The Social Capital of Linguistic Groups in Canada: A Look at Two General Social Surveys[1]

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Summary

Using a combined sample of approximately 47 thousand Canadian adults drawn from Statistics Canada's general social surveys of 2003 and 2008, this report explores the social capital of various linguistic groups in Canada. Analytical methods included factor analysis, structural equation models, cluster analysis and hierarchical linear models. A multiple indicator model of social capital was the first analytical step undertaken to estimate synthetic indices of social capital. These were calculated for various mother tongue groups residing in provinces and economic regions. Mother tongue groups of similar social capital characteristics were subsequently identified. In its last analytical stage, the report focused on the impacts that various individual and contextual characteristic have on social capital formation. Results suggest that five dimensions of social capital are critical in understanding this phenomenon: institutional trust, organizational memberships, linguistic homogeneity of networks, individual trust and belonging. Multivariate analysis of indices tapping these key constructs suggested that mother tongue groups formed distinct classes and that both individual and contextual (place related) factors played substantive roles in the social capital accumulation of mother tongue groups. There was also evidence of rich diversity in terms of various forms of capital and that limitations in types of social capital in one domain were compensated by a higher level in another in various provinces and economic regions where individuals lived. Departmental work in the areas of institutional trust, belonging and linguistic bonding may prove to be vital in assisting various linguistic, and, in so doing, ensuring a sustained reproduction of social capital across social groups of different linguistic profiles in Canada.

1.0. Introduction

Canada is experiencing important shifts in its linguistic composition. The number reporting English as their mother tongue experienced a numeric increase between the 2001 and 2006 Censuses (from 17.7 million to 18.2 million) though their population shared decreased from 60% to 58%. Canadians reporting French increased its size from 6.8 to 6.9 million but their share also declined from 23% to 22%. Those reporting Aboriginal languages as mother tongues increased in its size from 203 to 222 thousand individuals but their share remained constant at 0.7%. In contrast to these three groups, individuals reporting non official languages (Allophones) increased both their population counts (5.4 million to 6.4 million)

and population share (18% to 21%). As a consequence of both natural increase and immigration trends, recent projections 2006-2031 undertaken by Statistics Canada predict that Canada, and urban Canada, in particular, will become even more linguistically diverse over the next two decades (Statistics Canada, 2010).

The reproduction of social capital by linguistic groups is seen as a key ingredient of the e vitality of official language minority communities in Canada (Forgues 2004, 2005; Landry and Allard, 1996; Gillbert and Lefevre, 2008). This reproduction is desc
ribed as being complex, multifaceted and expressed at various levels such as personal, group and community (Clarke, 2002, Corbeil et.al. 2007). The concept of social capital is closely related to that of social inclusion and can be broadly defined as "features of social life – social networks, associated norms and trustworthiness – that enable participants to act together more effectively to pursue shared objectives" (Putnam, 1995: 664-5; Van Der Gaag and Snijders, 2005). Social capital theory concerns how people work together to pursue common objectives. This view is in line with Bordieu (1977, 1991) who conceptualizes social capital as an aggregate of resources which are linked to possession of a durable network (both institutional and personal).

Social capital is actively formed in informal networks, clubs, societies and all other spaces in which socio-cultural interaction occurs in the language of the minority and from which individuals and communities can draw resources for development purposes (COL, 2004). While the benefits of social capital are related to individuals' willingness to cooperate, the underpinnings of social capital rest on four key constructs (namely T-I-P-B constructs)— an individual's willingness to trust others (T), to interact with others (I), to participate in community organizations (P) and his/her sense of belonging to the community of residence (B) (see chart 1).

While trust (either in individuals or institutions) and the sense of belonging are essentially attitudinal related attributes, interaction and participation are mostly behavioural as they are mainly reflected in actions reflecting both bonding and bridging processes of social capital formation T-I-P-B social capital constructs bring to bear two major questions. The first question refers to the validity of each construct–should social capital be viewed as a single construct (the sum of trust, interaction, participation and belonging) or are these constructs separate entities. The second question speaks to the effect of broader societal influences on these constructs, specifically impacts of city and neighbourhood characteristics on individual outcomes. In the case of linguistic groups it is expected that types of social capital would vary both in terms of their individual demographic and socio-economic attributes as well by their places of residence where likelihoods of social capital accumulation may be enhanced and/or inhibited to different degrees.

