VOLUNTARY ASSOCIATION MEMBERSHIP:

POVERTY AND INCOME EFFECTS

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ON

VOLUNTARY ASSOCIATION MEMBERSHIP:

A CROSS-NATIONAL COMPARISON

By

LAURA J. DUNCAN, B.A. (OXON)

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AUTHOR: Laura J. Duncan, B.A. (Oxford University)

SUPERVISOR: Professor Robert Andersen

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ABSTRACT: This study examines the influence of individual income and contextual poverty and income inequality on voluntary association membership in Canada and the influence of individual income and contextual poverty cross-nationally. Applying multilevel modelling techniques to data from the 2003 Canadian General Social Survey, the 2001 Census, the 1981-2004 World Values Survey and country-level data on poverty, economic development and religious attendance this study pursues two lines of questioning. The first investigates how individual income level, area poverty and area income inequality affect voluntary association membership in Canada. The second investigates how individual income and contextual poverty affect voluntary association membership across 55 countries. The findings of this study advance our understanding of individual and contextual economic influences on voluntary association membership in new ways, both in terms of the content of the findings and the methods used to categorise voluntary association membership. The findings support claims about the negative effects of individual economic disadvantage, contextual economic inequality and poverty. In doing so, this study contributes important findings to the discipline of sociology and the wider society.

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TABLE OF CONTENTS

LIST OF ILLUSTRATIONS, CHARTS, DIAGRAMS

Tables

Figures

CHAPTER 1. INTRODUCTION

The aim of this study is to investigate quantitatively how individual and contextual economic factors affect voluntary association membership within Canada and cross-nationally. More specifically, this study examines the influence of individual income and contextual poverty and income inequality in Canada and individual income and contextual poverty cross-nationally. Two self-contained research projects present the findings of this investigation and the significance of these findings. Both projects use multilevel modelling techniques on complex social survey data to examine contextual and individual effects on voluntary association membership.

In the first chapter, the 2003 Canadian General Social Survey and Census data on area income inequality and poverty are used to investigate how individual income level, area poverty and area income inequality affect voluntary association membership in Canada. Multilevel logistic regression reveals individual, contextual and interaction effects on voluntary association membership in Canada. Cross-level interactions indicate that the relationship between individual income and voluntary association membership is moderated by area income inequality, whereby effects of income are slightly greater in those areas with low income inequality.

In the second chapter, the line of questioning from the first chapter is extended to the cross-national level with a focus on country level poverty. World Values Survey data from 1981-2004 and country-level data on poverty, economic development and religious attendance are used to investigate how individual income and contextual poverty affect voluntary association membership across 55 countries. Three different levels of membership are used: only active membership, only inactive membership, and a mixture of active and inactive memberships versus non-membership as a reference. Multilevel logistic regression reveals both individual and contextual effects on all levels of voluntary association membership. Income effects are found to vary among countries, a variation that is actually increased by the inclusion of country-level poverty, economic development and average religious attendance.

The significance of the findings of this study lie in their support for claims that 1) economic disadvantage is having significant negative effects that could lead to further marginalisation of poorer individuals, 2) contextual economic inequality and poverty have negative effects on all individuals, and 3) differences exist between active and inactive membership that must be considered when investigating voluntary association membership.

The line of questioning in this study develops through Chapters 2 and 3 and as such, the content of both chapters is highly related. This is unsurprising as the research questions that are applied to Canada specifically in Chapter 2 are posed in a cross-national framework in Chapter 3. In addition, both chapters are self-contained research projects that can stand alone, so readers should expect to find some overlap between the two chapters. After a review of the relevant literature and an outline of the quantitative methodology used, the two chapters are presented followed by a concluding chapter.

1. Background

1.1. Literature Review

Voluntary associations are formal or informal groups, associations or organisations whose members or participants are brought together through common interests, values and/or beliefs, a shared purpose or goal, or the pursuit of some activity. There is significant debate over whether voluntary association membership in modern societies has declined, remained stable, or increased over time. For example, Inglehart and Baker (1997) argue that economic development has produced increasing levels of volunteering and voluntary association membership (see also, ch.4 Dekker & Halman 2003). Putnam (1995), on the other hand, argues that there has been significant decline, at least in the US. Others, such as Rotolo (1999) and Paxton (1999), have used empirical evidence to argue for overall patterns of stability in voluntary association membership. In addition, Baer, Curtis and Grabb (2001) found not only no significant decline in voluntary association membership in the 15 countries they studied, but found an increase in the US, West Germany and the Netherlands.

Debates over the prevalence of voluntary association membership are important because of the social resources and opportunities voluntary association membership provides access to. Putnam (1993) suggested that voluntary association membership, as a form of civic engagement was important for the success of democratic institutions and economic development, as well as contributing to an individual's wellbeing. Since his suggestion, it has been largely accepted that individual civic sociability and engagement improve trust, co-operation and political engagement. For example, Curtis, Baer and Grabb (2001) argue that the free association that occurs in voluntarism encourages co-operative interaction and promotes interpersonal trust. There has been some disagreement however, surrounding the direction of causality among associational life, the production of trust and co-operation, and flourishing democratic institutions. Paxton (2002) argues there is a reciprocal relationship between associational life and the benefits for the creation and maintenance of democracy. Brehm and Rahn (1997) see three relationships of reciprocity among civic engagement, interpersonal trust, and confidence in government. Skocpol (2003) examines the impact of changing forms of membership on democracy in the United States. Although the precise causal mechanisms at work are difficult to specify, it has been generally accepted that voluntary association membership improves an individual's propensity to trust and co-operate.

Involvement in social networks also improves access to resources and material goods. Involvement has been connected to better access to job opportunities, a higher chance of more frequent job offers, and greater social mobility (see for example Granovetter 1973; Burt 1997). Although it is unclear whether benefits arise from sparse associational networks (Granovetter 1973) or dense ones (Coleman 1997), or possibly both, it is clear that involvement in voluntary associations leads to a greater number of contacts for individuals and higher chances of accessing jobs available through these contacts. It has also been noted that an active civic life is associated with higher levels of political engagement (Putnam, 1993). Differential levels of voluntary association

membership may signify differential levels of trust, co-operation, social resources and other types of engagement that are important to civil society and democracy.

This study considers the importance of both individual and contextual economic factors to voluntary association membership. Socio-economic status has also been identified as one of the most important predictors of voluntary association membership, as access to material resources increases the likelihood of participation. Although a connection between voluntary association membership and individual income level has been found (Grabb & Curtis, 1992) and is often assumed in studies that control for income or SES, there has been no examination of the role of income specifically. The key individual level variable of interest in both of the projects contained in this study is income.

The examination of contextual influences on voluntary association is not a new endeavour. However, no studies have focussed on poverty or income inequality as contextual influences on membership, so this study covers new ground and offers novel insights. In the exploration of contextual effects on voluntary association membership, previous research has focused on comparative projects examining country level structural contexts or determinants of civic engagement. Schofer and Fourcade-Gourinchas (2001) look at two structural definitions of societies, statist versus non-statist, and corporate versus non-corporate, and investigate whether they can predict levels and type of voluntary association membership. Ruiter and De Graaf (2006) and Lam (2006) examine the influence of national religious context, and Buhlman and Freitag (2004) in their study of Switzerland include institutional settings as well as religious context. Baer, Curtis and Grabb (2001) identify four contextual variables that tend to correlate with higher levels of civic engagement: economic development, religious composition, type of polity and years of continuous democracy.

This study advances our understanding of contextual influences on voluntary association membership in two ways. First, the present study uses two levels of social context: country, a frequently used context, and area, a very infrequently examined context. Previous research has been carried out on area and neighbourhood effects on health outcomes such as exercise (Ming et al. 2007) and health status (Ross et al. 2004), and social outcomes such as crime (Tseloni 2006), social exclusion (Brannstrom 2004) and teenage dropout and childbearing rates (Crane 1991). Little comprehensive examination of area effects on voluntary association membership has been carried out in Canada, or elsewhere. Second, the study focuses on contextual poverty and income inequality in Canada, and contextual poverty cross-nationally, as important economic influences on membership trends. Previous research points to the importance of individual socio-economic status and country level economic development as predictors of engagement (see for example Woolcock 1998; Hwang, Curtis & Grabb 2005; Kaaviainen & Lehtoren 2006). Other important contextual economic factors such as poverty or income inequality have not been considered, however. This study will look at area poverty levels and income inequality in Canada, and country poverty levels cross-nationally, as they are deemed to be important and far-reaching economic influences on social behaviour.

The importance of this study lies in its examination of economic influences, both individual and contextual, that have not been thoroughly investigated before. No quantitative study has yet investigated the contextual effects of poverty and economic inequality and the individual effects of income on levels of voluntary association membership in Canada or cross-nationally. The findings of this study support claims about the negative effects of individual economic disadvantage, contextual economic inequality and poverty. In addition, in Chapter 3 a new approach to the categorisation of voluntary association membership is used that reveals differences between active and inactive membership that must be considered when investigating voluntary association membership. In doing this the present study not only contributes important findings to the discipline of sociology but these findings have important implications for the wider society with regards to social development initiatives and neighbourhood regeneration policy.

1.2. Methodology

This study uses multilevel modeling to examine contextual effects. In both chapters the statistical software MLwiN is used. Multilevel modeling is applied to data that is collected at different 'levels'. Survey data is mainly collected at the individual level. However, data can also be collected at the family level, school level, neighbourhood level or country level. Although data will still be structured at the individual level, all individuals within the same family/school/neighbourhood/country will have the same data on certain variables. Data in this structure is defined as hierarchical where the hierarchy is determined by the number of levels data is available for. There is, in theory, no limit to the number of levels in the hierarchy. For the purposes of this study, data is in a hierarchical structure with two levels, where individuals at Level 1 are nested within areas at Level 2 in Chapter 2, or where individuals at Level 1 are nested within countries at Level 2 in Chapter 3. The inclusion of random effects in multilevel models allows the examination of within-group differences as well as between-groups differences. Multilevel modeling enables the use of regression models to assess random effects. Multilevel data violates OLS (Ordinary Least Squares) assumptions due to the intra-cluster correlation of error terms. This is problematic because smaller than appropriate standard errors will be calculated, leading to smaller confidence intervals, which in turn leads to artificially created statistical significance. Multi-level models deal with this by including a set of independent random errors. As well as providing a means to examine within-group differences and between-group differences, multilevel models also allow for the inclusion and interpretation of cross-level interactions. Testing for interactions allows us to consider whether individual effects on voluntary association membership vary according to certain contextual level characteristics.

Both sets of analysis in this study use a binomial logit multilevel model in order to successfully incorporate the binary nature of the dependent variable. The models are fitted using marginal quasi-likelihood procedures and iterative generalized least squares estimation. The resulting coefficients in binomial multilevel models are log odds ratios. For easier interpretation odds ratios can be calculated from the model coefficients by simply taking the exponential of the coefficient. Significance is assessed approximately

using a Wald test. Ideally, a likelihood ratio test would be carried out but discrete response models in MLwiN are estimated using quasi-likelihood methods making the likelihood value unreliable (Rasbash et al. 2005: 113).

Due to the fact that there was a significant amount of missing data due mainly to nonresponse, missing values were imputed. There are several methods for dealing with missing data in quantitative analysis that do not require case removal (Little & Rubin 2002). For this study, I chose to use single imputation using the MICE (Multivariate Imputation by Chained Equations) package in R[1]. Missing data was imputed from a complete set of all the variables to be used in the final analysis. The default method in this package uses different methods of imputation depending on the type of variable. For numeric data the program uses predictive mean matching methods, for binary data it uses logistic regression imputation methods and for categorical data it uses polytomous regression imputation methods (Buuren & Oudshoorn 2007). The resulting, complete data was then analysed.

[1] A better method of dealing with missing data is multiple imputation. This method of imputation produces several imputed datasets, which are then analysed separately producing several sets of model estimates which are then combined to produce one set of estimates and standard errors. Compared to single imputation, multiple imputation, which takes into account the uncertainty due to imputing missing values, tends to produce less biased estimates of coefficient standard errors. Although multiple imputation was not used in this study, further exploration and research on voluntary association membership using these datasets will use multiple imputation.

