
	Yes	43%	57%

1998		2000 No	2000 Yes
	No	92%	8%
	Yes	36%	64%

⋱

2004		2006 No	2006 Yes
	No	93%	7%
	Yes	34%	66%

2006		2008 No	2008 Yes
	No	87%	13%
	Yes	37%	63%

Data-descriptive statistics

Proportion of individuals that never / sometimes volunteered between 1996 and 2008:

	Gender	
	Male	Female
Never	59.78	52.25
Sometimes	40.22	47.75

	Age in 1996			
	15 to 30	30 to 45	45 to 60	60 or more
Never	62.9	55.27	53.63	48.98
Sometimes	37.1	44.73	46.37	51.02

	Marital status			
	Married	Single	Divorced	Widowed
Never	54.38	62.48	58.61	52.02
Sometimes	45.62	37.52	41.39	47.98

Data-descriptive statistics

Proportion of individuals that never / sometimes volunteered between 1996 and 2008:

	Spouse voluntary activity		
	Spouse not vol	Spouse vol	No spouse
Never	58.49	25.63	58.88
Sometimes	41.51	74.37	41.12

	Highest education attainment		
	Degree +	A levels	O levels -
Never	38.9	55.9	61.38
Sometimes	61.1	44.1	38.62

	Job status		
	Full time	Part time	Other
Never	60.83	50.48	50.53
Sometimes	39.17	49.52	49.47

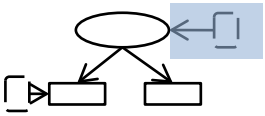
Data-discussion

- There is a group of “stayers”; it is necessary to separate those individuals who never volunteered from the rest (necessary factor).

- There is an association between volunteering at time t and volunteering at time t+1; we will use the dependence ratio as a measure of association, 1 indicates no association, >1 indicates a positive association.

- We will use a logistic regression for ‘volunteering types’ and a logistic regression for volunteering given that an individual is a ‘volunteering types’ .

Results – regression model

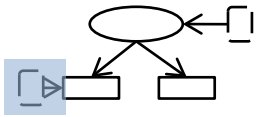


		Males	Females
		Value	Value
Probability of being 'volunteering type'	1966 – 1981 cohort	0.384	0.557
	1951 -1966 cohort	0.519	0.598
	1936-1951 cohort	0.541	0.581
	1936 or earlier cohort	0.576	0.647

Interpretation:

- The probability of being 'volunteering type' depends on sex
- For males there is a cohort effect on the probability of being 'volunteering type'; individuals from earlier cohorts have a higher probability of being 'volunteering type'
- For females there is statistical significance between those born in the earliest cohort and the latest cohort

Results – regression model



		Males Odds ratio	Females Odds ratio
	Intercept	0.379	0.411
Spouse voluntary activity	No spouse		
	Spouse not vol	0.886	0.822
	Spouse vol	1.341	1.299
Highest academic qualification	Degree or more		
	A levels	0.815	0.990
	O levels or less	0.890	0.836
Age in 1996	15 to 30		
	30 to 45	1.010	1.318
	45 to 60	1.321	1.628
	60 or more	1.333	1.560
Active citizen	Active citizen	1.226	1.217
Year	2008	1.312	1.281
Working time	Innaplicable		
	Full time: 30 hrs +		0.766
	Part time: lt 30 hrs		1.026
Health status	Healthy		
	Poor health		0.854

Results – regression model

		Characteristics					
Sex		M	F	M	F	M	F
Spouse voluntary activity	No spouse	X	X				
	Spouse not vol						
	Spouse vol			X	X	X	X
Highest academic qualification	Degree or more					X	X
	A levels			X	X		
	O levels or less	X	X				
Age in 1996	15 to 30	X	X				
	30 to 45			X	X		
	45 to 60						
	60 or more					X	X
Active citizen	Active citizen					X	X
Working time	Innaplicable	-	X	-		-	X
	Full time: 30 hrs +	-		-	X	-	
	Part time: lt 30 hrs	-		-		-	
Health status	Healthy	-	X	-	X	-	X
	Poor health	-		-		-	
Probability of volunteering		**0.252**	**0.256**	**0.295**	**0.348**	**0.453**	**0.504**