Individual characteristics such as age, education and labour force status in conjunction with other macro or contextual determinants (e.g. place of residence characteristics) have to be taken simultaneously into account in any comprehensive analysis of the reproduction of social capital (Johnston and Soroka, 2001; Cheong, 2006; Alesina and Ferrara, 1999, 2000; Marschall and Stolle, 2002; Putnam, 2007). The impact of diversity at the individual and geographic level on social capital formation of various linguistic and socio-demographic groups is topic of intense debate in Canada (Aizlewood, Bevelander and Pendakur, 2006; Cheong, 2006; Hooghe et al, 2006; Letki, 2006). Another important focus of attention concerns distinctions between bonding social capital (within linguistic minority group interaction) and bridging social capital (interaction which reaches outside the linguistic group). This distinction results in a growing understanding that not all social capital may bring benefits to the individual and/or may not be necessarily positive. In particular, if

individuals' interactions, and trust in others remain within a fairly narrow range of contacts of similar individuals (bonding), increased levels of social capital may actually serve to increase distrust between groups, thereby exacerbating inequities, constraining actions and increasing social exclusion (Cheong, 2006, Bloemnraad and Ramakrishnan (2006), for instance, has found that mainstream groups may continue to exclude immigrants, nonwhites and non official language groups from membership recruitment which results to lower civic participation and social capital by people characterized by these demographics.

Chart 1: T-I-P-B Model of Indicators of Social Capital
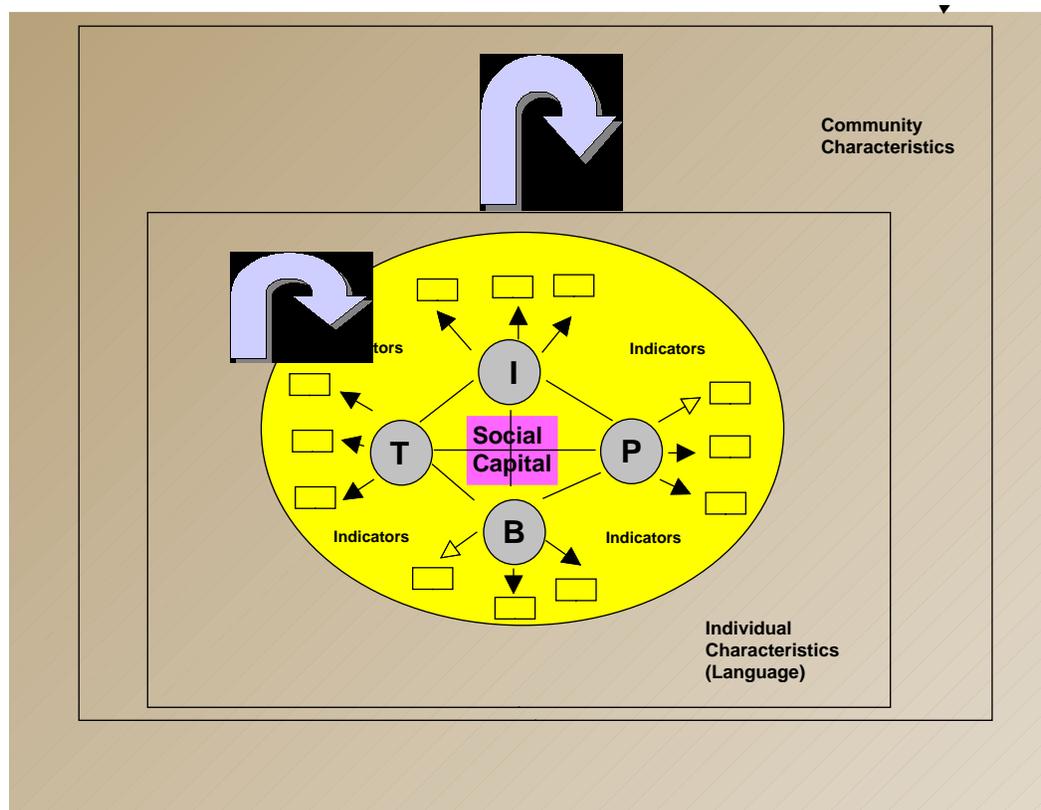
Source: Mata and Pendakur (2011)