CHAPTER 2. INCOME AND AREA EFFECTS ON VOLUNTARY ASSOCIATION MEMBERSHIP IN CANADA

1. Introduction

In this chapter, data from the 2003 Canadian General Social Survey and the 2001 Census are used to investigate how individual income level, area poverty and area income inequality affect voluntary association membership in Canada. Voluntary association membership is deemed to have two sorts of benefits for individuals: social benefits in the form of increased co-operation, trust and engagement (Putnam 1993 1995; Paxton 2002; Brehm & Rahn 1997), and material benefits in the form of job opportunities and social mobility (Granovetter 1973; Burt 1997). Individuals with higher incomes have been found to exhibit higher levels of voluntary association membership (Grabb & Curtis 1992) but little attention has been paid to the economic context, particularly in the immediate area, and the influence that an individual's surroundings can have on the effects of income.

The two key contextual economic influences in this study, area poverty and area income inequality, are notably missing from previous studies of voluntary association membership. This is surprising given that the existence of voluntary associations and the activity of their members rely on access to economic resources. As well as voluntary associations relying on the time and energy of volunteers, their existence also relies on monetary aid given by councils, local government or wealthy individuals. This money is likely to be less accessible in poorer areas where there is either less money to give, or much needed cash is being swallowed up by more direct anti-poverty initiatives. However, it can also be argued that by sharing a common state of need, individuals in poorer areas may feel bonded to each other in a way that would increase co-operation and participation.

High levels of income inequality and greater economic segregation between rich and poor may also lead to reductions in voluntary association activity. The exposure of individuals, particularly poorer individuals, to evident inequality may lead to more self comparison and less trust, which, combined with feelings of injustice, would deter individuals from participating in voluntary associations. However, there is also evidence in the health literature that inequality effects are non-existent when individual level socio-economic factors have been taken into account (Feng & Myles 2005). This study hopes to uncover the nuances in both individual and contextual income effects that previous studies have failed to address.

Not only will this study include important contextual level variables but also examination will be made of how these variables interact with individual effects. The nature and extent of these effects will be captured using data from the Canadian General Social Survey (GSS) from 2003 and the Canadian Census from 2001. This will then be applied to the evaluation of current policy initiatives and suggestions will be made for future social development policy based on the study findings. This paper illustrates the importance of examining context and shows how failing to include contextual predictors can hide important features of the phenomena we wish to examine.

2. Background

Voluntary associations are formal or informal organisations whose members have common interests and values, have a shared purpose, or pursue a common goal or activity. Voluntary association membership has been found to be both socially and materially beneficial for individuals, to support the democratic stability of society (Putnam 1993 1995) and to contribute to an individual's wellbeing. Curtis, Baer and Grabb (2001) argue that the free association that occurs in voluntarism encourages co-operative interaction and promotes interpersonal trust. Although there is some disagreement surrounding the direction of causality among associational life, the production of trust and co-operation, and flourishing democratic institutions (Paxton 2002; Brehm and Rahn 1997), it has been generally accepted that voluntary association membership improves an individual's propensity to trust and co-operate. It has also been noted that an active civic life is associated with higher levels of political engagement (Putnam 1993), which is important when looking at the possible implications of increases or decreases in voluntary association membership.

Involvement in social networks also benefits individuals in terms of how it translates to resources and material goods. Involvement has been connected to better access to job opportunities, more frequent job offers, and greater social mobility (see for example Granovetter 1973; Burt 1997). Although it is unclear whether benefits arise from sparse associational networks (Granovetter 1973) or dense ones (Coleman 1997) or both, it is clear that involvement in association life leads to a greater number of contacts for individuals and higher chances of accessing jobs available through these contacts.

Socio-economic status has been identified as one of the most important predictors of voluntary association membership (Grabb & Curtis 1992). It is hypothesised that individuals need a certain level of wealth in order to have the free time and resources to participate in voluntary associations. There is also some evidence that the relationship between income and voluntary association membership is curvilinear. Cutler (1976) examines the curvilinear relationship between age and voluntary association membership and acknowledges that this relationship may be explained by socio-economic characteristics such as income and education levels that increase towards middle age and taper off in the elderly. Individuals with very high incomes are likely to spend so much time working that very little time is left available for involvement in voluntary associations. The key individual level variable of interest in this study is individual income level.

In the exploration of contextual effects on voluntary association membership, previous research has focused on comparative projects examining country level structural contexts or determinants of civic engagement (see for example, Andersen, Curtis & Grabb 2006; Schofer and Fourcade-Gourinchas 2001; Baer, Curtis and Grabb 2001, Ruiter and De Graaf 2006). At the area and neighbourhood level, previous research has been carried out on contextual effects on health outcomes such as exercise (Ming et al. 2007) and health status (Ross et al. 2004), and social outcomes such as crime (Tseloni 2006), social exclusion (Brannstrom 2004) and teenage dropout and childbearing rates (Crane 1991). Little comprehensive examination of the effects of context on voluntary association membership at the area level has been carried out in Canada, or elsewhere.

This study will define area as an individual's immediate social context and will aim to uncover to what extent area characteristics explain variations in levels of voluntary association membership in Canada that individual and country level characteristics cannot.

Previous research points to the importance of individual socio-economic status and also country level economic development as predictors of engagement (see for example, Woolcock 1998; Hwang, Curtis & Grabb 2005; Kaaviainen, Lehtoren 2006). Buhlman and Freitag (2004) in their study of Switzerland include contextual factors in their multi-level analysis of the conditions for membership in social organisation, but these focus on a more macro context, namely, the religious social context and institutional settings. It seems logical to apply this rationale to the area level and examine the effects of area economic development or lack thereof. If economic development at the country level predicts higher levels of voluntary association membership, it is likely that the economic development of different areas within countries will have similar predictive powers. Drawing on work by Jacobs (1961) that considers the effects of poor people and places on social networks, studies carried out by Cattell in the UK (2001, 2004) have found that poor areas exhibit low levels of trust and co-operation due to the limited facilities and resources available.

Following previous research, this study will examine the effects of area poverty levels on voluntary association participation. It is assumed that areas with a certain amount of wealth and access to resources will exhibit voluntary association membership but that once a certain threshold has been reached, increases in area wealth will not be accompanied by an equal increase in voluntary association membership. Therefore, area poverty instead of area wealth is deemed to be more suitable as a contextual variable. In other words, poverty is seen as a barrier to participation.

Inequality has been found to have far-reaching effects on many aspects of social life, for example, social mobility, health, education, to name but a few (see for example, Breen 1997; Wilkinson 1997; Lucas 2001). Studies of inequality have also become more prevalent as rising levels of economic inequality have been found to accompany increases in country economic development (Nielsen 1994). It has been observed that economic inequality and the incidence of low income were, unfortunately, on the increase at the end of the last century (Picot & Myles, 2005). Studies have also examined varying trends of economic inequality between countries over recent years. Goesling (2001) find that the average levels of income inequality within countries are increasing despite decreases in between country inequality. It is therefore important to examine the impact of income inequality within countries as well as between countries (Firebaugh 2000).

With regards to voluntary association membership, economic inequality has also been found to impact civic engagement in the effects it has on trust, as a causal mechanism for civic engagement. Uslaner and Brown (2005) ascribe the decrease in social capital in the US to an increase in economic inequality. Rothstein and Stolle (2003) also argue that high levels of engagement in Scandinavia are partly due to high levels of social and economic equality. It will, therefore, be important to examine income inequality levels in addition to poverty levels in different areas. It is expected that lower

levels of inequality in areas will have similar effects to lower levels of poverty, namely, higher levels of voluntary association membership.

Previous research has identified several key background predictors of voluntary association membership that should be controlled for. Hwang, Grabb and Curtis (2005) control for gender, race, religious affiliation, religious attendance, age, education and socio-economic status in their study of American and Canadian voluntary association membership. Elsewhere, Curtis et al. (1989) also find that French Canadians are less likely to join voluntary associations than English Canadians, although they expect that controlling for education and income will reduce some of these differences. This study will control for several socio-demographic variables: gender, age, immigrant status, marital status, and the language that the interview was conducted in. Controls will also be used for labour force involvement, years of education, religious attendance and the urban/rural status of the individual's area.

Based on the literature review above, the following research questions will be examined:

1) Are there between-area differences in whether an individual is a voluntary association member?
2) Does individual income level affect whether an individual is a voluntary association member? Does this effect differ between areas?
3) Do differences in area poverty and area income inequality explain any of this variation?
4) Does the presence of 1) area poverty and 2) area income inequality in an individual's context modify the relationship between income and voluntary association membership?

3. Data and Methods

The data for this study comes from Cycle 17 of the General Social Survey (GSS 17) on Social Engagement, which was conducted from February to December 2003. A stratified random sample representative of the Canadian population aged 15 years or older was interviewed over the telephone. The response rate was 78% and the overall sample size is almost 25,000 (Statistics Canada 2004). The 2003 GSS survey includes questions on civic engagement, social participation, trust and reciprocity to capture information on social trends in engagement and the importance of social networks. Only individuals aged 18 and over are employed in the present analysis, leaving 24,087 individuals nested in 282 Census Divisions. Table 1 shows the weighted socio-demographic characteristics of the study sample being used.

4. Concepts and Measures

4.1. Area Level Variables

To enable the inclusion of context level variables, Enumeration Area level profile data from the 2001 census was used to construct contextual variables and these were then merged with the GSS data, matching the data by area identifiers recorded in both datasets. The contextual area of interest in this study is the Census Division (CD), defined by

Table 1: Sample characteristics

Area/CD	**282**
Proportion of individuals earning incomes below the LICO in CD *M*(SD)	0.14(0.05)
Income Inequality of CD *M* (SD)	0.43(0.08)
Average Personal Income of CD *M* (SD)	31546.50(10294.66)
Individuals (n)	**24,087**
Personal Income *M* (SD)	34,711.77(38,002.76)
Age *M* (SD)	45.36(17.22)
Years of Education *M* (SD)	13.22(2.80)
% Male	49.1%
% Immigrant	22.2%
% Married	65.4%
% Separated	13.3%
% French interview	23.4%
% In the labour force	58.7%
% Religious attendance at least once a week	24.7%
% Religious attendance at least once a month	14.9%
% Religious attendance a few times a year	51.5%
% Living in a rural area	19.4%
Individuals who participate in voluntary associations (n)	**14,610**
Personal Income *M* (SD)	40,435.37(42,640.60)
Age *M* (SD)	44.59(16.43)
Years of Education *M* (SD)	13.82(2.46)
% Male	51.0%
% Immigrant	19.9%
% Married	61.5%
% Separated	11.9%
% French interview	20.1%
% In the labour force	62.4%
% Religious attendance at least once a week	29.4%
% Religious attendance at least once a month	16.0%
% Religious attendance a few times a year	46.5%
% Living in a rural area	19.7%

Statistics Canada as an intermediate geographical area between the size of a municipality and a province that might correspond to a county, regional municipality or a regional district. These divisions are usually made up of neighbouring municipalities. Using CDs ensures that there are sufficient numbers of individuals in each CD to provide reliable estimates of between-area differences and model variation at the area level. It also allows accurate estimates of income inequality levels. In order to access census data at the CD level, Enumeration Area (EA) level data was aggregated up to the CD level using CD and EA identifiers assigned to each individual.

Area level poverty is measured by the proportion of individuals in the total population of the CD earning incomes below the LICO (Low Income Cut Off). The LICO is a widely used measure of poverty that looks at the percentage of total family or unattached individual income that is spent on clothing, shelter and food. Households that spend 20% or more of their income than the average family on clothing, shelter and food, are considered to be low income households and thus fall below the LICO. Census data at the EA level provided proportions of individuals with incomes below the LICO. As CDs are made up of EAs, it was possible to find an average proportion of individuals earning incomes below the LICO across the EAs in each CD. This proportion was rescaled to the range 1-10 and 0 centred[2] so that a one unit change represents an increment of 10% in the poverty measure.

Area income inequality is measured by the Gini coefficient, a statistical measure of inequality based on the distribution of income. As the coefficient approaches 0, the income distribution is more equal, with 0 representing perfect equality. As the coefficient approaches 1, the income distribution is less equal, with 1 representing perfect inequality where one person has all the income and everyone else has no income. The Gini coefficient has gained popularity in the social sciences as an accepted way to measure income inequality (Allison 1978) and is used in many studies of income inequality (see for example Muller 1995). It is listed by the World Bank as one of the most common measures of income inequality available (World Bank 2008) and is reasonably comparable across countries. In a ranking of countries by Gini score, Canada has a similar ranking to France, Tajikistan, Albania and Korea according to the UN Development Report (UNDP 2008). A Gini coefficient for each CD was calculated from the GSS personal income data using the inequality package in the statistical program R. The variable was rescaled to the range -5 to 5 with -5 representing perfect equality, becoming more unequal as the score approaches 5[3].

