

# The Changing Effects of Community Characteristics on Volunteering in Canada

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Dans cet article, j'analyse, à l'aide des données de l'Enquête canadienne sur le don, le bénévolat et la participation (cycle 2004 et cycle 2007), les effets de certaines caractéristiques des communautés sur le bénévolat que font leurs habitants. Une fois plusieurs facteurs individuels neutralisés, les résultats démontrent qu'en 2004 le bénévolat diminuait en fonction de la taille de la population, de l'importance des inégalités de revenus et de la proportion d'habitants nés à l'étranger. Par contre, les chiffres de 2007 indiquent que ces caractéristiques n'avaient aucun effet significatif sur le bénévolat, ce qui suggère que les grandes villes canadiennes gèrent de mieux en mieux l'augmentation des inégalités de revenus et la diversité des lieux de naissance de leurs habitants.

**Mots clés :** bénévolat, communautés, inégalités de revenus, immigrants

This paper examines the effects of community characteristics on volunteering using data from two cycles of the Canadian Survey of Giving, Volunteering and Participating (2004 and 2007). Controlling for many individual factors, we find evidence that in 2004, volunteering was decreasing in population, income inequality, and shares of foreign-born residents. For 2007, there is no evidence that any of the community characteristics had significant effects, suggesting that Canada's large communities were coping increasingly well with rising income inequality and birthplace diversity.

**Keywords:** volunteering, communities, income inequality, immigrants

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## INTRODUCTION

Diversity is increasing in Canada. Between 2001 and 2006, the population rose by 5.4 percent, from 29.6 to 31.2 million (Statistics Canada, 2001 and 2006 Censuses). However, while the number of domestically born Canadians increased by 3.3 percent, the number of foreign born increased by 13.6 percent, bringing the overall share of foreign born to nearly one in five. Foreign-born shares are especially high in Canada's large communities,

such as Toronto and Vancouver, where almost one in two residents is now born abroad. An examination of Canada's income distribution reveals that income inequality is also increasing, especially in large communities. In light of these trends, an important policy issue is how well Canada's large communities are coping with rising birthplace and income heterogeneity.

In this paper, we examine the effects of community characteristics on volunteering, where volunteering

is defined as unpaid labour provided to non-profit organizations. Specifically, we focus on the effects of population, income inequality, and the share of residents who are foreign born. We choose volunteering as our outcome of interest because volunteering is a mechanism that many people use for making contributions to their communities. In 2007, 46 percent of Canadians aged 15 or older volunteered.

The data were obtained from the 2004 and 2007 cycles of the Canadian Survey of Giving, Volunteering and Participating (CSGVP). Each cycle contains information on the volunteering of over 20,000 respondents across Canada. However, to identify the effects of community characteristics, we focus on the volunteering of people living in communities corresponding to census metropolitan areas/census agglomerations (CMAs/CAs) defined by Statistics Canada's 2006 Census. This gives a sample of 12,436 people living in one of 58 communities for 2004 and 13,980 people living in one of 140 communities for 2007. Community characteristics for respondents were determined by cross-referencing their reported CMAs/CAs with community profiles prepared by Statistics Canada using the census data. The community profiles are readily available on Statistics Canada's website.

The results on the effects of individual characteristics, including gender, age, education, income, religion, family, employment, and immigration status, are generally consistent with previous results in the literature ([Apinunmahakul, Barham, and Devlin 2009](#); [Apinunmahakul and Devlin 2008](#); [Brown and Ferris 2007](#); [Day and Devlin 1996](#); [Freeman 1997](#); [Menchik and Weisbrod 1987](#); [Pho 2008](#); [Sundeen, Garcia, and Raskoff 2009](#); [Vaillancourt 1994](#)). A number of the cited studies also examine the effect of community population. However, they do so without considering the effects of other community characteristics.

Regarding community characteristics, in the 2004 data, volunteering is decreasing in population,

income inequality, and foreign-born shares. High correlation between the three characteristics decreases the magnitudes and increases the standard errors of the estimates in an unrestricted model. However, models including only income inequality or foreign-born shares perform better than a model including only population, contrasting previous studies finding that volunteering is decreasing in population.

