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The Correlates of Self-Assessed Community Belonging in Canada: Social Capital, Neighbourhood Characteristics, and Rootedness

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Abstract This study examines the extent to which a single-item question on sense of community belonging captures the multi-dimensionality of the underlying concept. Many studies use multi-item scales to measure the different dimensions of this concept, but including extensive questions on community belonging in large surveys is often impractical given constraints on survey lengths and budgets. Having an economical and robust measure provides considerable scope for future studies to consider the effects of community belonging without reliance on multi-item scales. Drawing on several large, nationally representative Canadian surveys, the study shows that self-assessed community belonging is a parsimonious measure of a broad range of factors that pertain to local social relations, neighbourhood characteristics, and place attachment. Social capital yields the strongest correlations, and also plays an important mediating role vis-à-vis other variables. However, neighbourhood characteristics (e.g., perceptions of area crime, the built environment) and "rootedness" (e.g., duration of residence in an area) are also significantly correlated with sense of community belonging, independent of individuals' strength of social capital.

Keywords Community belonging · Social capital · Neighbourhood · Rootedness

1 Introduction

Information on characteristics, trends, and outcomes in local communities continues to be important for a wide range of stakeholders, such as federal, provincial, and municipal governments, local service providers, non-governmental organizations, and businesses. Indeed, "small area information" continues to be a priority for national statistical offices,

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including Statistics Canada, and various sources of data are used to meet information needs pertaining to local communities and their residents. In Canada, the Census provides detailed information on socio-demographic characteristics, such as the age, ethnic, and linguistic compositions of local communities, while household and business surveys provide information on issues such as population health, health care utilization, and labour market conditions. A growing array of administrative data provides increasing scope for community-level information in domains such as health, economy, and environment.

Amid this rich and extensive set of measures, an important but potentially overlooked consideration is how individuals actually feel about their community and their place within it. Do they feel a strong sense of attachment to their local community? Is their community a place where they feel they belong? Such assessments reflect the experiences, perceptions, and viewpoints of residents themselves. There is growing evidence that community belonging has implications for individual-level outcomes such health status, life satisfaction, and trust, and community-level outcomes such as collective efficacy and local development (Carpiano and Hystad 2011; Kitchen et al. 2012; Lewicka 2011; Perkins and Long 2002; Talò et al. 2014). In addition, the notion of community decline—e.g., feelings of "placeless" living and a loss of interconnectedness—continues to resonate with the public (Savage 2008). In this context, community belonging provides a valuable complement to the large and growing stock of information on communities and their residents.

Community belonging has long attracted the attention of researchers from various disciplines. In recent decades empirical studies have often used large batteries of questions to measure different dimensions of community belonging, place attachment, or related concepts. For example, the Place Attachment Scale is comprised of 12 items (Lewicka 2011), the Italian Sense of Community Scale is comprised of 18 items (Tartaglia 2006), and the Sense of Community Index is comprised of 24 items (Chavis et al. 2008). Including such extensive sets of questions in large national surveys poses a significant challenge given competing demands for survey content and constraints on survey lengths and budgets. A more parsimonious approach is required in most surveys.

A single question regarding Canadians' sense of belonging to their local community has been included in all cycles of the Canadian Community Health Survey (CCHS) since its implementation in 2000 as well as in several cycles of the General Social Survey (GSS) and the 2014 Survey of Emergency Preparedness and Resiliency. Specifically:

> How would you describe your sense of belonging to your local community? Is it…very strong, somewhat strong, somewhat weak, very weak?

Single-item questions on self-perceived health and life satisfaction are used extensively in survey research and have consistently proven to be economical and effective instruments (see Idler and Benyamini 1997; Jylhä 2009). Similarly, a single-item question on sense of community belonging may be a parsimonious and robust measure of a broad range of objective factors.

But is this the case? What does self-assessed sense of belonging to the local community capture? We begin with the viewpoint, evident in the literature, that community belonging is a multi-dimensional concept reflecting the physical, emotional, and social characteristics of places and the people that reside in them (see Lewicka 2011; McMillan and Chavis 1986; Riger and Lavrakas 1981). Aspects of the physical environment, such as green space or amenities, shape community belonging directly through residential satisfaction and indirectly through their impacts on social interactions. Community belonging also reflects emotional ties—the sense of place-based identity that individuals develop through the

"accretion of memories" within places. And community belonging is also a function of local social ties and membership in local organizations.

The objective of this study is to examine the correlates of self-assessed community belonging and thus evaluate whether this measure captures the multidimensionality of the concept. In short, the construct validity of the single-item question on community belonging cited above will be scrutinized. Drawing on the 2014 General Social Survey (GSS, Victimization), the 2013 GSS (Social Identity), and the Rapid Response portion of the 2011 CCHS, four blocks of variables potentially associated with community belonging are examined. The first is a set of socioeconomic and demographic characteristics such as employment status, age, and sex. The second pertains to neighbourhood characteristics, defined in terms of population density, respondent's dwelling type, perceptions of problems and crime in the area, and local amenities. The third block pertains to "rootedness" which is defined in terms of duration of residence, place of birth, and presence of children. These variables do not capture emotional attachment to communities per se, but rather are intended to capture circumstances likely to foster such attachment. And the fourth block pertains to social capital, defined primarily in terms of relationships with neighbours, but also in terms of proximity of family and friends and confidence in local merchants.

In terms of contribution to the literature, the analysis evaluates a range of theoretical perspectives and issues within a unified empirical framework run on large, nationally representative samples. The results show that the single-item question on community belonging is strongly correlated with all four blocks of variables and captures the various dimensions of community belonging that are consistent with theory.

2 Literature Review

Sense of community belonging is a psychological construct that represents a person's fitting into and comfort within a community (Kitchen et al. 2012). Gusfield (1975) points out that community has two principle usages. One usage refers to relational groups or communities organized around particular interests, cultural or religious background, or other shared experiences. The other usage refers to a geographic space, such as a community rooted in a territory, city or town, or neighbourhood. Concern among sociologists and policy-makers with the environmental determinants of well-being has mainly placed the focus on local communities. At this unit of analysis, community belonging represents the level of connection between residents (social bonding) and the structural features of geographic areas that predict social integration and fulfillment of needs. Previous studies emphasize the importance of local social capital in predicting community belonging, but community belonging is a broader concept that also reflects neighbourhood characteristics and rootedness. As detailed below, these factors directly influence community belonging through their associations with residential satisfaction and place attachment, and indirectly through fostering local social ties.