2.0. Research Questions

Following both micro-macro influences analytical framework and the T-I-P-B model of social capital indicators and using as main data a combined sample of GSS (General Social Survey) respondents, this analysis addresses three main research questions. The first one concerns the magnitude and types of social capital displayed by the various linguistic groups in Canada. The second one refers to the variations of synthetic indices summarizing these attributes across various sub-populations including mother tongue groups living in the different provinces and economic regions of Canada. The third one concerns the explanatory role of individual factors such as age, gender, education, work status and immigrant status and contextual factors such as the characteristics of the place of residence in the social capital formation of linguistic groups. All these research questions are addressed in the main three finding related sections of the report.

3.0. Data, Variables and Methods

3.1. Combined Sample GSS 2003 and 2008

Two general social surveys carried out in Canada in 2003 (cycle 17, social engagement) and 2008 (cycle 22, social networks) have collected important information related to social capital and language use in Canada. These surveys targeted all persons 15 years of age and over residing in Canada, excluding residents of the Yukon, Nunavut and Northwest Territories and full-time residents of institutions. The modules of survey questions were specially developed to explore the measurement of social capital and develop a better understanding of how social networks and norms of trust and reciprocity contribute to a wide range of individual and social outcomes. Indicators comprised lists of activities, attitudes, and actions including social contacts with family, friends and neighbours, involvement in organizations, political activities and volunteer work; and the help they provide to and/or receive from other individuals. In addition, these two cycles collected a vast array of demographic, socio-economic and residential characteristics of Canadians including ethnic, immigration and language related characteristics such as mother tongue and official language use at home and at work.

The possibility of pooling respondents from the two GSS surveys offered two important advantages for the analyst. Firstly, with a larger sample size, it was possible to boost linguistic minority group counts, increase the level of confidence in the point estimates and decrease standard errors of population parameters of underlying statistical models. Secondly, larger population counts for particular geographic areas (CMAs and CSD's) would allow for a better assessment of contextual (place-based) impacts in social capital formation of individuals. Several preparatory tasks, however, had to be undertaken in order to merge individual cycle datasets. These tasks entailed a thorough examination of the content, coverage and mode of data collection in surveys (Thomas and Wanell, 2009).

In terms of weighting strategies, Wendt (2007) proposed a common strategy which was simply to merge the datasets and divide the global weights by the number of cycles. This option may not have been necessarily ideal in this case for two reasons. Firstly, following the micro-macro determinants of social capital logic, it seemed important to include contextual (area based) information for the two cycles: information from the 2001 census to describe the place based characteristics of cycle 2003 respondents and information from the 2006 census to describe the same of 2008 cycle respondents. Secondly, treating the dataset as a single draw on the population was thought to create problems when taking into account differences across cycles. It was more appropriate to think that GSS respondents were drawn from two similar populations (i.e. two identical adult Canadian populations) measured at two points in time keeping intact the original weight assigned to individual respondents representing these populations. This flexible approach permitted both Canadian populations and its regions around respondents to evolve over the five-year interval of observations between cycles.

An important preparatory task comprised an exhaustive inventory of social capital indicators and the general socio-demographic characteristics of the population available in the two GSS surveys. In order to accomplish this, key T-I-P-B variables present in both cycle questionnaires were identified and isolated from their respective datasets. Variable and geo-coding schemes were contrasted against each other and were standardized to a common coding. The final preparatory activity consisted in comparing the two surveys in terms of their socio-demographic and social capital attributes to determine if there were fundamental differences by cycle. An examination of age, gender and provincial composition of the two GSS cycles revealed remarkable similarities in terms of these general attributes (with

discrepancies amounting to less than 1% percentage points). Separate analysis of the 2003 and 2005 cycles based on the correlation matrices suggested that the direction and magnitude of responses on social capital indicators was roughly similar across the two cycles. Once these preparatory tasks were accomplished, 2003 and 2006 datasets were merged also as to produce a combined dataset totaling 47,589 individuals (27,195 respondents to the GSS 2003 and 20,394 respondents corresponding to the GSS 2008). This combined sample represented an approximate total population of 52.8 million adult Canadians.