In the data from 2007, there is no evidence that volunteering is decreasing in any of population, income inequality, or foreign-born shares. One explanation is that the effects found in the data from 2004 are not robust to changing the sample. Another interpretation is that Canada's large communities are coping well with rising income inequality and foreign-born shares. The latter interpretation suggests that efforts to promote social integration by sponsoring cultural festivals such as Toronto's Caribana and Vancouver's Chinatown Festival, among other initiatives, are beneficial. In either case, further research is needed to better understand the relationship between volunteering and community characteristics, possibly by using more data as the information becomes available.

A potential concern is that the estimates of the effects of community characteristics in 2004 are biased by the endogenous selection of community of residence. Examining this possibility, we partition the data into observations from large and small communities, mitigating the effect of community choice by comparing volunteering across similar communities. While there is evidence that the negative effect of population may be an artifact of endogenous sorting, we do not find similar evidence regarding the estimated effects of income inequality and foreign-born shares.

We contribute to the literature on volunteering by identifying the effects of multiple community characteristics while controlling for many individual factors. We examine how these effects have varied

over time. The failure to find that population was associated with lower propensities for volunteering in 2007 contrasts with previous studies reporting that volunteering is decreasing in population. Finally, we also consider an important policy issue by examining how well Canada’s large communities are coping with rising income inequality and foreign-born shares.

Our paper is most similar in focus to the work of Clark and Kim (2009), who examine the effects of income inequality, ethnic diversity, and language and birthplace heterogeneity on volunteering in New Zealand. Communities are defined by census tract (a few hundred people), precisely capturing the community characteristics facing individuals. However, the data are aggregated to the level of census tract, so it is not possible to control for confounding individual factors or determine if community characteristics affect different people in different ways. In addition, Clark and Kim (2009) do not find significant differences in the effects of community characteristics over time.

The results contribute to a broader literature on the effects of population heterogeneity. Income inequality and/or ethnic diversity have been found to have negative effects on participation in the community (Alesina and La Ferrara 2000; La Ferrara 2002; Okten and Osili 2004), spending on public services (Alesina, Baqir, and Easterly 1999; Miguel and Gugerty 2005), trust (Alesina and La Ferrara 2002; Zak and Knack 2001), and growth rates (Alesina and La Ferrara 2005; Zak and Knack 2001). Relatedly, Vigdor (2004) reports that income inequality and ethnic diversity are associated with decreased census response rates, which are important determinants of federal transfers to communities.

The remainder of the paper is organized as follows. The next section outlines the empirical strategy, and the third section describes the data. The fourth section presents the results, and the final section concludes.

## EMPIRICAL STRATEGY

Suppose that people receive utility from consumption ( $c$ ), leisure ( $l$ ), and volunteering ( $v$ ). Volunteering increases utility due to the emotional and psychological benefits associated with helping others, as in Andreoni’s theory of warm-glow giving (Andreoni 1990). Utility can be written as

$$u = u(c, l, v). \tag{1}$$

People choose  $c$ ,  $l$ , and  $v$  to maximize  $u(\cdot)$  subject to the time constraint

$$c + l + v = 1, \tag{2}$$

where the endowment of time is normalized to 1, and time is allocated between  $l$ ,  $v$ , and providing paid labour that earns income entirely spent on  $c$ . Prices and units of  $c$  are normalized such that a unit of  $l$  forgone to provide paid labour is exchanged for one additional unit of  $c$ .

The latent variable  $y^*$ , representing willingness to volunteer, is related to  $v$  in the following way:  $v > 0 \leftrightarrow y^* > 0$  and  $v = 0 \leftrightarrow y^* \leq 0$ . However,  $y^*$  is unobserved by the researcher. The binary decision about being a volunteer made by individual  $i$  residing in community  $c$  located in province  $p$  is captured by  $y_{icp}$ . Specifically,

$$\begin{aligned} y_{icp} &= 1 \text{ if person } i \text{ volunteers, and} \\ y_{icp} &= 0 \text{ if person } i \text{ does not volunteer,} \end{aligned} \tag{3}$$

where  $y_{icp}$  is observed, and serves as the dependent variable in all regressions. We assume that  $y_{icp}$  is determined by  $y_{icp}^*$ , which is specified as follows:

$$y_{icp}^* = X_i\beta + H_c\gamma + P_p\pi + \varepsilon_{icp}, \tag{4}$$

where  $X_i$ ,  $H_c$  and  $P_p$  are vectors of individual and community characteristics, and province dummy variables;  $\beta$ ,  $\gamma$ , and  $\pi$  are vectors of coefficients, and  $\varepsilon_{icp}$  is the error term. Assuming that  $y_{icp} = 1$  if

$y_{icp}^* > 0$  and  $y_{icp} = 0$  if  $y_{icp}^* \leq 0$ , we can estimate the parameters of the binary choice model ( $X_i$ ,  $H_c$  and  $P_p$ ) using the observed values of  $y_{icp}$ .