Results – association model

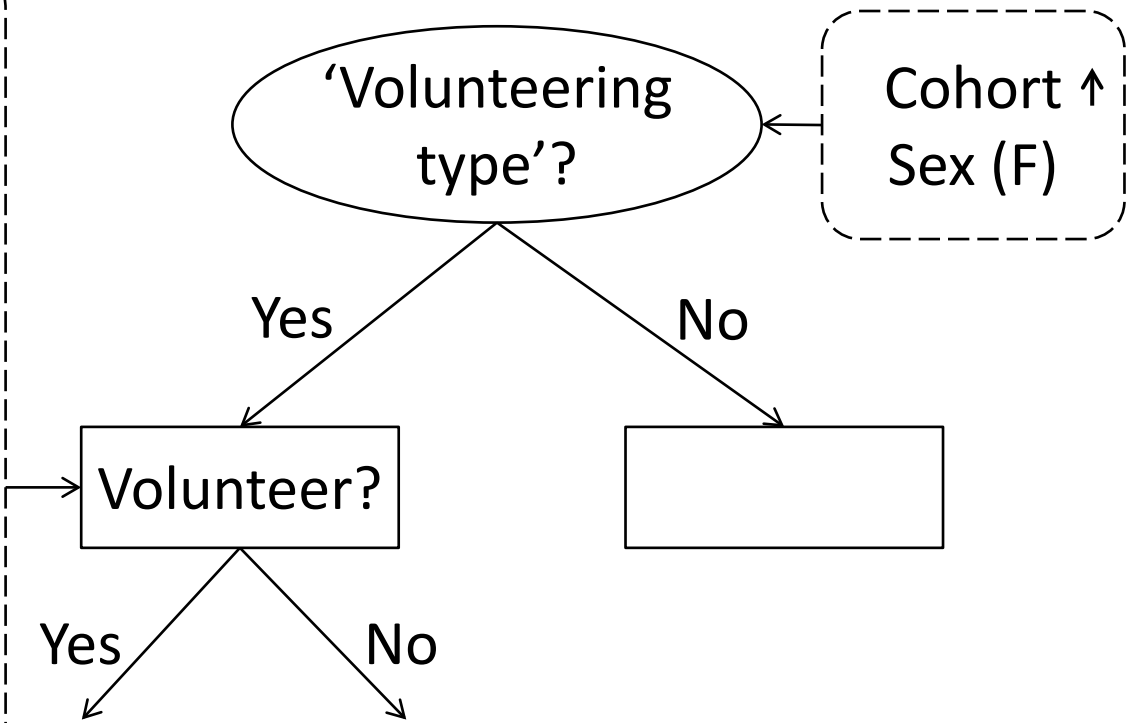
	Male	Female
Estimated dependence ratio	1.830	1.774

Interpretation:

- For both, males and females, there is a positive association between volunteering in time t and in time t+1
- For males (females) who are ‘volunteering type’, the conditional probability of volunteering at time t+1 given that they volunteer at t is 1.83 (1.77) the marginal probability of volunteering at time t+1
- E.g. 0.252*1.83=0.46

Conclusions

- Sex (F)
- Age ↑
- Highest academic qualification ↑
- Spouse / partner voluntary activity (Y)
- Participation in other activities (active citizen) (Y)
- Year (2008)
- Working time* (PT)
- Health status* ↑



* Only significant for females

Further research / limitations

- Information from individuals that dropout was lost as we considered only individuals that answered the volunteering question in seven points in time.

- The probability of being ‘volunteering type’ can be modelled using time-invariant variables.

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Joint regression and association model

Dependence ratio:

$$\tau_{12} = \frac{\mu_{12}}{\mu_1 \mu_2} \qquad \tau_{1\ldots q} = \frac{\mu_{1\ldots q}}{\mu_1 \cdots \mu_q}$$

μ_k – first order moment

μ_{kl} – moment of order two

Path probability under association model NM:

$$\pi_i = \nu \frac{pr(Y_{i1} = y_{i1}, Y_{i2} = y_{i2} | N_i = 1) \cdots pr(Y_{i6} = y_{i6}, Y_{i7} = y_{i7} | N_i = 1)}{pr(Y_{i2} = y_{i2} | N_i = 1) \cdots pr(Y_{i6} = y_{i6} | N_i = 1)} + (1 + \nu) 1_{\{y_{i1} = \cdots = y_{i7} = 0\}}$$

ν – probability of being 'volunteering type'

π_i – path probability for individual i