4.2. Individual Level Variables

The dependent variable, *voluntary association membership*, is a binary outcome indicating whether individuals have been a voluntary association member (coded 1) or not (coded 0), in the past 12 months. Types of associations that individuals were asked about are unions, political groups, recreational/sports groups, cultural groups, religious groups,

[2] The independent variables (area level poverty, area income inequality and personal income) are all centred on 0 to ensure interpretability of the intercept values and interactions and to reduce problems of multicolinearity.

[3] See footnote 2 with regards to centring of the independent variable.

school/community groups, service clubs and fraternal organisations. Only those who stated they were "active" in the past 12 months were coded as members.

The main individual-level independent variable of interest is *personal income.* Item non-response for this variable was approximately 25% and so instead of removing a quarter of the study sample missing data, data was imputed. Missing values for this variable and for five other individual variables with missing data on 0.2-27.7% of data[4] were imputed using single imputation in the MICE (Multivariate Imputation by Chained Equations) package in R[5]. After imputation and changing 0 values to 1, the log of income was taken to account for a non-linear effect on voluntary association membership. To ensure ease of interpretability, $\log_2$ was used instead of $\log_e$. The coefficient will show increases in the log odds of membership for a doubling in the value in the income. The log of income was then multiplied by 10, giving the variable a range of 1-100 to ensure easier interpretability of intercepts and interactions and was centred on 0.

Individual-level control variables include *gender* (0=male, 1=female), *age* (measured in increments of 10 years), *education* (in years), *religious attendance*[6] (at least once a week, at least once a month, a few times a year, and never as the reference category), *marital status* (separated, married, and single as the reference category), *immigrant status* measured by country of birth (0=Canada, 1=Other), *labour force participation* (0=in the labour force, 1=not in the labour force), *language of interview* (0=English, 1=French) and *rural area* (0=Urban 1=Rural).

5. Analysis

The data are in a hierarchical structure with two levels, where individuals at Level 1 are nested within areas at Level 2. As a result, multilevel binomial logit models are fitted to the data[7]. Model 1 explores whether there is variation between areas in the odds of individual voluntary association membership, controlling for individual level predictors and individual income. Model 2 allows the individual income effects to vary at the area level. Model 3 includes two area level variables in an attempt to explain some of the between area variation in Model 1. Model 4, the final model, examines whether income has different effects in contexts with different levels of poverty and inequality. More specifically it includes interaction effects between individual income and area poverty, and individual income and income inequality.

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[4] Missing data was distributed as follows: Marital Status 0.2%, Employment Status 1.0%, Immigrant Status 1.6%, Education 1.7%, Income 24.3%, Religiosity 27.7%.

[5] Please refer to Chapter 1 for more details on the imputation method.

[6] Religious attendance as a control variable refers to frequency of churchgoing as opposed to involvement in a religious organisation as included in the dependent variable. Religious organisation can refer to faith-based youth groups, Sunday schools or religious charities like The Salvation Army, in addition to involvement with a church.

[7] Using MLwiN software, the models were fitted using marginal quasi-likelihood procedures and iterative generalized least squares estimation.

6. Results

Table 3 presents the coefficients[8] for the four models as well as the calculated odds ratio for each coefficient[9]. Model 1 shows evidence of significant differences in average levels of voluntary association membership between areas, but the explained variance suggests that only 1.1% of the variance in voluntary association membership is attributable to between-area differences[10]. The explanatory variable of interest in this model was the log of individual income, which was included here as a fixed effect[11]. The odds ratio tells that as income doubles, the odds of voluntary association membership increases by 2%. This coefficient is also highly significant.

Model 2 allows the individual income effect to vary at the area level. The random effect associated with the model intercept fell very slightly from 0.0363 to 0.0354 but remained significant. The fixed effect of the log of individual income on voluntary association membership increased very slightly but produced a similar odds ratio. There is a small but significant random effect associated with this coefficient.

Model 3 includes variables for area poverty and income inequality. The coefficient of income inequality is not significant but as the percentage if individuals living under the LICO in each CD increases by 10%, the odds of voluntary association membership for individuals decrease by 9%. This coefficient is only just significant at the 0.05 level. The random effect associated with the intercept falls very slightly.

In order to examine the interrelationship and possible moderating effect of individual income on area poverty effects and area income inequality effects, two cross-level interactions are included in Model 4. Although the main effect of area income inequality was not significant, the interaction between area income inequality and individual income is significant.

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[8] Significance is assessed using a Wald test. Ideally, a likelihood ratio test would be carried out but discrete response models in MLwiN are estimated using quasi-likelihood methods making the likelihood value unreliable (Rasbash et al. 2005: 113).

[9] To calculate odds ratios from the model coefficients we simply take the exponential of the coefficient. The odds ratios are presented to two significant digits.

[10] Multilevel models have fixed and random effects. These random effects are composed of both the Level 1 and Level 2 residuals, which together represent the total variance in the model. To work out how much of the variance the Level 2 residuals explain, a simple calculation of Level 2 variance/total variance (Level 1 variance + Level 2 variance) produces the explained variance as a proportion. In logistic multilevel models the variance of the Level 1 residuals follow a logistic distribution with variance $\pi^2/3 = 3.29$. Therefore, the total variance in a logistic multilevel model is 3.29 + Level 2 variance and the explained variance = Level 2 variance/(Level 2 variance + 3.29).

[11] To test for a curvilinear effect of income the squared log of income was also included but was non-significant so removed.

Table 2:Unweighted Estimates of Logit Binomial Multilevel Regression for Voluntary Association Membership[12]

	Model 1		Model 2		Model 3		Model 4	
Fixed Effects	β	Exp(β)	β	Exp(β)	β	Exp(β)	β	Exp(β)
Intercept	0.4555(0.0684)***		0.4515(0.0684)***		0.4352(0.0687)***		0.4315(0.0687)***	
Individual								
Gender (Female)	-0.0891(0.0303)**	0.91	-0.0819(0.0304)**	0.92	-0.0822(0.0304)**	0.92	-0.0829(0.0304)**	0.92
Age	-0.0098(0.0108)	0.99	-0.0104(0.0109)	0.99	-0.0103(0.0109)	0.99	-0.0109(0.0109)	0.99
Not in the labour force	-0.1396(0.0348)***	0.87	-0.1295(0.0350)***	0.88	-0.1285(0.0350)***	0.88	-0.1263(0.0350)***	0.88
Immigrant	-0.5412(0.0397)***	0.58	-0.5447(0.0398)***	0.58	-0.5450(0.0397)***	0.58	-0.5460(0.0397)***	0.58
Education in years	0.2122(0.0060)***	1.24	0.2105(0.0060)***	1.23	0.2107(0.0060)***	1.23	0.2101(0.0060)***	1.23
Marital status (married)	0.0786(0.0382)*	1.08	0.0723(0.0383)	1.07	0.0696(0.0382)	1.07	0.0696(0.0382)	1.07
Marital status (separated)	0.0486(0.0505)	1.05	0.0428(0.0506)	1.04	0.0417(0.0505)	1.04	0.0416(0.0505)	1.04
French Interview	-0.2993(0.0486)***	0.74	-0.2949(0.0483)***	0.74	-0.2847(0.0496)***	0.75	-0.2869(0.0495)***	0.75
Religious attendance (weekly)	1.0162(0.0580)***	2.76	1.0157(0.0581)***	2.76	1.0170(0.0581)***	2.76	0.0206(0.0581)***	1.02
Religious attendance (monthly)	0.4958(0.0607)***	1.64	0.4965(0.0608)***	1.64	0.4969(0.0608)***	1.64	0.5005(0.0608)***	1.65
Religious attendance (a few times a year)	-0.0204(0.0508)	0.98	-0.0207(0.0509)	0.98	-0.02080(0.0509)	0.98	0.0183(0.0509)	1.02
Rural area	0.0600(0.0383)*	1.06	0.0647(0.0384)	1.07	0.0607(0.0385)	1.06	0.0599(0.0384)	1.06
Income (Log_2)	0.0127(0.0010)***	1.01	0.0145(0.0015)***	1.01	0.0145(0.0015)***	1.01	0.0151(0.0015)***	1.02
Area								
Poverty					-0.0956(0.0497)*	0.91	-0.1029(0.0496)*	0.90
Income Inequality					-0.0121(0.0447)	0.99	-0.0138(0.0445)	0.99
Interactions								
Income x area poverty							0.0067(0.0040)	1.01
Income x area inequality							-0.0127(0.0039)**	0.98
Random Effects								
Level 2 (Intercept)	0.0363(0.0094)***		0.0354(0.0092)***		0.0340(0.0090)***		0.0336(0.0089)***	
Level 2 (Income)			0.0002(0.0001)**		0.0002(0.0001)**		0.0001(0.0000)**	

*p<0.05, **p<0.01, ***p<0.001 for Wald test

[12] Data shown in the table are regression coefficients with standard errors in parentheses followed by calculated odds ratios in adjoining columns.

As inequality increases by 1 (this variable is scaled 0-10), the multiplicative factor of income decreases by 2%. In order to better visualise this interaction, fitted values are presented in Figure 1[13]. The graph shows the relationship between the individual income and the estimated probability of voluntary association membership for areas with low, medium and high inequality. Although not substantively large, the interaction is statistically significant and so an important result.

7. Discussion

With regards to the objectives of this study, the importance of looking for area differences in social behaviour that has been posited and pursued in previous research was found to be relevant with regards to voluntary association membership. The analysis found significant differences in the probability of individual voluntary association membership between areas (Model 1). As we expected, and in line with previous research, a strong association was found between individual income levels and voluntary association membership (Grabb & Curtis 1992) (Model 1). This finding supports the hypothesis that access to financial and material resources increases the free time and opportunities individuals have to engage in voluntary activities. Despite participation in voluntary associations often being inexpensive or free, it does rely on factors related to economic resources. Firstly, individuals have to be able to afford to give up time that they could be using to earn money. Secondly, participation may require having access to a vehicle to facilitate attendance, the use of babysitting or childminding services, and the delegation of certain household and personal administration tasks to a paid individual, allowing individuals enough time for involvement. This finding implies that higher income levels privilege those individuals in their capacity to be active in voluntary associations and to access the benefits of participation, such as access to networks, social trust and co-operation, and the ensuing opportunities and advantages that voluntary association membership offers (Putnam 1993; Curtis, Baer & Grabb 2001; Paxton 2002: Brehm & Rahn 1997).

It can be argued that the relationship between income and voluntary association may be due to personal characteristics more frequently found in higher income individuals. Being a higher earner is thought to produce more feelings of happiness and satisfaction in individuals (Hagerty & Veenhoven 2003) leading to more feelings of self-reliance, responsibility and efficacy. This, in turn, could make an individual more likely to be co-operative and community minded. Talen (1999) discusses how affluence is connected to a sense of community in American neighbourhoods. Nonetheless, happier, motivated, confident individuals may be more likely to become higher income earners. It is not clear whether personal characteristics are responsible for both higher incomes and voluntary association membership.