3.2. Mother Tongue and Home Language Groups

Both GSS 2003 and 2008 systematically collected information both on mother tongue attributes (the language learned at childhood, spoken and still understood and the language most frequently used in the household. The categories available for these variables comprised seven categories: 1) English only, 2) French only, 3) Other language only, 4) English and French equally, 5) English and Other equally, 6) French and Other equally and 7) English, French and Other equally. Due to limited sample counts (less than 100 observations), the last three categories of both variables were amalgamated into a single one, which contained the Other language category as its common denominator.

Table 2 presents the weighted counts for which there was information on their mother tongues and home language related characteristics. To simplify the reporting, in this analysis, people referred as referred as *Anglophone* when English as reported as a mother tongue and *Francophone* if French was reported as a mother tongue. Those who reported a non-official language (including Aboriginal) are referred as *Allophones.* Individuals reporting both English and French are reported as b*ilinguals* while the residual groups comprises individuals is referred as having m*ixed* linguistic mother tongue backgrounds.

Table 1: Weighted counts, Mother Tongue and Home Language Groups, combined sample GSS 2003 and 2008 *

Table 1: Weighted Counts, Linguistic Groups, GSS 2003 and 2008

Language Spoken most frequently at home	Mother Tongue (Language used at home, spoken and understood)					
	English only	French only	Other language only	English & French	English& French&& Other	Total
English only	32,595,000	1,099,000	4,108,000	174,000	310,000	38,285,000
French only	153,000	9,514,000	242,000	69,000	18,000	9,998,000
Other language only	49,000	13,000	3,132,000)	1,000	28,000	3,223,000
English & French	99,000	208,000	29,000	33,000	8,000	378,000
English&French&Other	56,000	10,000	820,000	2,000	46,000	932,000
Total	32,951,000	10,844,000	8,331,000	279,000	411,000	52,816,000

*-Counts below 2,000 may be unreliable

Both Anglophones and Francophones were the most likely to use their languages at home (99% among the English only and 88% among the French Only mother tongue). Among those

raised in Allophone families, 49% used English and 38% used French most frequently at home. Among those raised in bilingual families, 62% spoke English and 38% spoke French most frequently at home. Due to the close association of mother tongue and home language, most of the subsequent data analysis mainly focused on mother tongue as a central ascribed linguistic characteristic of individuals.

In terms of their demographic characteristics, the gender distributions of the mother tongue groups were fairly similar with a slight over-representation of females in the bilingual and mixed linguistic origins groups (56% and 54% respectively). These two groups had also slightly higher number of younger individuals in their midst (27% and 23% aged 15-30 years old). Three out of five GSS respondents of the Francophone group resided in Quebec (74%) while Ontario was the most common province of residence for the other ones groups particularly among Allophones (45%) and individuals of mixed linguistic backgrounds. Three out of four Allophone respondents was foreign-born (75%) while 63% of all respondents reporting mixed linguistic backgrounds were also foreign-born.

3.3. Social Capital Indicators

Despite some data collection variability in the two GSS cycles, there was a great deal of consistency in wording and questions although the 2008 cycle had a larger roster of questions. The question wording for the T-I-P-G related social capital indicators in the two cycles was the following:

-Institutional trust: How much confidence do you have in: a) the police? b) The justice system and courts? c) The health care system? the school system?, the welfare system? (1=A great deal of confidence, 2=Quite a lot of confidence, 3= Not very much confidence).
-Memberships in Organizations: In the past 12 months, were you a member or participant in: a) A political party or group? b) A sports or recreation organization (such as hockey league, health club, golf club; c) a cultural, education or hobby organization (such as theatre group, book club or bridge club)? d) A religious-affiliated group (such as church youth group, choir)? e) A school group, neighbourhood, civic or community association (such as PTA, alumni, block parents, neighbourhood watch)? e) A service club or fraternal organization (such as Kiwanis, Knights of Columbus, the Legion)? (Yes=1, No=0)
-Bonding Activities in Institutions: Thinking of all the people you met through these organizations: .how many have the same age, education, gender, mother tongue as you?   (1 =All, 2= Most, 3=about half, 4=A few)
-Bonding Activities in Friendship Network: Think of all the friends you had contact in the last 12 months .how many have the same age, education, gender, mother tongue as you? (1 =All, 2= Most, 3=about half, 4=A few)
-Generalized Trust: Generally speaking, would you say that most people can be trusted or that you cannot be too careful in dealing with people? (1=Most people can be trusted, 2= cannot be too careful in dealing with people)
-Focused trust: Using a scale of 1 to 5 where 1 means 'Cannot be trusted at all' and 5 means 'Can be trusted a lot', how much do you trust each of the following groups of people: a) people in your family? b) People you wotk with or go to school with, c) strangers.
-Wallet Return if found questions: If you lost a wallet or purse that contained two hundred dollars, how likely is it to be returned with the money in it if it was found: a) by someone who lives close by? A complete stranger? (1=Very likely, 2=Somewhat likely, 3=Not at all likely)
-Sense of Belonging: How would you describe your sense of belonging to you're a) local community? b) Your province? c) Canada (1 =very strong, 2= somewhat strong 3=. somewhat weak, 4=very weak)
-Interactions: Frequency of seeing family and close friends and relative (1=Never.... 5=At least two times a week

3.4. General Approach and Methods of Analysis

Many studies of social capital have not sufficiently looked at issues related to the uni-dimensionality or multi-dimensionality of its related constructs and/or the specific relationships established between indicators and constructs. Often, a single indicator, construct and/or ad-hoc scales comprising relatively heterogeneous measures have been used as proxies for social capital and its purported domains.

This analysis takes a different view. Social capital is a construct that is not directly measurable through a question on the survey but it is indirectly measurable via responses related to social capital. Viewing social capital as a latent variable requires, thus, requires a combination of factor analysis, to identify the latent components of social capital and hierarchical models to examine the relationship between social capital factors and individual characteristics. Ex*ploratory and confirmatory factor analysis* and *Multiple Indicators Multiple Causes* (MIMIC) structural equation models were initially used as multivariate techniques to establish both the validity of social capital constructs (e.g. factor loadings associated with the constructs and validity coefficients) and to identify relevant individual and place related influences on the constructs (structural coefficients). MIMIC (Multiple Indicator Multiple Cause) statistical models, in particular, are useful for this purpose[2]. Factor scores calculated from MIMIC models were, then, used as indices of the various types of social capital of linguistic groups across provinces and economic regions of residence. To summarize data patterns effectively clustering algorithms (*k-means algorithm)* were used to identify groups that were similar or dissimilar in terms of these attributes. Finally*, Random intercept models* were also used in the prediction stage of this analysis. The latter are hierarchical linear models aimed at estimating cluster effects where intercepts of these clusters (cities in this case) vary and the effects of personal characteristics also vary between clusters (Raudenbush and Bryck, 1992). In this multilevel framework, Fixed and random effects of various covariates are simultaneously estimated in random intercept models. Random intercept models enable the data analyst to obtain statistically efficient estimates of regression coefficients and, by clustering the data (addressing the issue of unobserved heterogeneity); they provide better standard errors, confidence intervals and significance tests.

4.0. Findings

4.1 Descriptive Statistics of Social Capital Indicators

The data exploration started by looking at the scoring of various social capital items for the five main mother tongue groups. Average scores for selected T-I-P-G indicators are presented in table 5. These scores are presented in descending order of magnitude by group to facilitate interpretation of results.

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[2] Statistically, MIMIC models are factor models combining measurement and structural factors where factor structures are combined with regressions of factors on explanatory variables (Rabe-Hesketh, Skrondal and Pickles, 2004). In this particular case, the measurement part addressed the issue if a small number of unobservable factors could explain the variability of various social capital while the structural part inquired if these factors were adequately predicted by a selected number of individual and contextual characteristics where individual lived.