Rather than pooling the data across survey years (2004 and 2007), the model is estimated using the data from each survey year separately. We initially focus on the effects of individual characteristics by setting  $H_c = 0$  in equation (4), and then estimate the full model specified by equations (3) and (4) to determine the effects of community characteristics. We hypothesize that population, income inequality, and foreign-born shares have negative effects on volunteering. The rationale is that when people are different from each other, social integration is reduced, and people have a lower willingness to contribute to the community by volunteering. We test the hypotheses by estimating the effects of population, the Gini coefficient, and foreign-born shares.

## DATA

The data on volunteering and individual characteristics are from the 2004 and 2007 cycles of the Canadian Survey of Giving, Volunteering and Participating (CSGVP).<sup>1</sup> The survey was given to over 20,000 people across Canada (aged 15 and above) in each survey year and reports information regarding the nature of their volunteering activities (if any) over the previous 12 months. People are categorized as volunteers or non-volunteers based on whether they report performing specific activities for non-profit organizations. In particular, they are asked, "In the past 12 months, did you do any of the following activities without pay on behalf of a group or an organization? This includes any unpaid help you provided to schools, religious organizations, sports or community associations. Did you do any (fundraising/teaching/coordinating/office work/coaching/driving/etc.)?" Having respondents report whether they performed such activities is thought to give a more accurate categorization of respondents as volunteers or non-volunteers than simply asking if they volunteered.

While the categories of activities are somewhat informative, a limitation is that they do not make it entirely clear whether people volunteered for causes in which they have personal stakes or causes mainly benefiting the broader community. Respondents categorized as volunteers are asked to name the organization for which they primarily volunteered. However, even with this information, it is difficult to determine the extent to which people have personal stakes. If people volunteer at a nursing home, for example, it is not clear whether they do so because relatives of theirs reside there.

Furthermore, while the 2007 survey included some questions on informal volunteering or "helping," which is defined as unpaid labour provided to individuals (friends, neighbours, and relatives) rather than organizations, both surveys potentially miss important ways of making contributions to the community. The main shortcoming is that helping individuals living in the same residence is excluded. As a result, caring for elderly family members at home instead of having them enter the public health-care/long-term care system (a decision that surely benefits the community) is overlooked.

The surveys include a large amount of information about respondents, including whether they are foreign born, and if so, when they came to Canada. Ethnicity, however, is captured coarsely, with about a third of respondents falling into the "other" category. It is for this reason that we focus on the effects of being foreign born rather than on ethnicity.

People aged 15–19 were removed from the data set because many Canadian teenagers perform volunteer service as a requirement of their high school education. In addition, there is some uncertainty regarding the accuracy of reported characteristics such as household income for these individuals.

The CSGVP classifies respondents as living in a specific urban centre or in a rural area. For the 2004 survey, 58 of the 66 urban centres correspond to CMAs/CAs included in the 2006 Census. Thus,

the 2004 data consist of 12,436 observations from people aged 20 and above living in one of 58 communities, where “communities” are measured at the level of the CMA/CA. All 140 urban centres included in the 2007 survey correspond to CMAs/CAs from the 2006 Census, giving another 13,980 observations from people living in one of 140 communities. The 58 communities from the 2004 survey are a subset of the 140 communities included in the 2007 survey.

While [Clark and Kim \(2009\)](#) find evidence that the definition of a community (in terms of geographic size) affects results on community characteristics, [Alesina, Baqir, and Easterly’s \(1999\)](#) results are robust to how communities are defined. In this paper, the definition of a community is constrained by the level of geographic specificity provided by the CSGVP. In practical terms, defining a community as the region enclosing a person’s home, workplace,

and perhaps the places where one conducts daily activities such as shopping seems appropriate.