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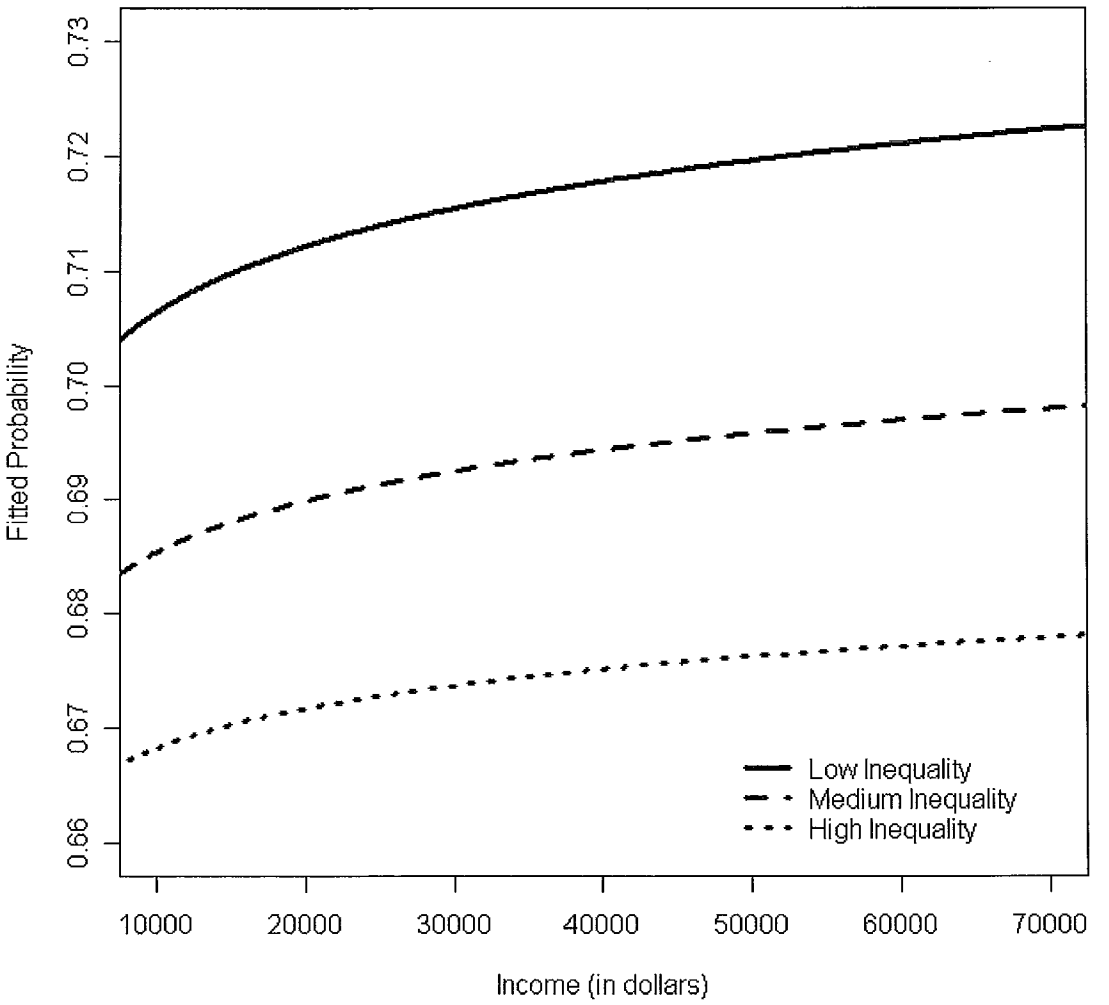
[13] Figure 1 was produced in R using the regression equation to produce three lines representing low, medium and high inequality on a graph with individual income on the x axis (ranging from the 10th to 90th percentile) and probability on the y axis. For the low inequality line, the area inequality value was set to the 10th percentile value (-0.5004), for the medium inequality line the value was the median inequality value. (0.0427) and for the high inequality line the value was set to the 90th percentile (0.4701). In the three fitted equations control variables were set to their mean values after recoding and centring.

Figure 1: Effect of Income on Voluntary Association Membership in Low, Median and High Inequality Areas



It is clear, however, that lower income earners are less likely to be voluntary association members.

As noted in the introduction, being engaged in civic society is associated with higher levels of political engagement (Putnam 1993). Another important implication of poorer individuals being less active voluntary association members could be reduced levels of political engagement. This could translate to poorer individuals being unable to effectively represent themselves and lead to further marginalisation of the poor. This supports the claim that policy focusing on social development or encouraging social engagement must target poor individuals.

Looking at the between-area differences in income effects, the presence of a small but significant random effect suggests there is some variation in the association between income and the likelihood of voluntary association membership among areas (Model 2). The random effect is very small, however, showing that very little of the variance in voluntary association membership is attributable to between-area income differences. This suggests that in most areas higher income will result in higher chances of voluntary association membership, strengthening claims about the influence of economic disadvantage on social behaviours such as voluntary association membership.

In an effort to explain why between-area differences in average voluntary association membership exist, this study found that, consistent with previous research, area poverty had a significant effect on the odds of voluntary association membership (Cattell, 2001; Cattell, 2004; Jacobs, 1961) (Model 3). As hypothesised, increases in area-level poverty are associated with decreases in the odds of voluntary association membership. It seems that claims made by Cattell (2001 2004) about weaker social networks in poor areas in the UK are applicable in Canada too. Cattell argues that poor areas exhibit low levels of trust and co-operation due to the limited facilities and resources available. This could explain lower levels of voluntary association membership. Interestingly, area income inequality had a comparatively small and insignificant effect on the odds of voluntary association membership, counter to our hypothesis, which was based on suggestions made by research focused on country level income inequality (Uslaner & Brown, 2005; Rothstein and Stolle).

Finding that low income individuals living in poor areas experience lower levels of voluntary association membership has some serious implications. This is a significant finding for individuals in Canada, communities and Canada as a whole. In the UK, Cattell (2004) explores voluntary association membership in the context of declining and regenerating neighbourhoods in combating exclusion, focussing on how access to the benefits that voluntary association membership offers is unequally distributed across different social groups and neighbourhoods. A similar role for voluntary association membership could be put forward in Canada where neighbourhood regeneration, particularly on Native reserves is a prominent political issue. The Voluntary Sector Initiative in Canada ran from 2000 to 2005, strengthening ties between the government and the voluntary sector with regard to policy development. Some of the initiatives claimed key outcomes were social cohesion and stronger communities. However, as has been shown here, economic disadvantage negatively impacts levels of voluntary association membership so policy needs to focus on low income individuals in poor areas.

An example of this is a current Canadian government initiative that funds fee waiving for children of poorer families joining local recreational and sports activities that encourage community co-operation and engagement.

The presence of a significant but small cross-level interaction between individual income and area income inequality, despite a non-significant main effect for area income inequality, reveals the impact of contextual inequality (Model 4). Estimation of simple slopes indicates that the positive effects of individual income are slightly higher for individuals living in areas of low inequality and slightly lower in areas of high inequality. Although the general trend shows that the odds of voluntary association membership increase as income increases, the relationship is most positive in low inequality areas, less positive in medium inequality areas and less positive still for areas of high inequality. Income inequality reduces the odds of membership for precisely those individuals whose incomes would result in higher odds of membership in areas with low or medium levels of inequality.

Looking into this finding more carefully reveals that for areas with low inequality levels our hypothesis that individuals with higher incomes have more access to the resources that facilitate membership is supported. In relatively equal areas, individuals with higher incomes are more likely to participate. Poorer individuals in relatively equal areas are disadvantaged by their low incomes and are thus denied access to the social and material benefits of membership. However, in the presence of a higher margin between rich and poor, increases in income do not translate to the same increases in voluntary association membership for these groups. In other words, participation is more equal.

Investigating possible reasons for this result, it can be argued that areas exhibiting more inequality between rich and poor also suffer from heterogeneity between individuals on different dimensions, e.g., race, education, and socio-economic status. Regarding voluntary association membership, Tomeh (1969) argues that there is less neighbourhood participation among individuals who perceive their neighbours to be more heterogeneous. The mechanism operating here implies that individuals are more likely to cooperate with and form relationships with others similar to themselves. Perceived difference is thought to make forming strong bonds with others harder. It may be that in areas of high inequality there are higher levels of heterogeneity that reduce the impact of income effects. However, possible sources of heterogeneity were controlled in this study. It can also be argued that feelings of difference caused by high inequality may actually inspire low income individuals to participate more. Campbell and Lee (1992) find that although high income and high SES individuals are more active and integrated into neighbourhood social networks their participation is less intense because they have less need for the material and social benefits that social networks hold. Therefore, it could be the case that in more unequal areas, poor individuals are more aware of their lot and so actively pursue opportunities to co-operate and interact in response to needs for the benefit of social networks and cooperation. Social heterogeneity may deter higher income individuals from participating whilst the inequality of the area actually drives lower income

individuals to participate. More investigation of the precise factors involved is needed before the operation of such a mechanism can be confirmed[14].

Another explanation for this finding addresses the composition of the equal areas. If more equal areas are generally more affluent they may have a higher average individual income than unequal areas[15]. As such, areas with low and medium inequality would consist of wealthier individuals who are more likely to be voluntary association members. The inequality in high inequality areas may be caused by the presence of numerous very low income individuals in contrast to average income individuals. The inequality of the area would reduce the likelihood of membership for these individuals but, interestingly, would result in higher odds of low income individuals becoming voluntary association members than occurs in medium and low inequality areas.

This finding runs counter to our hypotheses about individuals in more equal areas being more likely to be members in voluntary associations. Studies have shown that economic inequality is negatively related to levels of engagement (Uslaner & Brown 2005, Rothstein and Stolle 2003). The lack of a significant area income inequality effect means this study cannot confirm this claim. Further, interpretation of the interaction suggests a somewhat more complicated relationship between area income inequality and engagement, as discussed above. This relationship would not have become clear if the interaction had not been included. As voluntary association membership is deemed to have many benefits, what is clear is that in more equal areas, the poor are not able to access these benefits. Higher income individuals will be unfairly advantaged with regards to access to the important social resources that voluntary association membership brings. In more unequal areas, the situation and mechanisms in operation are less clear.

It is important to outline some of the study limitations and weaknesses in our methods in order to keep the findings of this paper in perspective. Firstly, area in this study was defined as Census Division, which is a large geographical area between the size of a municipality and a province. Ideally, areas would have been defined as Enumeration Areas but with a sample of nearly 25,000, there were too few people in too many EAs to be able to model random effects successfully and calculate Gini coefficients for each area. However, in using CDs we must accept that these areas will likely include numerous diverse areas, a diversity that is necessarily ignored in this study. At the same time, there is also an argument that larger geographical areas would be more suitable in order to accurately capture and measure inequality levels. Whilst absolute measures of

[14] By way of a preliminary investigation into the speculated effects of perceived difference and heterogeneity, a Census variable of the percentage of visible minorities in each area was added to Model 4. The resulting coefficient was –0.0677(0.0125) and significant at the 0.001 level. Working out the corresponding odds ratio (exp(-0.0677)=0.93) shows that as the percentage of visible minorities increases, the odds of voluntary association membership decreases. More development of theory driven research questions is required before any firm conclusions can be drawn.

[15] A similar preliminary investigation of these speculated effects was carried out by adding a Census variable on average income level in each area to Model 4. This variable had no significant effects but the median income level (measured in dollars) in each area did. The resulting coefficient was 0.0099(0.0019) and significant at the 0.001 level. The corresponding odds ratio (exp(-0.0099)=1.01) shows that as the area median income level increases, the odds of voluntary membership increase.

wealth or poverty will be more accurate in smaller areas, relative measures such as income inequality require larger areas in order to capture differences accurately.

The second study limitation is the measure of area income inequality. In order to capture area characteristics accurately, the use of official census data is preferable. Although it was possible to calculate a measure of area poverty from census data, the lack of data on income strata in the 2001 census meant the Gini coefficients for areas had to be calculated from the survey data. This is not ideal, as the value is not computed using all individuals in the areas but only uses the individuals included in the survey sample in those areas. The average number of individuals in the 282 Census Divisions represented in the GSS is 85.4, a relatively small number, although these survey respondents were selected using probability sampling.

Finally, the use of cross-sectional data makes it difficult to make strong and reliable inferences about social causation and to separate group contextual effects from individual effects. Nonetheless, the inclusion of appropriate compositional variables and a theoretically driven approach can help to control for some of the possible causal mechanisms that may be at work. In addition, contextual effects can be explained away as being a result of selective social behaviour that gives rise to what appear to be contextual effects but are, in fact, not. Hauser (1974) gives the example of parents selecting where they live on the grounds of the quality of available education, which is not an effect of group composition or context. There is, inevitably, some element of self-selection or selection mechanism that leads individuals to live in certain areas, but the precise mechanism is often empirically hard to isolate and control for. For example, poor individuals can often only afford to live in poor areas, a selection mechanism which also operates to keep the area poor. However, if we have a theoretical framework that suggests a contextual effect does exist, suitable variables are included and controlled for, and we are clear which level we should assign variables to, multilevel modelling is an appropriate method to use. Furthermore, even if self selection effects matter, it is still important from a policy point of view that these area differences exist. Future examination and tackling of these issues is needed in order to give researchers the ability to make strong and valid inferences about contextual effects. Analysis of longitudinal data would also give researchers access to more information on causal mechanisms that may be in operation.