2.1 Neighbourhood Characteristics

Community belonging may be derived from the physical environment in which one lives (Stedman 2003). Research on the predictors of place attachment offer useful insights for identifying aspects of the physical environment—both human-made and natural features—that are potential sources of community belonging (Hidalgo and Hernández 2001; Lewicka

2011; Scannell and Gifford 2010). A key insight from research on place attachment is that it is possible for a person to be attached to a neighbourhood *without* having strong or abundant social ties within it (Curley 2010). In addition to connections to people, place attachment derives from aspects of the physical environment (Stedman 2003). However, most previous studies have focused on the social dimension of community belonging and less is understood about how it reflects other dimensions. Neighbourhood characteristics are potential aspects of community belonging for several reasons.

First, neighbourhoods have use-values for fulfilling basic human needs (Taylor 1996; Stedman 2002). For some individuals—such as those with diffuse social networks—use-value may lie primarily in a neighbourhood's physical characteristics and amenities rather than in the prospects it offers for social interaction (Forrest and Kearns 2001). Local amenities are core factors in what make a neighbourhood a desirable place to live and include environmental features such as green space, recreational facilities, shopping, schools, and churches. These characteristics can attract people to an area and provide a basis for attachment. Forrest and Kearns (2001) note that neighbourhoods can be venues for leisure and recreation and function as an "extension of the home." Fried's (1982) survey of 42 US municipalities demonstrates that neighbourhood characteristics are often better predictors of residential satisfaction than social factors. Moreover, Allen (2015) shows that people without proximate access to amenities tend to feel alienated from society (Allen 2015).

Second, the physical features of a neighbourhood may shape its social environment. As Talen (1999) outlines, new urbanists believe that neighbourhood design is crucial for sense of community since amenities (e.g., parks, cafes, churches) are venues for social interactions. Henning and Lieberg (1996) observe that neighbourhoods provide opportunities for frequent casual social encounters between neighbours. These encounters tend to be superficial (e.g., greeting individuals in the street) but create a social environment that contributes to residents' "feeling at home" via generating a sense of trust and familiarity in neighbours. Curley (2010) confirms that public space is a strong predictor of trust in neighbours. She argues that through repeated informal encounters with the same people in public spaces, individuals become aware of the behavioural norms (e.g., trustworthiness) and habits of their neighbours, even in the absence of strong or direct social ties. Familiarity and observation that others share similar norms and values are seen as fostering a sense of security and a perception of neighbours as "in-group" members. The walkability of an area further increases the chances for this to occur. Lund (2002) identifies walkable neighbourhoods as those with good sidewalks, safe streets, a mixture residential and commercial areas, and elements of nature. Studies show that sense of community is stronger in neighbourhoods that have a pedestrian orientation (Lund 2002; Wood et al. 2010).

Third, the size of a place is another structural predictor of community belonging. Considering the rural–urban gradient, Turcotte (2005) finds that sense of community belonging is stronger among residents of rural areas and small towns than among residents of urban centres. Residents of smaller communities are more likely to know their neighbours and have higher levels of trust in them. Rural–urban differences may reflect a number of factors, such as population density, dwelling types, and duration of residence. Population density and the prevalence of high-rise apartments are related to residential crowding, which Gifford (2007, p. 6) defines as "the psychological sense of overload from too many proximate others." Gifford observes that the evidence is mixed regarding the effect of building size on social contact between neighbours. While some previous studies indicate that the residents of high-rise buildings have more acquaintances than residents in

other types of dwellings, others find that high-rise residents count fewer of their neighbours as friends and are less likely to engage in exchanges of informal support with them (Glaeser and Sacerdote 2000; Korte and Huismans 1983; Williamson 1978). So while higher population density may increase the chances for spontaneous social interaction, it may also be a source of strain that leads to social withdrawal (Bramley and Power 2009). More densely populated neighbourhoods may also be characterized by "disamenities" such as graffiti, litter, noise, and fear of victimization that decrease residential satisfaction and discourage social interactions between neighbours (Li 2012; Allen 2015; Lewicka 2011).

2.2 Rootedness

The concept of "community" comprises the social bonds and physical characteristics within a place, but also an emotional connection to it (Mannarini et al. 2006). The latter factor is harder to define and operationalize than social capital or neighbourhood characteristics, but its effects on community belonging are no less concrete. Treating rootedness and social bonds as separate concepts is useful for parsing out other processes through which length of residence increases community belonging. Riger and Lavrakas (1981) define rootedness as a "physical" attachment to a neighbourhood—in contrast to an explicitly social attachment—but this does not suggest that rootedness exists in a social vacuum. While operationalized with factors such as duration of residence and home-ownership, rootedness represents that socioemotional content of neighbourhoods and other cognitive perceptions that create psychological attachment to physical communities (Fried 2000). Cuba and Hummon (1993, p. 547) write that "individuals routinely construct place identities—interpretations of self that engender a sense of being *at home*." Place identities are thus extensions of the self that emerge from a person's psychological connection to a place (Pretty et al. 2003).

Rootedness captures a person's emotional investment in a place, reflecting the memories that personalize places (Riger and Lavrakas 1981; Scannell and Gifford 2010). Cuba and Hummon (1993) observe that people construct "place identities" that deepen over time since long-term residence imbues places with meaning based on one's history there. Similarly, Gieryn (2000) argues that the emotional bonds between people and places come from the biographical experiences that occur there. Length of residence gives rise to life-course experiences such as attending school, getting married, or raising children, and these provide long-term residents with a sense of self-continuity and a reservoir of place-related memories (Lewicka 2011; Proshansky et al. 1983). Hunter (1975) refers to places of long-term residence as "symbolic communities" because of the personal memories that inhabit them. Fried's work (1963) on forced relocation of residents of Boston's West End demonstrates the psychological attachment to neighbourhoods than can develop over time. Relocation was often a traumatic experience because it disrupted people's place-related identities. To be sure, people can have negative emotions toward a place, repelling them from it, but these emotions are usually positive, as reflected in a desire to remain in or near them (Scannell and Gifford 2010).