Community profiles based on the census data are readily available through Statistics Canada’s website. The community profiles report detailed characteristics, including population, the distribution of household income, and the share of foreign-born residents. Summary statistics for the communities from the 2004 and 2007 surveys are given in [Table 1](#). The frequency distribution of population is skewed due to the large populations of communities like Toronto, Montreal, and Vancouver. In 2007, the survey included a higher proportion of small communities, adding places such as Hawkesbury, Ontario, and Canmore, Alberta. The community profiles report household income in intervals; the midpoint of each interval was assumed in calculating various measures of

**TABLE 1**  
Summary Statistics of Community Characteristics

	<i>Mean</i>	<i>Median</i>	<i>Std. Dev.</i>	<i>Min.</i>	<i>Max.</i>	<i>n</i>
<i>2004</i>						
Population	389,000	119,500	853,500	11,000	5,113,100	58
Gini coefficient	0.351	0.350	0.022	0.291	0.423	58
Foreign-born share	0.110	0.079	0.091	0.007	0.457	58
<i>2007</i>						
Population	178,000	40,200	566,800	9,000	5,113,100	140
Gini coefficient	0.342	0.342	0.024	0.262	0.423	140
Foreign-born share	0.089	0.076	0.074	0.007	0.457	140
<i>2004 Large Communities (populations &gt;1,000,000)</i>						
Population	2,351,700	1,623,700	1,683,600	1,034,900	5,113,100	6
Gini coefficient	0.391	0.393	0.030	0.350	0.423	6
Foreign-born share	0.277	0.221	0.120	0.181	0.457	6
<i>2004 Small Communities (populations &lt;1,000,000)</i>						
Population	162,900	92,600	175,700	11,000	715,500	52
Gini coefficient	0.346	0.346	0.016	0.291	0.380	52
Foreign-born share	0.090	0.075	0.065	0.007	0.244	52

Source: Author’s calculations.

income inequality, such as Gini coefficients.<sup>2</sup> In average communities, about 8 percent of residents are foreign born. However, this share increases significantly in large communities, where nearly half the population is foreign born.

The community characteristics are positively correlated. For the communities in the 2004 (2007) sample, the correlations between population and Gini coefficients, population and foreign-born shares, and Gini coefficients and foreign-born shares are 0.63 (0.44), 0.73 (0.61), and 0.65 (0.40). The high correlation increases the standard errors of the estimated effects of each characteristic. As a result, characteristics are added to the regression model (specified by equations (3) and (4)) one at a time.

## RESULTS

Volunteering decisions are initially regressed on individual characteristics and province dummies without including the community variables. That is, we estimate the parameters of equation (4) under the restriction that  $H_c = 0$ . While logit and probit specifications are natural choices for estimating binary choice models, evidence suggests that non-linear models with fixed effects are inconsistent in short panels (our model has fixed effects as a result of including the province dummies).<sup>3</sup> As a result, we use a linear probability model estimated by feasible generalized least squares to correct for heteroskedasticity and correlated outcomes within communities. In addition, predicted probabilities outside of the interval from zero to one do not appear to be a concern in this application; less than 1 percent of the predicted probabilities are less than zero or greater than one.<sup>4</sup>

The model is estimated using the data from each survey year separately due to significant evidence that the estimated coefficients are different across the survey years (F-test  $p < 0.01$ ). The finding is robust to restricting the set of communities for 2007 to those included in the 2004 sample, indicating that

the differences are not attributable to the inclusion of a higher proportion of small communities in the 2007 sample. Each regression includes categorical variables, making it necessary to choose a reference group. The reference group is single, employed, non-religious males in Ontario (Canada's largest province) with high school educations and no children living in their households, who have lived in their communities for at least ten years, speak English as their mother tongue and were born in Canada. Age and the square of age are included, accounting for non-linear effects. The logarithm of household income and its square are also included. Dummy variables for each province control for regional differences. Finally, we include two interaction terms. The first is between being foreign born and the number of years since migration to Canada. The second is between speaking French as a mother tongue and the Quebec dummy variable, allowing the effect of speaking French as a mother tongue to be different in Quebec than in the other provinces. The results are reported in [Table 2](#).