Regardless of the study limitations, this study highlights differences between areas in voluntary association membership and finds that individual income explains some of these differences. Just as important, it also shows that contextual inequality moderates the association between individual income level and voluntary association membership. It suggests that in more unequal areas, individuals experience decreases in their propensity to be voluntary association members as their incomes increase. A key lesson to learn from this study is that if interactions had not been included, the actual nature of the relationship between income and voluntary association membership in different contexts would not have been revealed. Similar examinations should be made with other social behaviours to see where else contextual income inequality moderates the effect of individual income. Other social behaviours worth examining would include educational attainment and achievement, and criminal behaviour and deviance.

In conclusion, this study found individual, contextual and interaction effects on voluntary association membership in Canada. A positive relationship was found between individual income and voluntary association membership that held with the inclusion of controls. A reasonably large negative relationship was found between area poverty levels and voluntary association membership. To understand the interrelationship of contextual variables, interactions between area contextual variables and individual income were examined. It was found that contextual inequality slightly moderated the relationship between individual income and voluntary association membership. These findings reinforce hypotheses about the importance of examining contextual influences on individual social behaviours and also how contextual factors and individual behaviours interact. The findings confirm previous hypotheses that individual economic disadvantage and area poverty negatively influence individuals in their capacity and ability to be active in voluntary associations and access the benefits that this membership holds.

CHAPTER 2. INCOME AND COUNTRY POVERTY EFFECTS ON ACTIVE AND INACTIVE VOLUNTARY ASSOCIATION MEMBERSHIP: A CROSS-NATIONAL COMPARISON

1. Introduction

In Chapter 2, World Values Survey data from 1981-2004 and country-level data on poverty, economic development and religious attendance are used to investigate how individual income and poverty affect voluntary association membership across 55 countries. This study examines three different levels of membership: only active membership, only inactive membership, and a mixture of active and inactive memberships versus non-membership as a reference. Voluntary association membership provides social and material benefits to individuals. Membership in voluntary associations is associated with increased levels of trust, engagement and co-operation (Putnam 1993, Putnam 1995; Paxton 2002; Brehm and Rahn 1997). Moreover, Granovetter (1973) and Burt (1997) find that membership and involvement lead to increased job opportunities and social mobility. Although higher levels of voluntary association membership have been found to exist amongst higher income individuals (Grabb and Curtis 1992) and cross-national comparative studies of individual and country-level effects on voluntary association membership do exist (Andersen, Curtis, and Grabb 2006; Ruiter and De Graaf 2006; Schofer and Fourcade-Gourinchas 2001; Baer, Curtis, and Grabb 2001), few studies have examined cross-national influences of income and country level poverty on active and inactive voluntary association membership.

At the individual level, voluntary associations require time and energy given by volunteers, which in turn rely on access to financial and material resources to increase the free time and opportunities that individuals have to engage in voluntary activities. Unless individuals are working huge numbers of hours, having a higher income will translate into more free time through access to transportation, babysitting or childminding, and/or the delegation of household and personal administration tasks to paid individuals. There is also evidence that the relationship between income and voluntary association membership is curvilinear. At a societal level, voluntary associations require financial aid given by councils, local government or wealthy individuals. In poorer countries, access to these resources is likely to be limited either because less money is available or money that is available is being invested into more direct anti-poverty initiatives. It could be argued, however, that poorer individuals sharing a common state of need in poor contexts may feel bonded to each other in a way that would increase co-operation, trust and levels of involvement. This study seeks supporting evidence for these claims and also unpacks the effects that individual-level income and country-level poverty have on different levels of active and inactive voluntary association membership to try to isolate and describe the mechanisms that are at work. Studies that examine membership versus non-membership often overlook the important distinction that must be made between active and inactive membership. Using a cross-national comparative approach in a multi-level framework, this study examines the effect of income and country-level poverty in 55 countries while also giving consideration to the effects that country specific structural contexts have on

voluntary association membership. I will employ individual-level data from the World Values Surveys (WVS) and European Values Surveys (EVS) merged with country-level data on poverty, levels of economic development and average religious attendance.

2. Background

Voluntary associations are formal or informal organisations whose members have common interests and values, shared purpose, or pursue a common goal or activity. Membership in voluntary associations has been found to be both socially and materially beneficial for individuals, to be important for the success of democratic institutions (Putnam 1993 1995) as well as contributing to an individual's wellbeing. Similarly, Curtis et al. (2001) argue that the free association that occurs in voluntarism encourages co-operative interaction and promotes interpersonal trust. Although there has been some disagreement surrounding the direction of causality among associational life, the production of trust and co-operation, and flourishing democratic institutions (Paxton 2002; Brehm and Rahn 1997), it has been generally accepted that voluntary association membership improves an individual's propensity to trust and co-operate. It has also been noted that an active civic life is associated with higher levels of political engagement (Putnam 1993), which is important when looking at the possible implications of increases or decreases in voluntary association membership.

Involvement in social networks also improves access to resources and material goods such as increased job opportunities, a higher chance of more frequent job offers, and greater social mobility (see for example Granovetter 1973; Burt 1997). Although it is unclear whether benefits arise from sparse associational networks (Granovetter 1973) or dense ones (Coleman 1997), or both, it is clear that involvement in associational life leads to a greater number of contacts for individuals and higher chances of accessing jobs available through these contacts.

Although a connection between voluntary association membership and individual-level income is often assumed in studies that control for income (Grabb and Curtis 1992), there has been no examination of the role of income specifically across countries or how it interacts with contextual economic influences. Many life opportunities in education and employment, for example, are linked to financial resources and are unfortunately denied to those whose economic resources are few. Although membership and participation in voluntary associations is not openly constrained by economic resources, apart from perhaps a membership fee, there is some underlying financial requirement for involvement. It may be the case the income only positively influences active membership and that similar mechanisms do not operate for inactive membership. Connected to this, the present study will investigate two issues.

First, if low-income individuals exhibit lower levels of voluntary association membership, we need to know how profound this pattern is and how far it reaches across modern society and the world. If patterns of economic disadvantage are associated with lower levels of participation then low-income individuals are being denied access to resources made available through participation and community involvement. Lower levels of participation amongst low-income individuals could also affect their capacity for political engagement and their level of political activity.

Second, previous studies have made one of three distinctions in types and levels membership: firstly, distinctions are made between membership and non-membership of voluntary associations. Many social surveys when asking questions on voluntary associations ask if individuals are members or non-members, so individuals are coded as belonging to that association or not. It is not always explicit to the respondent what comprises membership or belonging. A second distinction is made regarding the type or number of organisations that individuals are part of. Surveys often differentiate between different types of voluntary association membership but questions about belonging to a certain type of association do not allow individuals to expand on how many of these types of association they belong to. Similarly, it is possible that some associations may fall into similar types. For example, the World Wildlife Fund could be described as an environmental organisation, as one of the aims of the WWF is to protect the environment. The WWF could also be described as a political group for the lobbying and campaigning its members undertake, as well as falling into the category of charitable/humanitarian organisation for being a charity. Therefore creating a count of associations individuals belong to may not always be an accurate reflection of the number they actually belong to. The final distinction that is made is between nominal and working memberships. Sometimes a question is asked about which voluntary associations individuals do unpaid work for. A count is then constructed of how many associations individuals say they belong to (nominal) and how many they do unpaid work for (working) (see for example Baer, Curtis, and Grabb 2001). Again, this can be a problematic approach, as individuals cannot indicate how many of the different types of associations they belong to or do unpaid work for.

This study offers a different perspective that attempts to avoid some of these issues by making clearer distinctions between different types and levels of membership. In the World Values Survey individuals may indicate whether they are an active, inactive or non-member of nine types of voluntary associations: religious organisations, sport or recreational groups, cultural arts or educational groups, labour unions, political groups, environmental organisations, professional organisations, charitable/humanitarian organisations and a category for 'other organisations'. This study splits individuals into four groups to investigate fully the impact of income on different levels of membership. After joining an association it is possible to be either an inactive member, i.e., having joined but involvement goes no further, or becoming an involved and participating member in the association. It may also be the case that individuals are active in some associations and inactive in others. It therefore seems logical to look at individuals who are 'only active' members of associations, individuals who are 'only inactive' members of associations and individuals who are a mixture of both 'active and inactive' members with a clear reference category of non-members to compare these groups to.

There is evidence that the relationship between income and voluntary association membership is curvilinear. Cutler (1976) examines the curvilinear relationship between age and voluntary association membership and acknowledges that this relationship may be explained by socio-economic characteristics such as income and education levels that increase towards middle age and taper off in the elderly. Although involvement increases with income this tapers off with very high income levels. There are three possible

explanations for this. Individuals with very high incomes may be earning vast wages by working hard and working a lot. Individuals who spend so much time working will have very little time left available for involvement in voluntary associations. Secondly, individuals with high incomes may find that donating money instead of time to voluntary organisations is an easier and more viable option for them. Thirdly, there may be 'ceiling' effects in operation whereby once an individual reaches the upper income levels, there is very little additional income available to them, so both income and membership taper off. Either way, when studying income and voluntary association membership, it is important to establish whether a curvilinear relationship exists and if so, incorporate this in the model with the correct transformation. The key individual-level variable of interest in this study is household income level as an indicator of personal income. Controls for socio-economic status and education will help to isolate income effects.

In the exploration of contextual effects on voluntary association membership, some previous research has focused on comparative projects examining country-level structural contexts or determinants of civic engagement (see, for example, Andersen et al. 2006; Schofer and Fourcade-Gourinchas 2001; Baer et al. 2001, Ruiter and De Graaf 2006; Buhlman and Freitag 2004), although none have focused on poverty specifically. The present study hypothesises that country poverty levels will be an important economic influence on voluntary association membership trends. Previous research points to the importance of individual socio-economic status and also country level economic development as important predictors of engagement (see for example Woolcock 1998; Hwang, Curtis, and Grabb 2005; Kaaviainen and Lehtoren 2006). Drawing on the work of Jacobs (1961), which focuses on the effects of poor people and poor places in the US, Cattell (2001 2004) found that in the UK poor areas exhibit low levels of trust and co-operation due to the limited facilities and resources available.

Based on the findings of previous research, this study assumes that countries with a certain amount of wealth and access to resources will exhibit voluntary association membership but that once a certain threshold has been reached, increases in country wealth won't be accompanied by an equal increase in voluntary association membership. Therefore, country poverty instead of country wealth is deemed to be more suitable as a contextual variable. In other words, poverty is seen as a barrier to participation. Poorer countries and poor individuals may be less likely to participate, in which case economic inequalities are being reproduced in associational life, preventing individuals in certain countries from accessing resources that become available through participation and community involvement. This in turn could result in lower levels of political activity.

Previous research suggests that institutional structures influence and shape internalised value systems of individuals with regard to their propensity to be involved and to trust. It will therefore be important to control for important country level predictors. Following previous research this study will control for two key contextual variables whilst examining the influence of contextual poverty. These two variables measure an aspect of the structural context and have been selected because of the influence that they have on voluntary association participation and also for the varying influence they are likely to have on the income effects in voluntary association membership in different countries. The first context variable is economic development.

Curtis et al. (2001) find that the higher the level of economic development and the greater and earlier the industrialisation of a society, the greater its voluntary association activity. In addition, Inglehart and Baker (1997) argue that economic development has produced increasing levels of volunteering and voluntary association participation. It is possible to see voluntary association membership as a characteristic of economically developed societies and also see economic development as conducive to the production of those resources that increase the likelihood of voluntary association membership.

Economic development is also related to country level poverty in the sense that more economically developed countries are less likely to experience poverty. However, the poverty that does occur in economically developed countries may still have an effect on voluntary association membership. It will, therefore, be important to control for economic development in order to tease out any poverty effects that exist. Following standard procedures used by sociologists (see for example Curtis et al. 2001; Schofer and Fourcade-Gourinchas 2001), GDP per capita is used to measure economic development.