Rootedness also represents a familiarity with the physical setting and its inhabitants. People describe being at home in a place in terms of a sense of inside-ness that involves the assimilation of knowledge about their physical environment and the norms of community life (Cuba and Hummon 1993). This knowledge is taken-for-granted and accumulated over time through daily routines (Pretty et al. 2003). Fried (2000) states that these socio-spatial affiliations are the basis for subjective distinctions between the familiar inside world (that

is, one's home base or neighbourhood) and the unfamiliar outside world. Community attachment involves a desire to remain within the "protective range" of a familiar area, according to Fried, because it provides a perception of security that increases confidence in self and others and provides freedom of behaviour.

2.3 Social Capital

The importance of social capital is outlined in McMillan and Chavis' (1986) oft-used definition of sense of community. Their definition describes sense of community in terms of group membership, influence, integration and fulfillment of needs, and shared emotional connection. The key components of group membership are the boundaries that determine who is a member and who is not, and a sense of belonging and personal investment in the group. Group membership is, in essence, a measure of social integration since it entails a perception of fitting in and social acceptance.

Sense of community and social capital are affiliated but distinct concepts. There are several definitions of social capital, but all refer to the structural conditions that promote the social integration of individuals and social cohesion within communities. Lochner et al. (1999) describe social capital as an "ecological characteristic" since it is a property of social environments rather than individuals. The focus on the ecological level distinguishes social capital (a public good) from the private social resources and supports derived from individual-level networks.[1] So while social capital represents the structural conditions that have the *potential* to connect individuals to their communities, community belonging represents the realization of this potential (Kitchen et al. 2012).

Previous studies demonstrate that social factors are among the strongest predictors of sense of community belonging (Perkins and Long 2002; Lewicka 2011). For example, Carpiano and Hystad (2011) observe a strong relationship between network-based social capital and community belonging, as individuals with more extensive ties in a city have a stronger sense of community belonging than those with few or no ties. Social ties with neighbours are found to be particularly important. Social interactions between neighbours may involve personal exchanges of support as well as group-level cooperation, such as neighbourhood-watch groups (Lochner et al. 1999; Perkins and Long 2002). Prior studies demonstrate that neighbourhood social networks are a disincentive to residential mobility, particularly among vulnerable groups for whom relocation may disrupt neighbouring routines and compromise access to valued supports (Clampet-Lundquist 2010; Dawkins 2006; Kleit and Manzo 2006). Estrangement from neighbours often translates into social isolation and feelings of vulnerability that decrease one's sense of community belonging.

In addition to social networks, researchers draw attention to trust and shared values as important factors facilitating exchanges and collective efforts (Curley 2010; Sampson and Graif 2009; Sampson et al. 1997; Luhmann 1979). Trust and shared values are the context for the collective efficacy that underlies social order within neighbourhoods. This can include direct actions to accomplish collective goals, such as organizing to increase investments in public amenities. However, collective efficacy also operates at a more mundane level, and includes the willingness of neighbourhood residents to intervene in the social regulation of their communities on an ongoing basis. Without trust, neighbouring and participation in neighbourhood associations would at least be constrained, if at all

[1] .Given its ecological nature, social capital benefits all neighbourhood members, even those without strong ties within it (Putnam 2007).

possible (Luhmann 1979). Social disengagement and community divestment is a common condition in neighbourhoods where trust does not flourish (Ross et al. 2001).

While we posit that trust and other dimensions of social capital are antecedents of sense of community belonging, the association between these variables is likely bidirectional and mutually reinforcing. For example, Halliwell and Wang (2011) demonstrate that social trust flows from engagement, such face-to-face communications with neighbours. This observation is consistent with studies that show that familiarity with neighbours—which is an outcome of repeated communications and interactions—associates with trust in neighbours (Wu et al. 2017).

3 Data and Methods

Three data sources are used to assess the relationship between community belonging and neighbourhood characteristics, rootedness, and social capital. The main portion of the analysis is based on the 2014 General Social Survey (GSS) on Victimization, with a nationally representative sample of 32,030 respondents. The GSS is an annual cross-sectional survey that includes a standard set of core questions as well as content specific to social policy issues of current or emerging interest. The GSS covers the population aged 15 and older living in private households in all provinces and territories. Full-time residents of institutions are excluded. A robustness check is run using the 2013 GSS on Social Identity, with a nationally representative sample of 26,682 respondents. A supplementary analysis is also run on approximately 3800 respondents from the Rapid Response portion of the 2011 Canadian Community Health Survey (CCHS-RR). The CCHS covers the population aged 12 and older from private households in all provinces and territories. A measure of population density at the level of Census Subdivisions (CSDs) is also included, with geographic-level information from the 2011 Census and appended to each GSS and CCHS record. The GSS, CCHS, and census data are accessible through the Research Data Centres (RDC) program, which has centres located across the Canada that provide researchers access to Statistics Canada microdata in secure facilities. All Statistics Canada national surveys follow the bureau's ethical and legal policies and procedures (e.g., informed consent, data confidentiality) which have been developed in accordance with requirements of Canada's Statistics Act and the Privacy Act.

Since the outcome is an ordinal variable, a series of ordered logit regression models were run in which respondents' sense of belonging was regressed against a set of independent variables. We tested and confirmed the proportional-odds assumption. Stata version 13.0 was the software used for the model estimation. The independent variables are organized into the following four groups:

Socioeconomic and demographic variables include: sex, age and age-squared, marital status, self-perceived health status, employment status, and household income.[2]

Neighbourhood characteristics include: log of population density in the Census Subdivision (CSD) and the type of dwelling in which the respondent lives. The 2014 GSS (Victimization) includes questions regarding the extent to which noisy neighbours or loud parties, garbage or litter, and vandalism are moderate or big problems in the area, as well as questions regarding respondents' perceptions of crime in their area relative to other areas and their feelings of safety when walking alone after dark. The CCHS-RR includes six

[2] Educational attainment was included in earlier versions of the models but did not yield significant results. The removal of the education variable did not significantly affect the other variables in the model.

questions regarding neighbourhood characteristics. Results from a factor analysis suggest two underlying concepts, from which two derived variables were constructed. The first captures accessibility and includes questions regarding walking distance to shops, proximity to bus stops, and maintenance of sidewalks. The second captures leisure and includes questions regarding bike paths, recreational facilities, and the presence of interesting things to look at in the area.