For the most part, the effects of individual characteristics are consistent across the survey years and with previous results in the literature. For example, there is a gender difference, with females almost 4 percentage points more likely to volunteer than males. Though marital status does not have strong effects, people with children are much more likely to volunteer. Education has large effects, but labour status does not.

Living in a community for less than ten years, speaking a foreign mother tongue (not English or French), and being foreign born are all associated with lower rates of volunteering. The interaction between being foreign born and the number of years since migration suggests that the volunteering decisions of the foreign born approach those of the domestically born after a sufficient amount of time in Canada.<sup>5</sup>

The primary differences across survey years are in the effects of having children ( $p = 0.05$ ), having

TABLE 2  
The Effects of Individual Characteristics on the Decision to Volunteer

Dependent Variable: Volunteer (1 if yes; 0 otherwise)

Independent Variables	2004		2007	
	Coeff.	Std. Err.	Coeff.	Std. Err.
Female (=1 or 0)	0.040***	0.012	0.034***	0.013
Age (in years)	0.004*	0.002	0.002	0.002
Square of age divided by 100	-0.005**	0.002	-0.002	0.002
Married (=1 or 0)	0.014	0.017	0.026	0.019
Separated or divorced (=1 or 0)	-0.027	0.023	-0.015	0.025
Widow or widower (=1 or 0)	-0.015	0.028	-0.026	0.029
Children (=1 or 0)	0.068***	0.015	0.119***	0.016
Log of household income	-0.075**	0.033	-0.316***	0.014
Square of the log of household income	0.006***	0.002	0.018***	0.005
Less than high school (=1 or 0)	-0.0149***	0.021	-0.103***	0.022
Some post-secondary (=1 or 0)	0.050*	0.029	0.100***	0.031
Post-secondary diploma (=1 or 0)	0.044**	0.018	0.080***	0.019
University degree (=1 or 0)	0.162***	0.020	0.179***	0.020
Protestant (=1 or 0)	0.147***	0.018	0.079***	0.019
Catholic (=1 or 0)	0.039**	0.018	0.027	0.018
Other religion (=1 or 0)	0.054*	0.028	0.032	0.030
Unemployed (=1 or 0)	0.023	0.048	-0.007	0.049
Not in the labour force (=1 or 0)	0.020	0.015	0.018	0.015
Living in the community less than 10 years (=1 or 0)	-0.040***	0.014	-0.032**	0.014
Foreign mother tongue (not English or French) (=1 or 0)	-0.051**	0.021	-0.079***	0.023
Foreign born (=1 or 0)	-0.123***	0.028	-0.121***	0.031
Foreign born x years since migration	0.003***	0.001	0.003***	0.001
Mother tongue is French (=1 or 0)	0.092**	0.036	-0.053	0.034
Mother tongue is French x Quebec (=1 if resident of Quebec; 0 otherwise)	-0.0151***	0.045	0.010	0.032
Quebec dummy variable (=1 or 0)	-0.063***	0.028	-0.047*	0.026
Dummies for other provinces	yes		yes	
<i>n</i>	12,436		13,980	
R2	0.1149		0.1035	

Notes: Observations are weighted according to their survey weights. Standard errors are robust and clustered by community.

\*\*\* $p < .01$ . \*\* $p < .05$ . \* $p < .1$ .

Source: Author's calculations.

some post-secondary education ( $p = 0.09$ ), being Protestant ( $p = 0.01$ ), the log of household income ( $p = 0.04$ ), the square of the log of household income ( $p = 0.05$ ), speaking French as a mother tongue ( $p = 0.01$ ), and the interaction between speaking French as a mother tongue and the Quebec dummy variable ( $p = 0.02$ ). Regarding the differing coefficients for the latter two effects, jointly identifying the effects of speaking French as a mother tongue and the French/Quebec interaction term is confounded by high correlation among the relevant variables: the correlations between speaking French as a mother tongue and the French/Quebec interaction, and between the Quebec dummy variable and the French/Quebec interaction are 0.85 and 0.86, respectively. However, the coefficients still provide similar estimates of the effects of speaking French as a mother tongue while residing in Quebec ( $0.092 + (-0.151) + (-0.063) = -0.122$  for 2004 and  $-0.053$

$+ 0.010 + (-0.047) = -0.090$  for 2007), which is suggestive of a cultural difference between English and French Canadians. Lastly, we emphasize that some of the differences in coefficients are likely due to simple statistical variation.<sup>6</sup>

We now add community characteristics to estimate the vector of parameters  $H_c$  from equation (4). The individual characteristics from the basic specification (in which we imposed the restriction that  $H_c = 0$ ) are included as controls and are robust to adding the community variables. The results using the 2004 data are given in Table 3.