Table 2: Mean Scores of Social Capital Indicators, Mother Tongue Groups, Combined GSS sample 2003-2008

Social Capital Indicators Mean Scores								
Institutional Trust								
Trust in the School System (1-5 pts)	Mean	se	Trust in the Police (1-5 points)	Mean	se	Trust in the Justice System (1-5 points)	Mean	se
French Only	3.09	0.01	French Only	3.27	0.01	Other language only	2.83	0.02
Other language only	2.88	0.01	English Only	3.19	0.01	French Only	2.77	0.01
English Only	2.81	0.01	Other language only	3.18	0.01	English&French&Other	2.70	0.07
English&French	2.81	0.10	English&French&Other	3.11	0.06	English Only	2.68	0.01
English&French&Other	2.75	0.06	English&French	3.10	0.09	English&French	2.59	0.10
Organizational Memberships								
Membership in cultural organizations (percentage)	Mean	se	Membership in Religious organizations (percentage)	Mean	se	Membership in neighbourhoodl organizations (percentage)	Mean	se
English&French&Other	23.1%	3.2%	English&French&Other	24.5%	6.4%	English Only	35.2%	0.4%
English Only	21.3%	0.3%	Other language only	21.4%	0.6%	English&French&Other	30.6%	3.5%
English&French	19.5%	3.0%	English Only	19.1%	0.3%	English&French	29.0%	3.5%
Other language only	17.5%	0.6%	English&French	11.7%	2.2%	French Only	21.5%	0.5%
French Only	13.9%	0.4%	French Only	6.6%	0.2%	Other language only	20.0%	0.6%
Lingusitic Bonding								
Organizations have members of similar mother tongues (1-4 pints)	Mean)	se	Organizations have members of similar ethnic origins (1-4 points)	Mean	se	Close friends have similar mother tongues (1-4 points)	Mean	se
English Only	4.12	0.01	Other language only	2.26	0.02	English&French&Other	2.48	0.12
French Only	4.04	0.02	English&French&Other	2.13	0.09	Other language only	2.20	0.02
English&French	3.96	0.09	English Only	2.00	0.01	English&French	1.92	0.10
English&French&Other	3.25	0.13	English&French	1.96	0.06	English Only	1.77	0.01
Other language only	3.09	0.03	French Only	1.80	0.01	French Only	1.47	0.01
Individual Trust								
Trust in Neighbours (1-5 points)	Mean	se	Trust in Colleagues (1-5 points)		se	Trust in strangers (1-5 points)	Mean	se
English Only	3.84	0.01	English Only	3.95	0.01	English Only	2.51	0.01
English&French&Other	3.71	0.09	English&French	3.82	0.12	English&French&Other	2.29	0.09
Other language only	3.60	0.02	English&French&Other	3.80	0.09	English&French	2.27	0.12
French Only	3.58	0.02	French Only	3.79	0.02	French Only	2.22	0.02
English&French	3.50	0.14	Other language only	3.75	0.02	Other language only	2.15	0.02
Belonging								
Belonging to Province (1-4 points)	Mean	se	Belonging to Canada (1-5 points)	Mean	se	Belonging to neighbourhood (1-5 points)	Mean	se
French Only	3.16	0.02	English&French	3.49	0.08	English Only	2.80	0.01
English Only	3.03	0.01	English Only	3.47	0.01	Other language only	2.74	0.02
English&French	3.03	0.11	Other language only	3.43	0.01	English&French	2.73	0.10
Other language only	3.01	0.02	English&French&Other	3.35	0.08	English&French&Other	2.73	0.08
English&French&Other	2.90	0.08	French Only	2.91	0.02	French Only	2.69	0.02

Symbols: se= standard error of estimate

In terms of institutional trust indicators, Francophones were the most trustful of school and police institutions compared to other mother tongue groups (mean index scores of 3.19 and 3.27 item points respectively). This level of trust was second, however, to Allophones who displayed slightly higher level of trust than Francophones with respect to the justice system. The reporting of memberships in religious organizations was most noticeable among Allophones and individuals of mixed linguistic backgrounds: one out of five individuals belonged to these type of organizations. Anglophones and individuals of mixed linguistic backgrounds were more prone to be member of neighbourhood organizations compared to other groups (35% of GSS respondents with this linguistic profile).