Rootedness variables include: the number of years the respondent has lived in the city or local community, immigration status, whether Canadian-born respondents reside in their province of birth or not, and the number of children under age 18 in the household.

Social capital variables from the 2014 GSS include whether respondents' know many or most of the people in their neighbourhood, perception of their neighbourhood as place where people help each other, and trust in neighbours. The 2013 GSS includes a larger number of social capital variables: the number of close relatives and the number of close friends in the city/local community, the number of people in the neighbourhood the respondent knows well enough to ask a favour, perception of the neighbourhood as place where people help each other, trust in many/most of the people in the neighbourhood, confidence in local merchants, and organizational participation.

The variables above are included sequentially in a series of ordered logit models presented in Table 1 (based on the 2014 GSS). Model 1 includes socioeconomic control variables, Model 2 further includes neighbourhood characteristic variables, Model 3 further includes rootedness variables, and Model 4 further includes social capital variables. The social capital variables are included last to identify the extent to which other covariates reflect the mediating effects of social capital. Based on the results in Table 1, the predicted probability of having a very strong sense of belonging to the local community, net of other characteristics in the model, is provided in Table 2. The predicted probabilities provide a clearer sense of the strength of each covariate than do the coefficients, and are again presented sequentially. Table 3 is based on the 2011 CCHS-RR; of primary interest is the correlation between neighbourhood amenities and community belonging. Finally, Table 4 includes a broader set of social capital variables and provides a robustness check of the main findings, based on the 2013 GSS.

Hypotheses for the analysis are as follows. In terms of socioeconomic and demographic characteristics it is expected that having a spouse or common-law partner, better health, a job, and higher income are positively correlated with community belonging, as such characteristics may be conducive to social engagement and civic participation. We do not have a priori expectations regarding sex and age. As with all covariates in the model, causation may run either way. For example, better health may enable individuals to engage in their communities and thereby cultivate a sense of belonging or sense of belonging may positively affect their health.

In terms of neighbourhood characteristics, negative correlations are expected between community belonging and both population density and residence in a high-rise apartment. These relationships may be mitigated by shorter durations of residence and weaker neighbourhood ties in densely populated areas and high-rise buildings. Perceptions of neighbourhood problems, crime, and safety are expected to be negatively correlated with community belonging, while neighbourhood amenities are expected to be positively correlated.

The positive correlation between duration of residence in one's local community and sense of belonging is well-established in the literature and is expected to be found. It may also be that this relationship is mitigated by the inclusion of social capital variables. A positive correlation is expected between the presence of children and community belonging,

Table 1 Ordered logit regression models predicting sense of community belonging, the 2014 General Social Survey. *Source*: Statistics Canada, the 2014 General Social Survey

	Model 1 (odds ratio)	Model 2 (odds ratio)	Model 3 (odds ratio)	Model 4 (odds ratio)
Socio-economic characteristics				
Women	1.100**	1.310***	1.314***	1.196***
Age	1.001	1.000	0.994	0.994
Age squared divided by 100	1.015**	1.016**	1.021***	1.017**
Marital status (reference: married)				
Living common-law	0.759***	0.779***	0.824***	0.898*
Widowed, divorced or separated	0.728***	0.779***	0.797***	0.859**
Single	0.690***	0.747***	0.758***	0.805***
Self-perceived health status (reference: good health)				
Excellent health	1.505***	1.428***	1.434***	1.316***
Very good health	1.036	1.027	1.027	1.019
Fair health	0.718***	0.751***	0.755***	0.787***
Poor health	0.583***	0.625***	0.624***	0.647***
Employment status (reference: employed)				
Unemployed	0.991	1.056	1.041	0.925
Not in labour force	1.108**	1.086*	1.093*	1.013
Household income (reference: $100,000–$150,000)				
Less than $30,000	1.080	1.303***	1.309***	1.331***
$30,000–$59,999	0.995	1.118*	1.116*	1.138*
$60,000–$99,999	0.938	0.983	0.982	0.981
More than $150,000	1.017	0.981	0.973	0.976
Income missing	0.984	1.039	1.033	1.066
Neighbourhood characteristics				
Log of Census subdivision population density	…	0.930***	0.919***	0.968***
Dwelling type (reference: single detached house)				
Semi-detached or duplex	…	0.838**	0.860**	1.011
Garden home, town-house or row house	…	0.721***	0.768***	0.883
Low-rise apartment (less than 5 stories)	…	0.626***	0.708***	0.897*
High-rise apartment (5 or more stories)	…	0.716***	0.786***	1.052
Other dwelling type	…	0.826*	0.919	1.032
Noisy neighbours or loud parties (a big/moderate problem)	…	0.637***	0.621***	0.749***
Garbage or litter lying around (a big/moderate problem)	…	0.712***	0.714***	0.791***
Vandalism (a big/moderate problem)	…	0.877*	0.851**	0.882*
Think neighbourhood has a higher amount of crime	…	0.624***	0.639***	0.704***
Feel very safe walking alone in the area after dark	…	1.648***	1.658***	1.417***
Rootedness characteristics				
Length of residence in city/local community				
Less than 1 year	…	…	0.546***	0.747*
1–3 years	…	…	0.494***	0.638***

Table 1 continued

	Model 1 (odds ratio)	Model 2 (odds ratio)	Model 3 (odds ratio)	Model 4 (odds ratio)
3–5 years	…	…	0.591***	0.729***
5–10 years	…	…	0.678***	0.777***
Length missing	…	…	0.667	0.924
Lives in the same province as at birth	…	…	1.192***	1.126**
Immigrants	…	…	1.400***	1.425***
Number of children (0–17 years old)	…	…	1.117***	1.087***
Social capital characteristics				
Know most/many of the people in the neighbourhood	…	…	…	2.535***
This neighbourhood is a place where neighbours help each other (Yes)	…	…	…	2.580***
Trust people in your neighbourhood (1 cannot be trusted at all…5 Can be trusted a lot)	…	…	…	1.931***

The number of observation is 32,030. The model pseudo R-squared is 0.025 for Model 1, 0.043 for Model 2, 0.056 for Model 3 and 0.105 for Model 4

… not applicable

* Significantly different from reference category ($p < 0.05$)

** Significantly different from reference category ($p < 0.01$)

*** Significantly different from reference category ($p < 0.001$)

as child-rearing may foster social ties and/or infuse places with family-related memories that promote community belonging, or conversely, community belonging may influence people's decisions to start and raise a family in a location. As noted above, social factors are generally found to be among the strongest correlates of community belonging, with ties between neighbours especially important. Positive correlations are expected in these results.