Specification (1) includes the logarithm of population, finding that a 100 percent increase in population is associated with a 1.5 percent decrease in the propensity to volunteer. Though the magnitude seems small, the importance is clear when

TABLE 3  
The Effects of Community Characteristics on the Decision to Volunteer in 2004

Dependent Variable: Volunteer (1 if yes; 0 otherwise)						
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)
Log of population	-0.015*** (0.005)	-	-	-	-0.003 (0.013)	-0.006 (0.013)
Gini coefficient	-	-0.647*** (0.232)	-	-	-0.310 (0.546)	-0.293 (0.546)
Foreign-born share	-	-	-0.170*** (0.063)	-0.128* (0.068)	-0.063 (0.200)	0.000 (0.202)
Foreign-born share x Foreign born	-	-	-	-0.170 (0.114)	-	-0.175 (0.114)
Individual factors	yes	yes	yes	yes	yes	yes
Province dummies	yes	yes	yes	yes	yes	yes
<i>n</i>	12,436	12,436	12,436	12,436	12,436	12,436
R <sup>2</sup>	0.1161	0.1162	0.1162	0.1166	0.1162	0.1166
F-test <i>p</i>	0.3366	0.4052	0.4415	0.7831	0.1261	-

Notes: Observations are weighted according to their survey weights. Standard errors reported in parentheses are robust and clustered by community.

\*\*\* $p < .01$ . \*\* $p < .05$ . \* $p < .1$ .

Source: Author's calculations.

one considers the variation in population across Canadian communities (from 9,000 to 5,113,100 in our sample). In specification (2), we add the Gini coefficient. The estimate indicates that a one unit increase in the Gini coefficient is associated with a 65 percentage point decrease in volunteering propensity. However, it is important to put the magnitude into perspective, considering the small variation in Gini coefficients across communities. Another way of interpreting the effect is that a two standard deviation increase in the Gini coefficient is associated with a 2.9 percentage point decrease in volunteering propensity.<sup>7</sup>

Specification (3) includes the foreign-born share, finding that a unit increase in the foreign-born share is associated with a 17 percentage point decrease in the propensity to volunteer. This implies that a two standard deviation increase in foreign-born share is associated with a 3.1 percentage point decrease in volunteering propensity. In specification (4), the interaction between being foreign born and the foreign-born share is added to determine if the effect of the foreign-born share is different for foreign-born Canadians. The interaction effect is large in magnitude, but not statistically significant.

Specification (5) includes all three community characteristics. The high correlation among characteristics decreases the magnitudes and precision of the estimates. However, all three effects retain the expected sign. The effect of the Gini coefficient, in particular, is still about half as large as when it is the only community characteristic included, as in specification (2). The three characteristics are jointly significant (F-test  $p = .04$ ). Finally, in specification (6), the foreign-born interaction term is also included. Again, none of the effects are individually significant, in spite of the fact that the four effects are jointly significant (F-test  $p = 0.04$ ), paralleling the result from specification (5).

We also use F-tests for comparing the specifications. Treating specification (6) as the unrestricted model, we calculate F-test  $p$ -values for the linear

restrictions implied by each of the five restricted models. Comparing specifications (1) to (3), none of the F-tests are statistically significant. However, the  $p$ -values indicate that specification (3) (based on the foreign-born share) most closely matches the unrestricted model, followed by specification (2) (based on the Gini coefficient). The ordering is the same if specifications (1) to (3) are compared using specification (5) as the unrestricted model (F-test  $p = 0.5498, 0.7875, 0.8221$ ).

In Table 4, we present the same set of regression specifications as in Table 3, but estimate them using the data from 2007. The coefficients are in general much smaller than for 2004 and are not statistically significant. The F-test  $p$ -values are calculated using specification (6) as the unrestricted model, but the ordering of specifications (1) to (3) is the same if specification (5) serves as the unrestricted model.