The second context variable is the average level of religious attendance in a country, which has been found to be an important predictor of voluntary association membership. Ruiter and De Graaf (2006) use WVS data to examine the influence of the national religious context on whether individuals do unpaid work for voluntary organisations. They find that individuals in more religious societies do more unpaid work for voluntary organisations and, further, that differences between religious and non-religious people matter less in religious countries than in non-religious countries. Since this study uses the same WVS data, I control for country-level religious attendance by constructing the same measure as Ruiter and De Graaf, which is average religious attendance measure in days per year.

Previous research has identified several key background predictors of voluntary association membership that should be controlled for. Hwang et al. (2005) control for gender, race, religious affiliation, religious attendance, age, education and socio-economic status in their study of American and Canadian voluntary association membership. Based on the suitability of the data, this study will control for several socio-demographic variables: gender, age, years of education, religious attendance, labour force participation, socio-economic status and marital status.

Based on the literature review above, the following research questions will be examined:

- Do income effects on voluntary association membership differ between active and inactive voluntary association members?
- Does the strength of association between individual income and voluntary association membership vary cross-nationally?
- Is some of this variability accounted for by differences in country-level poverty?

3. Data & Methods

This study uses a combined data set from the four waves of the World Values Survey (European Values Study Foundation and World Values Survey Association 2006) conducted between 1981 and 2004, augmented with country-level data from the Penn

World Table (Heston, Summers and Aten 2006) and the CIA World Factbooks (Central Intelligence Agency 2008). The World Values Survey consists of four waves of cross-sectional data collected from 1990 to 2005 from over 80 countries. Face-to-face interviews were carried out by investigators in each country with a nationally representative sample of individuals aged 15 and over. In most countries stratified multistage random sampling was used, with samples collected in two stages. In some countries, the final selection was made by quota sampling based on demographic quotas using census data to guide group size and selection (Inglehart, Basanez, and Moreno 1998). All individuals aged 18 and over are eligible for inclusion in the analysis. Respondents from countries or survey years that were not asked questions on associational life were removed from the analysis. Similarly, when data from more than one year was available for a particular country data from the year closest to the modal survey year (1996) was selected for inclusion. Data for other years were removed to avoid problems with collecting country-level variables for multiple years within countries. Of the 86 countries included in the survey, 55 were asked questions on voluntary association membership and so were included in the analysis. The final dataset consists of 73,071 individuals within 55 countries. Table 1 shows the number of individuals within countries, country-level estimates being used in the analysis and average income levels for each country. Table 2 shows the characteristics of the study sample.

4. Concepts and Measures

4.1. Country-level Variables

Country level poverty is the key country level variable of interest. Country level poverty data was collected for each country in the year that the World Values Survey was conducted in that country[16]. Data was collected from information on poverty levels in the CIA World Factbooks from 1999 to 2007(Central Intelligence Agency 2008). These national estimates of the percentage of the population living below the poverty line are based on surveys of subgroups, with the results weighted by the number of people in each group. Admittedly, definitions of poverty do vary considerably among nations. However, as richer nations generally use more generous standards of poverty, controlling for level of economic development will limit the effect of this problem. The percentage is rescaled to the range 0-10 by dividing by 10 to ease interpretation of coefficients.

Level of economic development and *religious attendance* are included in the analysis as important predictors of membership. *Level of economic development* is measured by gross domestic product (GDP) per capita in US dollars in 2000 constant prices using the Laspeyres index given in the Penn World Table (Heston, Summers, and

[16] Most countries were surveyed between 1995 and 1998 and poverty data was collected for the survey year. For some countries poverty data was not available for the survey year. In this case, data was collected from the closest available year (Azerbaijan, 2000, Bosnia Federation, 2004, Bulgaria, 2002, China, 2000, Croatia, 2003, Georgia, 2000, Germany, 2001, Lithuania, 2003, Montenegro, 2007, Poland, 2003, Puerto Rico, 2002, Republic of Korea, 2001, Republic of Macedonia, 2002, Republic of Moldova, 2000, Serbia, 1999, Serbian Republic of Bosnia, 2004, Slovakia, 2004, Slovenia, 2007, South Africa, 2002, Spain, 2005, Taiwan, 2000, Turkey, 2002, Uruguay, 2002).

Table 3: Country Characteristics

Country	(n)	Average Income Level	Average Religious Attendance	GDP
Albania	996	4.34	14.90	2669.38
Azerbaijan	1944	3.68	8.97	2256.31
Argentina	1078	4.49	20.19	10573.17
Australia	1945	5.18	13.16	22648.29
Bangladesh	1524	4.42	86.05	1713.06
Armenia	1831	3.37	9.56	2804.81
Brazil	1149	2.66	30.91	7030.00
Bulgaria	1042	5.20	7.55	6562.49
Belarus	2092	5.53	7.03	7100.04
Chile	1000	4.89	21.04	10517.09
China	1500	4.84	21.24	2702.23
Taiwan Province of China	779	5.51	7.59	14386.52
Colombia	3006	3.97	32.84	6186.14
Croatia	1193	5.08	17.26	7735.82
Czech Republic	1147	4.49	7.63	12933.57
Dominican Republic	416	4.64	36.56	5324.63
El Salvador	1254	5.09	46.81	4709.05
Estonia	1021	4.26	4.47	8972.59
Finland	981	3.88	5.29	18587.83
Georgia	1924	2.94	10.76	3344.92
Hungary	650	4.56	8.63	10403.44
India	2040	4.03	37.68	2103.86
Japan	1048	5.01	6.36	22876.64
Republic of Korea	1247	5.67	13.33	14115.33
Latvia	1200	5.07	6.22	7216.41
Lithuania	1009	6.30	13.79	8306.87
Mexico	2313	3.78	34.36	6957.78
Republic of Moldova	984	3.54	11.21	2499.33
New Zealand	1179	5.75	12.86	19395.17
Nigeria	1996	5.15	79.64	946.20
Norway	1126	5.38	5.85	29780.83
Peru	1211	3.38	32.01	4079.49
Philippines	1200	4.38	45.79	3339.73
Poland	1153	4.10	35.74	7630.62
Puerto Rico	1164	3.59	41.34	16419.84
Romania	1239	1.79	18.54	5144.93
Russian Federation	2040	4.86	3.43	8461.58
Slovakia	1095	4.17	26.56	9293.78
Slovenia	1006	4.36	16.23	14941.79
South Africa	2785	3.39	39.77	7545.28
Spain	1211	3.97	19.66	16312.37
Sweden	990	5.27	4.71	21857.22
Switzerland	1210	5.57	12.77	26788.70
Turkey	1867	4.18	31.58	5370.16
Ukraine	2811	3.85	9.06	4716.11
Republic of Macedonia	995	4.94	11.22	4887.94
United States	1541	6.30	31.72	29290.57
Uruguay	1000	5.06	10.56	10371.11
Venezuela	1200	3.27	24.98	7506.77
Germany West	1014	5.53	10.68	23423.66
Germany East	1006	4.87	4.78	23423.66
Serbia	1279	5.19	7.35	2237.13
Montenegro	240	5.59	7.27	2237.13
Serbian Republic of Bosnia	400	4.28	18.93	2103.86
Bosnia Federation	800	4.39	28.87	2958.45

Table 4: Sample Characteristics

Country (55)				
Individuals per country, *M* (min/max)	1328.56 (240/3006)			
GDP per capita of country *M* (SD)	10029.59(7777.79)			
Average days of religious attendance in country *M* (SD)	20.60 (17.17)			
Average household income level in country *M* (SD)	4.53 (0.90)			
Individuals (73,071)		**'Only active' members** 18.1% (13,252)	**'Active & inactive' members** 20.4% (14,880)	**'Only inactive' members** 26.6% (19,437)
Income Level *M* (SD)	4.43 (2.53)	4.49 (2.55)	4.91 (2.68)	4.41 (2.49)
Age *M* (SD)	41.23 (15.85)	40.80 (15.90)	40.59 (15.00)	43.40 (15.20)
Education in years *M* (SD)	11.02 (3.80)	10.86 (3.92)	12.05 (3.57)	11.19 (3.68)
Religious Attendance *M* (SD)	22.32 (32.44)	37.72 (40.07)	29.82 (37.18)	14.12 (25.49)
% Male	37.5%	34.7%	42.4%	42.9%
% Married	66.1%	65 %	63.6%	67.8%
% Separated	12.5%	11.2%	10.4%	12.8%
% in the labour force	54.9%	54.1%	63.5%	59.8%
% of professionals & managers	26%	28%	35.2%	25.2%
% of agricultural & manual workers	31.9%	28.5%	23.2%	33.1%

Aten 2006). Figures were collected for the survey year in each country[17] and the data rescaled so that a one unit increase in this variable corresponds to a $1000 increase in GDP per capita. *Religious attendance* is a measure constructed from the WVS first used by Ruiter and DeGraaf (2006). The question on religious attendance categorises respondents into eight categories; more than once a week, once a week, once a month, only on special holy days like Easter, only on other specific holy days, once a year, less often, and never. These categories are then assigned values corresponding to days of religious attendance in a year, which range from 0 (never) to 104(twice a week). A religious attendance average can then be assigned to each country based on the respondents' individual attendance. Of the 55 countries, Serbia was missing data on GDP and Australia, Czech Republic, Finland, Japan, Latvia, New Zealand, Norway, Sweden, and Switzerland were missing data on poverty levels. To avoid losing 12 countries from the analysis, imputation was implemented using complete data on democracy level, investment and consumption share of GDP and development assistance and aid collected for the country in question from the Freedom House Index (Freedom House 2008), the Penn World Table (Heston, Summers & Aten, 2006), and the World Development Indicators (World Bank 2007). Missing cases were then imputed using single imputation in the MICE (Multivariate Imputation by Chained Equations) package in R[18]. With this data now complete, all three country level variables are mean centred for the analysis to ensure ease of interpretability and reduce problems of multicolinearity.

4.2. Individual-level Variables

The dependent variable, *voluntary association membership*, is captured by a four-category variable constructed from nine questions on voluntary association membership with three possible responses: active membership, inactive membership and non-membership. Types of associations that are asked about in the World Values Survey include religious organisations, sport or recreational groups, cultural, arts or educational groups, labour unions, political groups, environmental organisations, professional organisations and charitable/humanitarian organisations. Individuals were assigned to one of four categories based on whether they were 'only active' members in one or more associations, 'only inactive' members in one or more associations, a mixture of 'active and inactive' members, or not a member of any association. As well as capturing the type of membership individuals were involved in, it was also important to have a clear reference group to compare the different groups to. In order to successfully compare different types of membership, an independent reference group was needed that was composed of the same group of people in each analysis. The category of non-members was used. Dummy variables were created for each of these categories with non-members as the reference category. All remaining individuals were assigned to one of the three categories of membership. In this way the analyses could look at what makes individuals who are 'only active' members different to non-members, what makes individuals who are 'only inactive members' different to non-members, and what makes individuals who

[17] Data wasn't available in the survey year for Montenegro, so data from 2003 was used.

[18] Please refer to Chapter 1 for more details on the imputation method.

are both 'active and inactive' members different to non-members and whether this group behaves most like the 'only active' group or the 'only active' group. As outlined earlier, individuals can be members of many organisations but never participate, be both members and participate or be a combination of both. Using the four categories, active and inactive members are captured accurately in the analysis. Amongst the nine questions asked on voluntary associations, 10.7% of the data had item non-response. However, 8.8% had one missed item and 1.9% had two or more missed items. Due to the low item non-response, the constructed dummy variables will still capture active and inactive memberships accurately.

The individual-level independent variable of interest is *individual income level.* In order to ensure comparability among countries, income data coded into a ten-point scale is used. Each country defined a 10-point income scale individually and respondents were asked to rank their household income level from 1 to 10 or by a 10-point scale using their local currency. Ideally a measure of personal income would be used but there is only a question on household income included in the WVS, so this is used as a proxy measure. To account for the nonlinear effect of income on voluntary association membership, the mean centred log of this scale was included in the analysis once values of 0 had been changed to 1[19]. Income level was the most problematic variable in terms of non-response, missing 15.2% of responses, although this is unsurprising. The probability of missing income data was found to be unrelated to the value of income, controlling for other variables to be included in the analysis. Thus, non-response is assumed to be missing at random (Allison 2002) and missing values for this variable and for seven other individual variables missing data on 0.1-15.2% of data[20] were imputed using the MICE package in R[21].