4 Results

4.1 Socioeconomic and Demographic Controls

Table 1 presents the odds ratios of ordered logit models based on the 2014 GSS. Women express a stronger sense of belonging to their local community than do men. This result is consistent across data sources and model specifications. In terms of magnitude, the predicted probability of having a very strong sense of community belonging is almost five percentage points higher among women than men in Model 2 (Table 2), at 28.8 and 24.0% respectively, but this narrows to three percentage points when social capital is taken into account (Model 4).

A positive correlation between age and community belonging is evident in the predicted probabilities. The predicted probability of having a very strong sense of community belonging is 31.3% at age 65—which is almost 7 percentage points higher than at age 45 and 10 percentage points higher than at age 25. The magnitude of these differences narrow to 6 and 4 percentage points respectively when social capital and other variables are included. Age and age-squared may be picking up some duration of residence effects

Table 2 Observed and estimated percentage reporting very string sense of community belonging. *Source*: Statistics Canada, the 2014 General Social Survey

	Observed	Estimated based on		
		Model 2 (percent)	Model 3 (percent)	Model 4 (percent)
Socio-economic characteristics				
Male (reference)	25.2	24.0	23.9	24.8
Female	27.5	28.8***	28.8***	27.7***
Age = 25	15.3	21.0***	21.8***	22.9***
Age = 45	28.7	24.7***	24.5***	24.8***
Age = 65	31.6	31.3***	30.6***	29.2***
Marital status				
Common-law	23.8	24.1***	24.9***	25.8*
Widow, divorced and separated	29.9	24.1***	24.3***	25.0**
Single	18.3	23.4***	23.4***	24.0***
Married (reference)	30.5	28.7	28.4	27.6
Self-perceived health status				
Excellent health	30.8	30.4***	30.4***	29.1***
Very good health	25.2	24.3	24.3	24.8
Good health (reference)	23.8	23.8	23.8	24.5
Fair health	22.6	19.3***	19.4***	20.9***
Poor health	23.4	16.7***	16.7***	18.2***
Employment status				
Unemployed	21.3	25.7	25.7	26.2
Not-in-labour force	28.9	26.7*	26.4*	24.9
Employed (reference)	24.6	27.2	27.3	26.4
Household income				
Less than $30,000	30.9	30.6***	30.7***	30.3***
$30,000–$59,999	31.1	27.7*	27.7*	27.5*
$60,000–$99,999	27.0	25.3	25.4	25.1
$100,000–$149,999 (reference)	26.0	25.6	25.7	25.4
More than $150,000	25.6	25.3	25.2	25.0
Neighbourhood characteristics				
Population density, 50/squared km	31.4	29.1***	29.5***	27.3***
Population density, 250/squared km	27.4	26.9***	27.0***	26 4***
Population density, 2500/squared km	22.1	23.9***	23.5***	25.2***
Dwelling type				
Single detached (reference)	28.6	28.0	27.6	26.4
Semi-detached or duplex	22.4	24.8**	24.8*	26.6
Garden home, town-house or row house	19.5	22.3***	22.9***	24.4
Low-rise apartment (less than 5 stories)	20.2	20.0***	21.6***	24.6
High-rise apartment (5 or more stories)	22.1	22.1***	23.3***	27.2
Other dwelling type	28.5	24.5*	26.0	26.9
Noisy neighbours or loud parties (small problem/ not a problem)	27.0	26.7***	26.7***	26.4***

Table 2 continued

	Observed	Estimated based on		
		Model 2 (percent)	Model 3 (percent)	Model 4 (percent)
Noisy neighbours or loud parties (a big/moderate problem)	16.0	19.3***	19.0***	21.9***
Garbage or litter lying around (small problem/not a problem)	27.2	26.7***	26.7***	26.4***
Garbage or litter lying around (a big/moderate problem)	15.9	20.9***	21.0***	22.7***
Vandalism (small problem/not a problem)	27.1	26.5*	26.5**	26.3*
Vandalism (a big/moderate problem)	17.1	24.2*	23.7**	24.3*
Think neighbourhood has a higher amount of crime (No—about the same, lower)	26.8	26.6***	26.5***	26.4***
Think neighbourhood has a higher amount of crime, Yes	14.6	18.9***	19.3***	21.0***
Feel very safe walking alone in the area after dark, No	21.1	22.2***	22.1***	23.5***
Feel very safe walking alone in the area after dark, Yes	32.7	31.3***	31.3***	29.3***
Rootedness characteristics				
Length of residence in city/local community				
Less than 1 year	15.6	…	18.4***	22.7*
1–3 years	17.5	…	17.1***	20.4***
3–5 years	17.4	…	19.6***	22.3***
5–10 years	21.0	…	21.7***	23.3***
10 years and above (reference)	29.0	…	28.5	27.4
Lives in the different province than at birth (reference)	25.4	…	24.4	25.0
Lives in the same province as at birth	26.8	…	27.5***	26.9**
Non-Immigrants (reference)	26.1	…	25.1	25.0
Immigrants	27.1	…	31.3***	31.0***
Number of children (0–17 years old) = 0	26.2	…	25.4***	25.6***
Number of children (0–17 years old) = 1	24.2	…	27.4***	26.9***
Number of children (0–17 years old) = 2	28.2	…	29.4***	28.3***
Social capital characteristics				
Know most/many of the people in the neighbourhood, No	17.2	…	…	19.1***
Know most/many of the people in the neighbourhood, Yes	40.6	…	…	35.5***
Would you say this neighbourhood is a place where neighbours help each other? (No)	12.4	…	…	14.2***
Would you say this neighbourhood is a place where neighbours help each other? (Yes)	28.9	…	…	27.8***
Trust people in your neighbourhood—otherwise (1–4)	19.3	…	…	22.4***

Table 2 continued

	Observed	Estimated based on		
		Model 2 (percent)	Model 3 (percent)	Model 4 (percent)
Trust people in your neighbourhood—5 can be trusted a lot	44.4	…	…	34.0***

… not applicable

* Significantly different from reference category ($p < 0.05$)

** Significantly different from reference category ($p < 0.01$)

*** Significantly different from reference category ($p < 0.001$)

among older respondents, particularly because '10 years or more' is the longest value available for that variable.