Comparing coefficients across survey years, we find that the effects of population in specification (1), the Gini coefficient in specification (2), and the foreign-born share in specification (3) are all smaller in magnitude for 2007 than for 2004 (F-test  $p = 0.03, p = 0.03, \text{ and } p = 0.04$ ). These findings are robust to restricting the data for 2007 to observations from communities included in the 2004 sample, indicating that the differences across survey years are not because the 2007 sample includes a higher proportion of observations from people living in small communities.

Basically, what happened between 2004 and 2007 is that volunteer rates increased in large communities (from 41.1 to 43.1 percent) and decreased in small communities (from 46.4 to 45.6 percent). Furthermore, the difference between large and small communities in 2004 is better explained by income inequality and/or birthplace diversity than by population.

An important issue is whether the results from 2004 are an artifact of the endogenous choice of community of residence. For example, if people

TABLE 4  
The Effects of Community Characteristics on the Decision to Volunteer in 2007

Dependent Variable: Volunteer (1 if yes; 0 otherwise)						
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)
Log of population	-0.003 (0.004)	-	-	-	-0.004 (0.009)	-0.005 (0.009)
Gini coefficient	-	-0.127 (0.218)	-	-	-0.059 (0.481)	-0.049 (0.482)
Foreign-born share	-	-	-0.033 (0.059)	-0.014 (0.065)	0.030 (0.158)	0.061 (0.163)
Foreign-born share x Foreign born	-	-	-	-0.086 (0.118)	-	-0.094 (0.119)
Individual factors	yes	yes	yes	yes	yes	yes
Province dummies	yes	yes	yes	yes	yes	yes
<i>n</i>	13,980	13,980	13,980	13,980	13,980	13,980
R2	0.1035	0.1035	0.1035	0.1036	0.1036	0.1037
F-test <i>p</i>	0.8818	0.8351	0.8275	0.8268	0.4281	

Notes: Observations are weighted according to their survey weights. Standard errors reported in parentheses are robust and clustered by community.

\*\*\* $p < .01$ . \*\* $p < .05$ . \* $p < .1$ .

Source: Author's calculations.

with a higher natural inclination for volunteering tended to live in small, more homogeneous communities, then it would appear that population, income inequality, and foreign-born shares decreased volunteering when there were no true effects. To mitigate the potential for spurious findings, we partitioned the data into observations from people living in large and small communities (summary statistics for the large and small communities are given in Table 1). The large communities are Canada's six cities with populations of over 1,000,000: Toronto, Montreal, Vancouver, Calgary, Edmonton, and Ottawa-Gatineau. Partitioning the data weakens identification by reducing degrees of freedom and decreasing variation in the independent variables. However, the method is used simply for examining

the robustness of the findings, not as a primary strategy. The regression results are reported in Table 5.

In specifications (1) and (2), we include the logarithm of population in regressions estimated using the data from the large and small communities. The effect of population is larger (in magnitude) for the large communities than for the small ones (F-test  $p < 0.01$ ). While this could be indicative of population having a non-linear effect, we failed to find significant evidence of a non-linear effect in a previous specification (not shown) estimated using all of the data from 2004. Instead, the estimates suggest that the previously reported result (in Table 3) regarding the effect of population could be due to endogenous sorting.

**TABLE 5**  
The Effects of Community Characteristics on the Decision to Volunteer in 2004 by Community Size

Dependent Variable: Volunteer (1 if yes; 0 otherwise)						
Independent Variable	(1)	(2)	(3)	(4)	(5)	(6)
Log of population	-0.062** (0.027)	-0.008 (0.013)	-	-	-	-
Gini coefficient	-	-	-0.908** (0.434)	-0.494 (0.764)	-	-
Foreign-born share	-	-	-	-	-0.330** (0.150)	-0.011 (0.269)
Individual factors	yes	yes	yes	yes	yes	yes
Province dummies	yes	yes	yes	yes	yes	yes
Large communities (populations >1,000,000)	yes	no	yes	no	yes	no
Small communities (populations <1,000,000)	no	yes	no	yes	no	yes
<i>n</i>	5,461	6,975	5,461	6,975	5,461	6,975
R <sup>2</sup>	0.1144	0.1300	0.1138	0.1301	0.1143	0.1299

Notes: Observations are weighted according to their survey weights. Standard errors reported in parentheses are robust and clustered by community.