Individual-level control variables include *gender* (0=male, 1=female), *education* in years, *religious attendance* in days per year, *marital status* (separated, married, and single as a reference category), *labour force participation* (0=not in the labour force, 1=in the labour force), and *socio-economic status* (a 12 point scale of occupation type starting from managers/employers of establishments with 10 or more employees at 1, going to agricultural and manual workers at 12.). *Age* is included as both a continuous variable from 0-10 measured in increments of 10 years as well as a quadratic to account for the curvilinear effect of age on voluntary association membership. *Age* and *religious attendance* are both mean centred for the analysis.

5. Analysis

The data is hierarchical with individuals at level 1 and countries at level 2. For this analysis, three sets of binomial[22] multilevel models are fitted to the data using MLwiN software for 'only active' members vs. non-members, 'only inactive' members vs. non-

[19] To ensure ease of interpretability, $\log_2$ was used instead of $\log_e$. The coefficient will show increases in the log odds of membership for a doubling in the value in the income.

[20] Missing data was distributed as follows: Sex 0.1%, Age 1.8%, Marital Status 3.8%, Religiosity 4.2%, Employment Status 4.3%, Occupation Type 8.9%, Education 11.4%, Income 15.2%.

[21] Please refer to Chapter 1 for more details on the imputation method.

[22] A multinomial model for unordered categories was also fitted but failed to converge.

members and 'inactive and active' members vs. non-members[23]. Models are fitted using individual-level variables before country-level aggregates as we are investigating whether country-level aggregates explain any of the differences in income effects between countries. Models 1a, 2a and 3a examine the variation between countries in voluntary association membership and income effects, controlling for individual-level predictors. Models 1b, 2b and 3b include country-level poverty and the two country-level control variables to see if poverty explains any of the variability in between-country income effects. A model including an interaction between country-level poverty and individual income was also fitted, but since this effect is not statistically significant it is not reported.

6. Results

Table 3 presents the coefficients[24] for the three sets of models used in the MLwiN analysis. It also reports the calculated odds ratios for each coefficient[25]. Models 1a, 2a and 3a show that there is an increase in the log odds of both 'active and inactive' membership of 10% as income doubles. Similarly, there is a log odds increase of 6.8% in 'only active' membership as income doubles and no reliable income effect is identified for 'only inactive' membership.

The random effect associated with the intercepts in Models 1a, 2a and 3a show evidence of significant differences in average levels of voluntary association membership between countries. The random effect for income is largest for the 'active and inactive' membership category at 0.0423. For 'only inactive' membership the random effect for income is 0.0304 (although the fixed effect is not significant) and for 'only active' membership it is 0.0242. Finding the explained variance[26] for each category of membership tells us that 21.4% of the variance in 'only active' voluntary association membership is attributable to between-country differences. For 'active and inactive' membership, 30.8% of the variance is explained by between-country differences and for 'only inactive' membership it is 16.9%. Most of the covariance terms are insignificant. In Model 2a for both 'active and inactive' membership there is a negative covariance of -0.1078 estimated between intercepts and slopes suggesting that countries with higher intercepts have less steep slopes.

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[23] Using MLwiN software, the models were fitted using marginal quasi-likelihood procedures and iterative generalized least squares estimation.

[24] Significance is assessed approximately using a Wald test. Ideally, a likelihood ratio test would be carried out but discrete response models in MLwiN are estimated using quasi-likelihood methods making the likelihood value unreliable (Rasbash et al. 2005: 113).

[25] To calculate odds ratios from the model coefficients we simply take the exponential of the coefficient.

[26] Multilevel models have fixed and random effects. These random effects are composed of both the Level 1 and Level 2 residuals, which together represent the total variance in the model. To work out how much of the variance either the Level 2 residuals explain, a simple calculation of Level 2 variance/total variance (Level 1 variance + Level 2 variance) produces the explained variance as a proportion. In logistic multilevel models the variance of the Level 1 residuals follow a logistic distribution with variance $\pi^2/3 = 3.29$. Therefore, the total variance in a logistic multilevel model is 3.29 + Level 2 variance and the explained variance = Level 2 variance/(Level 2 variance + 3.29).

Table 5:Unweighted Estimates of Logit Binomial Multilevel Regression for Voluntary Association Membership[27]

	Active only vs. Non-members				Inactive & Active vs. Non-members				Inactive only vs. Non-members			
	Model 1a		Model 1b		Model 2a		Model 2b		Model 3a		Model 3b	
Fixed Effects	β	Exp(β)	β	Exp(β)	β	Exp(β)	β	Exp(β)	β	Exp(β)	β	Exp(β)
Intercept	-1.6282(0.1638)***		-1.8022(0.1535)***		-1.7741(0.1906)***		-2.0613(0.1942)***		-0.9901(0.1426)***		-1.0170(0.1405)***	
Country												
Povety level			-0.0021(0.0556)	1.00			-0.0120(0.0820)	0.99			0.0333(0.0564)	1.03
GDP per capita			0.0089(0.0015)***	1.01			0.0099(0.0022)***	1.01			0.0038(0.0015)*	1.00
Average Religious Attendance			0.0263(0.0064)***	1.03			0.0249(0.0094)***	1.03			0.0022(0.0065)	1.00
Individual												
Income (Log 2)	0.0665(0.0205)**	1.07	0.0756(0.0230)***	1.08	0.0925(0.0237)***	1.10	0.1060(0.0277)***	1.11	0.0242(0.0208)	1.02	0.0271(0.0213)	1.03
Gender (Female)	0.0068(0.0331)	1.01	0.0067(0.0354)	1.01	0.0053(0.0310)	1.01	0.0014(0.0333)	1.00	-0.1911(0.0296)***	0.83	-0.1950(0.0298)***	0.82
Age	0.0666(0.0432)	1.07	0.0727(0.0464)	1.08	0.0605(0.0427)	1.06	0.0932(0.0463)	1.10	0.1999(0.0384)***	1.22	0.2038(0.0387)***	1.23
Age2	0.000(0.000)	1.00	0.000(0.000)	1.00	0.000(0.000)	1.00	0.000(0.000)	1.00	-0.0002(0.000)***	1.00	-0.0002(0.000)***	1.00
Years of Education	0.0552(0.0036)***	1.06	0.0605(0.0039)***	1.06	0.0820(0.0036)***	1.09	0.0947(0.0038)***	1.10	0.0358(0.0033)***	1.04	0.0368(0.0033)***	1.04
Religious Attendance	0.0135(0.0004)***	1.01	0.0147(0.0004)***	1.01	0.0089(0.0004)***	1.01	0.0102(0.0004)***	1.01	0.0031(0.0004)***	1.00	0.0032(0.0004)***	1.00
Labour Force Participation	0.2390(0.0333)***	1.27	0.2635(0.0356)***	1.30	0.3281(0.0324)***	1.39	0.3768(0.0349)***	1.46	0.2783(0.0303)***	1.32	0.2827(0.0306)***	1.33
Marital Status-Married	-0.1689(0.0332)***	0.84	-0.1821(0.0354)***	0.83	-0.1645(0.0317)***	0.85	-0.1873(0.0340)***	0.83	-0.0538(0.0298)	0.95	-0.0548(0.0300)	0.95
Marital Status-Separated	-0.2577(0.0462)***	0.77	-0.2836(0.0496)***	0.75	-0.2066(0.0444)***	0.81	-0.2420(0.0480)***	0.79	-0.0756(0.0403)	0.93	-0.0775(0.0406)	0.93
SES	-0.0138(0.0038)***	0.99	-0.0154(0.0041)***	0.98	-0.0150(0.0037)***	0.99	-0.0172(0.0040)***	0.98	-0.0089(0.0034)**	0.99	-0.0088(0.0035)*	0.99
Random Effects												
Level 2 Country	0.8692(0.1688)***		0.5808(0.1140)***		1.4232(0.2730)***		1.3675(0.2627)***		0.6408(0.1237)***		0.5819(0.1125)***	
Level 2 Income	0.0242(0.0082)**		0.0325(0.0104)**		0.0423(0.0116)***		0.0612(0.0158)***		0.0304(0.0088)***		0.0324(0.0092)***	
Level 2 Covariance Term	-0.0423(0.0274)		-0.0399(0.0253)		-0.0651(0.0410)		-0.1078(0.0482)*		-0.0261(0.0238)		-0.0143(0.0231)	

*p<0.05, **p<0.01, ***p<0.001 for Wald test

[27] Data shown in the table are regression coefficients with standard errors in parentheses followed by calculated odds ratios in adjoining columns.

Other individual covariates have effects in the expected direction and most are highly significant. We can see that the odds of voluntary association membership increase with years of education, religious attendance and labour force participation. The SES scale goes from higher status at 1 to lower status at 12, so as SES decreases, the odds of membership also decreases. The odds of married and separated individuals being 'only active' or 'only inactive' members are less than for single individuals. Gender and age coefficients are only significant in Model 3a and show that the odds of 'only inactive' membership are 17% less for women than for men and the odds of 'only inactive' membership increase by 22% with each 10 year increase in age. Due to the presence of the quadratic term, this age effect is only at the average age level. This model also picks up the quadratic term for age showing that the decrease in odds of 'only inactive' membership tails off at the upper end.

In Models 1b, 2b and 3b no significant poverty effects were identified although both control variables had significant effects. The odds of 'only active' membership increase by 0.8% with every $1,000 increase in GDP and by 2.6% with every one day increase in average religious attendance. Odds increases are similar for 'active and inactive' membership, odds increasing by 0.9% for increases in GDP and by 2.5% for increases in average religious attendance. For 'only inactive' membership, religious attendance has no significant effect and the odds of 'only inactive' membership increase by 0.3% for increases in GDP although this is only significant at the 0.05 level. The random effects associated with the model intercept all fall from Models A to Models B For 'only active' membership the random effect falls from 0.8692 to 0.5808, for 'inactive and active' membership it falls from 1.4232 to 1.3675 and for 'only inactive' membership it falls from 0.6408 to 0.5819. All these random effects are highly significant. The fixed and random effects associated with income increase from Models A to Models B. The odds for each membership category increase by 1%. For 'only active' membership the random effect increases from 0.0242 to 0.0325, for 'active and inactive' membership it increases from 0.0325 to 0.0612 and for 'only inactive' membership it increases from 0.0304 to 0.0324. The random effect associated with income increases from 0.0242 to 0.0325 for 'only active' membership, from 0.0423 to 0.0612 for 'active and inactive' membership and from 0.0304 to 0.0324 for 'only inactive' membership.

7. Discussion

The objectives of this study were to examine income and poverty effects on active and inactive voluntary association membership in 55 countries, investigate differences in these effects on different levels of membership and cross-nationally, and determine if any of this variability can be accounted for by differences in country-level poverty, controlling for other country-level covariates.

With regards to income effects, this study hypothesised that different strengths and directions of association may exist for different levels of active and inactive membership. The analyses reveal that income has a significant and positive relationship with two out of the three levels of membership: 'only active' membership, and 'active and inactive' membership. Odds increases are greater for 'active and inactive' membership although this could reflect the fact that individuals who are both active and

inactive members may be more frequent or more intense members. No relationship was found to exist between income and 'only inactive' membership. This highlights the importance of distinguishing between different levels of active and inactive membership.

This finding also supports claims made at the outset that the availability of financial resources to an individual can influence the chances of membership. We speculated that although voluntary association membership may not cost a lot, it does require certain financial resources that allow individuals the time and energy required to get involved. In addition to any membership fees or money required for donation of money or other material resources, membership may require access to a vehicle or money to pay for transportation to get to meetings, and/or babysitters or childminders to take on some of the family responsibilities that restrict parents' time. Although seemingly open access, this study shows that access to voluntary association membership is actually restricted by an individual's income level. Higher income levels privilege those individuals in their capacity to be active in voluntary associations and access the benefits of participation, such as access to networks, social trust and co-operation, and the ensuing opportunities and advantages that voluntary association membership offers (Putnam 1993; Curtis et al. 2001; Paxton 2002: Brehm and Rahn 1997).

Extending this argument to the active/inactive distinction, we would expect active membership to require more time and active involvement than inactive membership. Inactive membership may require some income to perhaps donate to the association or become a member in the first place, but it certainly doesn't require the same level of active commitment that relies so heavily on financial and material resources available to the individual. What is not clear is whether inactive membership can afford similar benefits to individuals or not. We assume here that it cannot. However, this is another question for investigation. This finding supports claims made at the outset about the importance of coding and categorising membership accurately to uncover the mechanisms that are at work. Making a distinction between members and non-members does not fully incorporate the distinction between active and inactive membership.