Individuals who are either widowed, separated or divorced, or never-married consistently have a weaker sense of community belonging than their married counterparts. The magnitude of this negative correlation narrows when rootedness and social capital variables are included, suggesting that mobility and weaker social ties among un-partnered individuals accounts for some of the difference. Nonetheless, even in the fully specified model the predicted probability of having a very strong sense of belonging is 2.5–3.5 percentage points lower among un-partnered individuals than their married counterparts. Common-law status is also negatively correlated with community belonging.

Self-perceived health status is strongly and consistently correlated with sense of community belonging. This relationship is diminished slightly when social capital variables are included, but remains strong in the full model where the predicted probability of very strong belonging ranges from 18.2% among individuals in poor health to 29.1% among those in excellent health (Table 2).

Employment status is not consistently and significantly correlated with sense of community belonging. There is a small positive correlation between not being in the labour force and community belonging, but this disappears when social capital variables are introduced.

Household income yields unexpected results, as sense of community belonging is strongest among individuals with lower household incomes. Even when social capital and other variables are taken into account, the predicted probability of a having very strong sense of community belonging is almost 5 percentage points higher among individuals with household incomes under $30,000 than among those with household incomes of $100,000–$150,000. A similar pattern is observed among individuals with household incomes of $30,000–$60,000. One might suggest that individuals in small towns and rural areas have both lower earnings and stronger community belonging and that this is not being captured by the population density variable in the model. However, when an urban–rural gradient variable is also included, the household income coefficient does not change (results not shown), suggesting that place of residence does not account for the negative correlation between household income and community belonging. This is an issue for further research.

Table 3 Ordered logit regression models predicting sense of community belonging, 2011 Canadian Community Health Survey Rapid Response. *Source*: Statistics Canada, Canadian Community Health Survey 2011 Rapid Response linked to Canadian Community Health Survey 2011 main file

	Model 1	Model 2
Individual demographic		
Women	1.142	1.144
Age	0.965*	0.970†
Age squared divided by 100	1.054**	1.053**
Marital status (reference: married)		
Living common-law	0.742	0.797
Widowed, divorced or separated	0.690*	0.680**
Single	0.668*	0.745†
Employment status(reference: employed)		
Unemployed	1.069	1.050
Not in labour force	0.740*	0.731*
Not applicable, not stated	0.669	0.698
Household income (reference: $100,000–$150,000)		
Less than $30,000	0.951	0.997
$30,000–$59,999	1.255	1.276
$60,000–$99,999	0.794	0.801
More than $150,000	0.604*	0.624*
Income missing	1.007	1.040
Self-perceived health status (reference: good health)		
Excellent health	1.810***	1.808***
Very good health	1.428**	1.455**
Fair health	1.008	1.036
Poor health	0.366***	0.411**
Urban form		
Log of Census subdivisions population density	0.976	0.939*
Main type of housing in neighbourhood (reference: single detached house)		
Semi-detached or double	0.883	0.852
Mix of single-family residence	1.088	1.078
Low-rise apartment or condo (4–12 stories)	0.599*	0.567*
High-rise apartment or condo (more than 12 stories)	0.431	0.384
Rootedness		
Immigrants	…	1.103
Number of children (0–17 years old)	…	1.171**
Neighbourhood amenities		
Accessibility-related amenities	…	1.403†

Table 3 continued

	Model 1	Model 2
Recreation-related amenities	…	1.343†

The number of observations is 3857. The model pseudo R-squared is 0.028 for Model 1 and 0.033 for Model 2

… not applicable

* Significantly different from reference category ($p < 0.05$)

** Significantly different from reference category ($p < 0.01$)

*** Significantly different from reference category ($p < 0.001$)

† Significantly different from reference category ($p < 0.10$)

4.2 Neighbourhood Characteristics

Neighbourhood characteristics are consistently correlated with community belonging. Higher population density is associated with lower community belonging. The predicted probability of a very strong sense of community belonging is 5 percentage points lower in CSDs with a population density of 2500 people per square kilometre than in those with a population density of 50 people per square kilometre. This narrows to 2 percentage points when social capital and other variables are included, but remains significant.

In terms of dwelling types, individuals who reside in multi-unit dwellings, such as garden homes, low-rise apartments, and high-rise apartments, have a significantly weaker community belonging than those residing in single-detached homes. The difference in the predicted probability of a very strong sense of community belonging is 6–8 percentage when socioeconomic, demographic, and neighbourhood characteristics are taken into account (Model 2), and about 4–6 percentage points when rootedness variables (including duration of residence) are taken into account (Model 3). The difference narrows to 2 percentage points or less when social capital characteristics are added (Model 4), and the relationship becomes non-significant. Hence, the types of dwellings in which people live is correlated with community belonging, but mainly because of shorter durations of residence and weaker ties between neighbours.

Respondents' perceptions of their communities are also correlated with their sense of belonging. Noisy neighbours or loud parties, garbage or litter lying around, and vandalism are negatively associated with community belonging, reducing the predicted probability of very strong belonging by about two to seven percentage points (Model 2). This narrows to about two to five percentage points when social ties are taken into account (Model 4), with the largest change observed in terms of noisy neighbours or loud parties. Similarly, feeling that crime is higher in one's neighbourhood than in other neighbourhoods and feeling it is unsafe to walk alone in the area after dark each reduce the predicted probability of very strong sense of community belonging by 8–9 percentage points, with this narrowing to five to six percentage points with the addition of social capital variables. Overall, with the exception of respondent's dwelling type, the correlation between neighbourhood characteristics and community belongings remains significant even when social capital is taken into account.