\*\*\**p* < .01. \*\**p* < .05. \**p* < .1.

Source: Author’s calculations.

Specifications (3) and (4) include the Gini coefficient. Estimating the effect of income inequality in the small communities is confounded by small variation in the Gini coefficients. However, the effect is still large in magnitude. Furthermore, we fail to find evidence of a difference in the effect of income inequality between the large and small communities (F-test *p* = 0.59), suggesting that the result on the effect of income inequality (reported in Table 3) is not because of endogenous sorting.

Finally, specifications (5) and (6) include the foreign-born share. The estimate of the effect in small communities has a high standard error, and we do not find evidence of a difference in the effect of foreign-born shares between large and small

communities (F-test *p* = 0.17). As a result, we do not conclude that the finding (reported in Table 3) regarding the effect of foreign-born shares is due to endogenous sorting. Admittedly, however, this could be simply because the estimates lack precision.

### CONCLUSION

In this paper, we examine the effects of community characteristics on volunteering using data from two cycles (2004 and 2007) of the Canadian Survey of Giving, Volunteering and Participating. In the data from 2004, volunteering is decreasing in population, income inequality, and foreign-born shares. In the data from 2007, however, none of the community

characteristics have significant effects. While the differences could be due to sampling, we interpret the results as evidence that Canada's large communities are coping well with rising income inequality and foreign-born shares. In either case, it seems that further research on the relationship between volunteering and community characteristics is needed.

We contribute to the literature on volunteering in Canada, which has previously emphasized the negative effect of population, in a number of ways. First, using the data from 2004, we show that models including only income inequality or foreign-born shares perform better than a model including only population. Second, none of the effects of community characteristics are significant using the data from 2007, suggesting that the effects of community characteristics have changed over time. Finally, we provide evidence on how well Canada's large communities are coping with increasing diversity, which is an important policy issue.

A limitation of our study is that informal volunteering (sometimes referred to as "helping"), which may serve as a substitute for formal volunteering, is not included in the analysis. In particular, helping family members living in the same residence, including the elderly and children with disabilities, is not captured by the CSGVP. Results on volunteering could be confounded by differing propensities for helping across different segments of the population. However, it seems unlikely that changes in helping behaviour between 2004 and 2007 could be the underlying explanation for the main results. Commitments to help family members typically occur over time horizons longer than three years.

## NOTES

This paper is based on research I conducted while a PhD student in Economics at the University of Calgary. I am grateful to Ana Ferrer for her guidance on the project. I also appreciate the helpful comments and suggestions of Chris Auld, Subhasish Dugar, Stuart Mestelman, and Robert Oxoby. The paper benefited greatly from feedback

provided by three anonymous referees. Finally, I would like to thank Charlie Victorino, who does an excellent job of running the Prairie Regional Research Data Centre (RDC), located on the University of Calgary campus.

While the research and analysis are based on data from Statistics Canada, the opinions expressed do not represent the views of Statistics Canada.

<sup>1</sup> The CSGVP is conducted by Statistics Canada every three years. The survey replaced the National Survey of Giving, Volunteering and Participating, conducted in 1997 and 2000 as a part of the Labour Force Survey.

<sup>2</sup> Other measures of income inequality (the variance of household income, the mean divided by the median, and the Hoover, Theil, and Atkinson indices) all gave similar results, so we focus on the Gini coefficient.

<sup>3</sup> See [Greene \(2012, 721-28\)](#) for a discussion about estimating binary choice models with fixed effects.

<sup>4</sup> We nevertheless ran logit and probit specifications, finding that the results are very similar. The regressions are available upon request.

<sup>5</sup> An alternative explanation is that foreign-born people who came to Canada earlier in life (and therefore, by definition, have a larger number of years since migration than otherwise comparable foreign-born people) are more likely to volunteer than foreign-born people who came to Canada later in life. This explanation is consistent with [Sundeen, Garcia, and Raskoff \(2009\)](#).

<sup>6</sup> The result that the overall set of coefficients is different across survey years is robust to dropping speaking French as a mother tongue and the French/Quebec interaction term from the model.

<sup>7</sup> A specification replacing the Gini coefficient with median household income to determine the effect of community affluence finds no significant effect.

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