It can be argued that relationships found between income and active voluntary association could rely on personal character traits that can be found in higher income individuals. If being a higher earner produces more feelings of happiness and satisfaction, as is argued by Hagerty and Veenhoven (2003), this may result in feelings of self-reliance, responsibility and efficacy which increase the individual's community mindedness and willingness to cooperate. If happier, motivated, confident individuals are more likely to become higher income earners, then it is not clear whether these personal characteristics are responsible for earning a higher income and a greater chance of being an active voluntary association member. It is clear, however, that low income earners are less likely to be members of voluntary associations.

Having found that low income individuals are disadvantaged in their access to the benefits that membership affords, governments must be aware that policy initiatives seeking to improve co-operation and participation must be accessible to individuals at all income levels and make extra effort to include those low and medium income individuals who are less likely to become members. Membership fee waiving or free provision of babysitting or childminding services for low-income individuals could increase the

probability of membership. Secondly, this study has found that income matters to a lesser extent for inactive voluntary association membership. It is unclear, however, whether any benefits exist for individuals from inactive voluntary association membership. Further research is required to discover the actual differences, in terms of benefits, that exist between active and inactive voluntary association membership.

With regards to cross-national differences, this study found significant differences in the strength of association between individual income and voluntary association membership, signified by the large random effects associated with the model intercepts. The presence of a small but significant random effect for income in the models indicates that associations between different levels of membership and income also vary between countries. In an effort to explain this variation, this study examined the influence of country-level poverty, controlling for country-level economic development and religious attendance. The increase in the random effect for income from Models A to Models B reveals that the inclusion of these contextual variables leads to an increase in the between-country variation in the relationship between income and membership. If these country-level covariates were expected to explain some of the between-country variability in the relationship between income and membership, we would expect the random effect for income to be attenuated. Contrary to our expectations, however, the random effect for income increases. Therefore, including country-level poverty, GDP and average religious attendance in our model does not explain any of the between-country variability in income effects but makes this variability larger. An explanation for this could be that country context matters more than is hypothesised here. There may be other important contextual factors that need to be taken into consideration that may explain this variability. A better measure of income may also be needed to assess this finding more thoroughly. Further research and investigation is required to determine the cause of this phenomenon.

Although country-level poverty had no significant fixed effects on levels of membership, the two country-level control variables did pick up effects similar to those found in previous studies (Curtis et al. 2001, Ruiter and De Graaf 2006). Both the level of economic development and religious attendance increase the odds that individuals will be 'only active' voluntary association members or a mixture of 'active and inactive' members. Country-level religious attendance was not associated with 'only inactive' membership and the effect of economic development was very small and only moderately significant. The models seem to identify a mechanism that is only present for active membership, further supporting claims made about distinguishing between active and inactive membership. It seems that those characteristics of economically developed, religious countries that produce greater chances of 'only active' membership do not produce greater chances of 'only inactive' membership. The fixed and random effects associated with income increase from Models A to Models B suggesting that the effects of income on voluntary association membership are stronger and there is more between-country variation in the relationship between income and voluntary association membership when we include the country-level variables in the model. In addition, whilst these variables do not explain between-country variability in income effects they do

explain some of the between-country variability in average levels of voluntary association membership.

These findings support previous claims made about the importance of economic development for an active and engaged population (Inglehart & Baker 1997; Ruiter and De Graaf 2006). Arguments have been made that living in an economically developed country, individuals have greater access to the resources required to participate and also it is more likely that numerous voluntary associations will exist. This paper adds to previous literature the argument that economic development is only a predictor of 'only active' voluntary association membership or 'active and inactive' membership. It is not strongly associated with 'only inactive' membership.

This paper also corroborates findings that the more religious a country is in its churchgoing, the more likely individuals will be active in voluntary associations. It is not clear whether this is explained by the individuals' more charitable natures or the fact that many voluntary associations have religious roots. What is clear is that a connection has been discovered between religiosity of individuals and their level of voluntary activity (Ruiter and De Graaf 2006). Extending this to a contextual level, Ruiter and De Graaf (2006) found that the religiosity of the context, both in composition and average levels of attendance, influences individual membership levels. Using WVS data, they find that individuals in more religious societies have higher levels of unpaid work for voluntary organisations and, further, that differences between religious and non-religious people matter less in religious countries than in non-religious countries.

It is important to outline some of the study limitations to keep the findings of this paper in perspective. The first study limitation is concerned with the quality of the data collection for the World Values Survey. Very little documentation on the collection, preparation and weighting of the WVS data is available, which leaves researchers unsure of the true representativeness of the data. Inglehart et al. (1999: 467-476) admit that in some areas undersampling of individuals with certain characteristics (e.g. urban vs. rural, illiterate, non-educated) occurred.[28] This together with unclear weighting procedures makes it hard for researchers using WVS data to correct for this non-representativeness. Changes in the questionnaire and study process from year to year are also unclearly documented. By selecting country surveys close to the modal survey year, this study aimed to eliminate any inconsistencies resulting from year to year changes.

The second study limitation follows on from problems already outlined and is to do with the quality of the income measure in the WVS. The 10 point scale is a cause for concern as it is unclearly defined in the questionnaire and although designed to be cross-country comparable, is a relative scale determined by the range of incomes in each country.

The third study limitation is to do with the collection of country-level data. Although availability of data for the country in question was often not a problem, it was sometimes hard to find data for the precise survey year in question. It was then necessary to use data from the closest available year, which would sometimes be up to five years before or after the year in question. Although this may raise accuracy concerns, studies

[28] Looking at the characteristics of this study sample, women seem to be underrepresented.

have found that contextual measures are reasonable stable over time and so not using measures from the exact year in question might not be such of a problem (Kunz, Page, and Solon 2003). Where possible I also collected data for the five years preceding and following the survey year, and examined these for surprising or suspicious changes such as sudden increases or decreases or what could have been wrongly entered data. Whilst the Penn World Table was an excellent source for a measure of GDP, collecting poverty data was harder as it was clear that some countries over/underestimated their poverty rates. Ideally, poverty data would be collected by an independent body that clearly defines poverty and how it is to be measured. Poor and incomparable measurement may be the reason why this study failed to identify poverty effects.

Finally, it can be argued that using cross-sectional data makes strong and reliable inference difficult and the separation of contextual effects from individual effects tricky. However, a theoretical framework that suggests a contextual effect does exist, the inclusion of suitable variables and controls, and clarity about which level we should assign variables to, makes multilevel modelling an appropriate methodological approach. This does not offset the problems of using cross-sectional data but it does make this approach justifiable. Regardless of the limitations, this study highlights country differences in voluntary association membership and finds that while income matters for 'only active' membership and 'active and inactive' membership, it does not matter for 'only inactive' membership. This study finds that, contrary to expectations, country-level measures of poverty, economic development and average religious attendance do not explain any of the country-level variation in the relationship between income and membership but increase this variation. Additionally, in support of previous research, country-level economic development and average religious attendance are associated with greater odds of 'only active' and 'active and inactive' membership. They have small and non-existent effects respectively on 'only inactive' membership.

In conclusion, this study found both individual and contextual effects on voluntary association membership in 55 countries of the world. Separating membership into four different categories allowed for greater insight into income effects. Higher income was found to be associated with higher odds of 'only active' membership and with higher odds of 'active and inactive' membership versus non-membership. No association was found to exist between income and the odds of 'only inactive' membership. These relationships held with the inclusion of controls. The three country-level variables not only explained some of the overall between-country variation but also augmented the between-country variation in the relationship between income and voluntary association membership. Poverty was found to have no significant fixed effects whilst both economic development and average religious attendance had fixed effects on 'only active' and 'active and inactive' membership. Whilst the effect of economic development on 'only inactive' voluntary association membership was significantly lower, the effects of religious attendance disappeared completely. These findings reinforce hypotheses about the importance of examining contextual influences on individual social behaviours and confirm previous hypotheses that individual economic disadvantage negatively influences individuals in their capacity and ability to be active in voluntary associations and access the benefits that this membership holds. This adds support to claims that inequality in

economic advantage leads to the reproduction of these inequalities in other aspects of social life. This study identifies important differences in effects of income, country-level variables and some individual-level control variables for different levels of active and inactive membership, which support claims that distinctions between active and inactive membership must be made in studies of voluntary association membership if we want to understand the full extent of these effects.

CHAPTER 4. CONCLUSION

After introducing the background literature and methodology employed in Chapter 1, this study examined how individual and contextual economic factors affect voluntary association membership within Canada and cross-nationally. In Chapter 2, the 2003 Canadian General Social Survey and Census data on area income inequality and poverty were used to investigate how individual income level, area poverty and area income inequality affect voluntary association membership in Canada. A positive relationship was found to exist between individual income and voluntary association membership. A reasonably large negative relationship was also found between area poverty level and voluntary association membership. Furthermore, cross-level interactions reveal that income effects were moderated by area income inequality, whereby effects of income were slightly greater in those areas with low income inequality. The significance of these findings with regard to the effects of economic disadvantage denying access to benefits that voluntary association membership holds were discussed and the implications of this for social policy in Canada were outlined.

In Chapter 3, similar research questions were posed in a cross-national framework. Using World Values Survey data from 1981 to 2004 and country-level data on poverty, economic development and religious attendance, individual income and contextual poverty effects on voluntary association membership were examined across 55 countries. Using three different levels of membership (only active membership, only inactive membership, and a mixture of active and inactive memberships versus non-membership as a reference) individual income effects and contextual effects were identified that differed by level of membership. Increases in income were found to lead to increases in the odds of 'active and inactive' and 'only active' voluntary association membership. Income was found to have no significant effect on the likelihood of 'only inactive' membership. In all models, large random effects associated with average levels of voluntary association membership were found that could be partially explained by the inclusion of country-level poverty, economic development and average religious attendance. Small random effects associated with income were found showing that income effects on voluntary association also varied between countries. Contrary to expectations, the inclusion of country-level variables did not explain any of this variation in income effects but increased the variation. The significance of these findings with regard to the negative effects of economic disadvantage and the importance of differentiating between active and inactive membership were discussed.

This study as a whole offers new and interesting findings to the discipline of Sociology. Not only does this study focus on the individual effect of income level on membership but it also examines contextual influences on membership. The proposition that context influences and interacts with individual social behaviours is confirmed by these findings. This study shows that low income individuals in Canada and across the world are disadvantaged in their capacity to become voluntary association members. Previous studies have not investigated fully the impact of income on voluntary association membership and further research must be carried out to uncover why low income disadvantages individuals and what can be done to counter these effects. This

study shows that area and country level economic characteristics influence voluntary association membership in a way that must be acknowledged if we are to fully understand the effects of poverty and economic disadvantage on membership. More specifically, this study confirms hypotheses that, in Canada, individual economic disadvantage and area poverty negatively influence individuals in their capacity and ability to be active in voluntary associations and access the benefits that this membership holds. Although the effects of contextual economic disadvantage could not be confirmed in the cross-national comparison, hypotheses about the effects of individual economic disadvantage on membership held in a cross-national context. Strengthening arguments about the importance of examining the influence of economic characteristics on membership, this study also finds area income inequality effects that moderate the relationship between income and membership in Canada. This finding shows that the positive relationship between income and membership is strengthened slightly in areas of low inequality. Higher income individuals in equal areas are more likely to be voluntary association members and so have more access to the benefits membership confers.

What makes this study relevant is the evidence it provides in support of claims that inequality in economic advantage leads to the reproduction of these inequalities in other aspects of social life. Individual income, area poverty and income inequality are all found to affect voluntary association membership in a way that privileges individuals with access to economic resources. The poor and poorer areas are disadvantaged in a way that seems unjust. It could be argued that poor individuals and areas would benefit most from the interpersonal trust, co-operation, and access to job opportunities and social mobility that voluntary association membership has been found to foster and promote. Equally, if membership does lead to higher levels of civic and political engagement then poorer individuals and areas may be unable to raise a political voice and represent themselves. Further research must be conducted to uncover the full extent of the effects of economic disadvantage on voluntary association membership cross-nationally and to see how far these findings can be generalised to other forms of social behaviour. This study presents some important preliminary findings which merit further investigation.

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