Analysis of a subsample of respondents available on the CCHS-RR also yields a positive correlation between accessibility-related amenities and recreation-related amenities at the neighbourhood level and community belonging (Table 3). Each of these features is

Table 4 Ordered logit regression models predicting sense of community belonging, 2013 General Social Survey. *Source*: Statistics Canada, General Social Survey (GSS27)

	Model 1	Model 2	Model 3
Socio-economic characteristics			
Women	1.200***	1.242***	1.232***
Age	0.980***	0.979***	0.987*
Age squared divided by 100	1.033***	1.030***	1.023***
Marital status (reference group: married)			
Living common-law	0.738***	0.798***	0.853**
Widowed, divorced or separated	0.830***	0.874**	0.877**
Single	0.842	0.883*	0.895†
Self-assessed health status (reference group: good health)			
Excellent health	1.649***	1.526***	1.474***
Very good health	1.126**	1.086*	1.065†
Fair health	0.654***	0.700***	0.724***
Poor health	0.617***	0.652***	0.674***
Employment status (reference group: employed)			
Unemployed	0.921	0.916	0.934
Not in labour force	1.019	1.012	1.013
Household income (reference group: $100,000–$150,000)			
Less than $30,000	1.101	1.226**	1.309***
$30,000–$59,999	1.086	1.174**	1.242***
$60,000–$99,999	1.046	1.081	1.103†
More than $150,000	1.186**	1.119†	1.099
Income missing	1.160*	1.230**	1.302***
Neighbourhood characteristics			
Log of Census subdivisions population density	0.922***	0.950***	0.950***
Dwelling type (reference group: single detached house)			
Semi-detached or duplex	1.079	1.150*	1.176*
Garden home, town-house or row house	0.876†	0.889†	0.867*
Low-rise apartment (less than 5 stories)	0.991	1.155*	1.177**
High-rise apartment (5 or more stories)	0.858*	0.943	0.940
Other dwelling type	0.932	0.945	0.960
Rootedness characteristics			
Length of residence in city/local community			
Less than 1 year	0.628***	0.757*	0.789†
1–3 years	0.610***	0.692***	0.734***
3–5 years	0.679***	0.730***	0.776***
5–10 years	0.699***	0.736***	0.758***
Length missing	0.752	0.858	0.963
Lives in the same province as at birth	1.210***	1.246***	1.259***
Immigrants	1.291***	1.377***	1.444***
Number of children (0–17 years old)	1.074***	1.058**	1.061**
Social capital characteristics			
Number people in neighbourhood know well enough to ask for favor	…	1.384***	1.317***

Table 4 continued

	Model 1	Model 2	Model 3
This neighbourhood a place where neighbours help each other	…	1.667***	1.633***
Trust most/many of the people in your neighbourhood	…	1.573***	1.417***
Number of close relatives in city/local community	…	…	1.033***
Number of close friends in city/local community	…	…	1.012†
Have a great deal of confidence in local merchants	…	…	1.363***
Member or participant in any organization in past 12 months	…	…	1.275***

The number of observations is 25,867. Model pseudo R squared value is 0.031 for Model 1, 0.056 for Model 2, and 0.065 for Model 3

… not applicable

* Significantly different from reference category ($p < 0.05$)

** Significantly different from reference category ($p < 0.01$)

*** Significantly different from reference category ($p < 0.001$)

† Significantly different from reference category ($p < 0.10$)

associated with 4 percentage point increase in the predicted probability of a very strong sense of community belonging. It is not possible to determine the extent to which these correlations reflect duration of residence in the area or social capital, as these variables are not available in the CCHS-RR.[3]

4.3 Rootedness

The well-established correlation between duration of residence and community belonging is evident in the results. Nonetheless, three patterns warrant note. First, as one might expect, differences in social capital account for a considerable share of the correlation between duration of residence and community belonging. As shown in Models 3 and 4 (Table 2), the predicted probability of very strong community belonging is 10–12 percentage points lower among new and more recent residents[4] than among longer-term residents. This narrows to about 5–7 percentage points when social capital variables are added, with the largest change observed among residents of less than 1 year.

Second, whether social capital variables are included or not, there is a J-shaped relationship between duration of residence and community belonging. That is, the predicted probability of a very strong sense of belonging is lower among individuals who have resided in their area for 1–3 years (at 20.4%) than it is among either new residents or longer-term residents (Model 4). This pattern, which is evident in both cycles of the GSS, may reflect a "honeymoon effect" among new in-migrants.

And third, when social ties are taken into account, the share of respondents with a very strong sense of community belonging does not vary much among those who have resided in their community for less than 10 years (generally ranging from 22 to 23%).[5] The

[3] These seven neighbourhood characteristics in the CCHS-RR were entered into the model in other ways, such as a count of 0–7 amenities and as individual items. These too yielded significant results.

[4] "New residents" refer to those with a duration of residence of less than 1 year while "more recent" residents refer to those with a duration of residence of one to 3 years.

[5] With the exception of the lower probability among 1–3 year residents.

difference is more striking between those who have resided in their community for less than 10 versus 10 years or more (at 27.4%)—the longest duration of residence response category available on the GSS. It may be that community belonging is cultivated through social ties during the initial years of residence and fostered through place-based attachment and the "accretion of memories" over the longer term. To probe this further, the model includes a variable distinguishing Canadian-born respondents who were or were not residing in their province of birth at the time of the survey.[6] As expected, the predicted probability of having a very strong sense of community belonging was higher among those living in their province of birth (a difference of two percentage points).

With the inclusion of the province of birth flag, the reference group for the immigration variable becomes Canadian-born individuals no longer residing in their province of birth. Compared with this group, immigrants were significantly more likely to have a very strong sense of belonging to the local community—at 25 and 31% respectively.

In addition to the amount of time spent in a place, sense of belonging may also be fostered by one's experiences there. Raising a family is one consideration. The predicted probability of having a very strong sense of community belonging is 2.8 percentage points higher among individuals with two children than among individuals with no children. But as with all these correlations, causation may run the other direction, in this case with community belonging possibly influencing decisions to start a family.

4.4 Social Capital

Social capital variables are strongly associated with community belonging, as has been underscored throughout this discussion. Specifically, the predicted probability of having a very strong sense of community belonging is 16 percentage points higher among individuals who know many or most of their neighbours than among those who do not, and almost 14 percentage points higher among individuals who view their neighbourhood as a place where people help each other than among those who do not. And in terms of trust, the predicted probability of a very strong sense of community belonging is 12 percentage points higher among individuals who rate their trust of neighbours as five on a five point scale (can be trusted a lot) than among those who provide any other response. The strength of these relationships surpasses those of others in the model.

Clearly, network-based social capital variables are the strongest observed covariates of community belonging. A further conclusion thus far is that community belonging is more than just a proxy for social capital—neighbourhood characteristics and rootedness are also distinct dimensions. But this conclusion is drawn from a model that only includes three social capital variables—all of which focus on the respondent's neighbourhood. It may be that a broader set of social capital measures would render other covariates insignificant. In other words, maybe social capital matters more than has been measured thus far. To assess this possibility, a model closely replicating the analysis above was run on the 2013 GSS (Social Identity). This replication again includes three neighbourhood-based social capital variables—neighbourhood familiarity, support, and trust (Table 4), as well as four additional measures—proximity of family, proximity of friends, organizational participation, and trust in local merchants. The other variables in Tables 1 and 2 are included as well, with the exception of those regarding perceptions of safety, problems, and crime in the neighbourhood. The degree to which the introduction of the three neighbourhood-level

[6] Information on community of birth is not collected on the GSS, so province of birth was included to proxy long-term residency in the region.

social capital variables alter other correlations in the model can be observed by comparing results in Models 1 and 2 (Table 4). Again, neighbourhood-based social capital diminished but did not eliminate the correlations between community belonging and marital status, self-assessed health status, log of CSD population density, and duration of residence, and actually increased the correlation between community belonging and household income, province of birth and immigration status. More importantly, the inclusion of *additional* social capital variables generally had modest additional impact on these correlations. Hence, the conclusions drawn from Tables 1 and 2 are robust when scrutinized against a stronger set of social capital measures.

5 Discussion and Conclusion

The empirical results demonstrate that the correlates of community belonging can be classified into three conceptual domains: social capital, neighbourhood characteristics, and rootedness. This testifies to both the multidimensionality of community belonging as a concept and to the fact that this multidimensionality is reasonably reflected in the single-item question examined above. Thus the take-away conclusion is that self-assessed sense of community belonging is indeed a parsimonious measure of a broad range of factors that pertain to local social relations, neighbourhood satisfaction, and place attachment. This measure provides considerable scope for future studies on the effects of community belonging without reliance on multi-item scales to measure this construct. A person's subjective assessment of their attachment or place within their local community is valuable complement to the growing stock of objective indicators of the well-being of communities and individuals.

Of the core dimensions of community belonging, social capital has received the most attention in the literature and results confirm the importance of social relations with neighbours. Some studies conceptualize community belonging as a dimension of social capital (see Forrest and Kearns 2001; Lochner et al. 1999; Perkins and Long 2002). Perkins and Long (2002) describe four dimensions of social capital: sense of community, neighbouring, collective efficacy, and citizen participation. Within this conceptualization, sense of community functions as a catalyst for the other three dimensions of social capital. While the results demonstrate that social ties increase one's sense of community belonging, it is important to acknowledge that some level of community belonging needs to preexist for these ties to develop. That is, in the absence of community belonging, people would hesitate to form ties with neighbours or participate in community groups. As Perkins and Long demonstrate, a strong sense of community increases both individual- and neighbourhood-levels of neighbouring and participation in local associations. This links sense of community to trust in neighbours and highlights the bidirectional relationship between sense of community and social capital.

Our results are consistent with previous studies that demonstrate that community belonging is a proxy for network-based social capital (group membership) and the emotional connections this provides (Carpiano and Hystad 2011; McMillan and Chavis 1986). However, our study improves upon these studies—particularly Carpiano and Hystad, who also use Canadian GSS data and the same measure of community belonging—in two respects. First, our analysis includes measures of trust in addition to network-based social capital. Previous studies conceptualize trust as the attitudinal component of social capital, and suggest that it facilitates network-based social capital among neighbours (Wu et al.

2017). Second, our contribution lies largely in assessing the independent and indirect effects of neighbourhood characteristics and "rootedness" on community belonging. Our findings demonstrate that these factors have indirect effects on community belonging through creating conditions for social relations between neighbours to flourish. But we conclude that community belonging *should not* be conceptualized simply as a dimension of social capital—it is a unique construct that captures the independent effects of residential satisfaction and an emotional sense of being at "home" in the neighbourhood as well as reflecting localized social capital.

The characteristics (both human-made and natural) of neighbourhoods can be usefully described in two broad respects. The first refers to the physical and ambient attributes of neighbourhoods (e.g., green space, amenities) that make them desirable (or undesirable) places to live. These attributes draw people into places and motivate them to put down roots. Neighbourhood characteristics can have effects on community belonging through their influence on social interactions. Neighbourhood characteristics also represent the "neighbourhood use-value" or the material resources that fulfill personal needs (Taylor 1996; Stedman 2002; Fried 1982). The second characteristic of neighbourhoods that is an important correlate community belonging refers to the structural attributes of neighbourhoods, such as population density and dwelling types. These attributes have indirect effects on community belonging since these can either enable or disable the formation of social ties (Wasserman 1982). The results confirm this observation.

The results also demonstrate that community belonging represents a person's emotional connection—or rootedness—to a place. Duration of residence is among the most well-documented factors associated with community belonging, and results suggest that "deep roots" in a community take a considerable length of time to develop. However, the top-coding of duration of residence responses into a "10 years or more" category on the GSS makes it impossible scrutinize this over the longer periods of time. Even one additional duration of residence response category (i.e. 10–19 years, 20 or more years) would shed more light on this.

The study offers a comprehensive assessment of the dimensions of self-assessed community belonging. However, this assessment could be improved in two major respects. First, we need to examine the relationship between community-level economic well-being and sense of community. There is a paucity of research that examines the relationship between economic opportunity and community belonging. Previous research on working-class areas demonstrates that people can have a strong sense of place attachment vis-à-vis declining economic opportunities (e.g., Fried 1963; Mah 2009). Despite economic deprivation, a sense of community can flourish in these places through group-level strategies for coping with economic hardship and a lack of economic opportunities. Second, while most community belonging research uses individuals as the unit of analysis, sufficient data are now available to examine communities themselves. About 55,000–60,000 responses have been collected on the CCHS each year since 2000 and sample sizes would be sufficient to support sub-provincial estimates if data were pooled across years. The granularity of these estimates depends on population densities in the areas being considered and the number of survey years pooled.

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