Indicator profiles by linguistic homogeneity of networks suggested that both Anglophones and Francophones scored the highest in terms of participating in organizations whose members had similar linguistic profiles. In contrast to these groups Allophones and individuals of mixed linguisitc profiles, reported more network heterogeneity both in terms of ethnicity and mother tongue aspects in terms of their organizational and involvements with close friends. In terms of individual trust indicators, Anglophones were relatively the most trustful group, particularly with respect to neighbours, colleagues and even strangers. Francophones and individuals of mixed linguistic backgrounds displayed lower scores with respect to these indicators. Finally, in terms of sense of belonging indicators, there were group selectivity with respect to social/geographical units of attachment: Francophones were highly attached to their province (mean score=3.16 points), bilinguals to Canada (mean score=3.49 points) and Anglophones to their neighborhoods (mean score=2.80 points)   .

4.2. Social Capital Measurement

4.2.1. Exploratory Factor Analysis

Using an initial roster of 33 social capital indicators, exploratory factor analysis (EFA) was undertaken to detect key dimensions present in correlations between indicators [3]. EFA yields a restricted number of factors that are correlated with observed variables and summarizes their values[4].

All variables entered simultaneously in the factor extraction and a total of seven major factors were extracted with eigenvalues greater than 1.0 (Kaiser-Guttman criteria) suggesting that these had strength of more than a single variable. Orthogonal and oblique rotations with a different number of factor solutions (k's) were subsequently explored to find the more parsimonious factor solutions. The EFA produced following sequence of RMSE[5] values was obtained: k(1)=.0834, k(2)=.0643, k(3)=.0555, k (4) =.0447,k(5)=.0376,k(6)=.0315, k(7)=.0255 and k(8)=.0196. Solution EFA k=5 was chosen as the most plausible for the next MIMIC phase due to the "tapering off" of the error reduction (.61 units) and a more parsimonious interpretability of clusters of variables. In

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[3] Position generator related variables aimed at describing individual networks of respondents were only available in the 2008 GSS cycle. These were not used in this analysis. Network involvement of Canadians was approximated by organizational membership indicators and, indirectly, through linguistic bonding ones.

[4] The mathematical formulation of EFA (and a MIMIC model for that matter) states that each variable can be expressed as a linear combination of factors, which are not actually observed, as follows:

$$x_{ik} = a_{i1}\, \xi_{1k} + a_{i2}\, \xi_{2k} + a_{i3}\, \xi_{3k} + \ldots\ldots + a_{in}\, \xi_{nk} + \delta_i$$

where x_{ik} is the value of the variable i for the kth observation (individual respondents to the GSS 2003 and 2008) in standardised form; ξ_{jk} is the value of the jth factor (commonly referred to as *factor scores*) for the kth observation, a_{ij} is the standardised regression coefficient of the ith variable on the jth common factor (commonly referred to as *factor loading*), while δ_i is the unique factor for the variable i. Factor scores are unique to each observation and are summary variables expressed as standard scores (usually ranging from about -3 to +3). Their values indicate the relative performance on the particular dimension identified by the factor and summarize the behaviour of a group of observable variables associated with it. The coefficients a_i in the equation are called factor loadings. The value of this coefficient describes the closeness of the relationship between a variable and the factor. Since variables are standardized, factor loadings indicate how much weight is assigned to each factor.

[5] The RMSEA (root mean square error of approximation) statistic is a measure of model fit which incorporates penalty for model complexity. An RSMEA of .05 indicates a close model fit between observed and implied covariance structures.

descending order of eigenvalue magnitude, in the k=5 solution, the first factor loaded highly on indicators related to individual trust indicators, the second on trust in institutions related indicators, the third factor related to linguistic similarities of networks in institutions and friendship networks of respondents, the fourth to belonging and the fifth to membership in organizations. Weak loadings (less than + or -.30) and/or erratic cross-loadings across factors caused 10 variables to be excluded from the next from the next phase of analysis[6]

### *4.2.2. Confirmatory Factor Analysis*

The 23 "survivor" variables of the EFA phase entered into a MIMIC SEM model of a confirmatory type to validate measurements of the dimensions of social capital. Variables that highly loaded on specific factors in the EFA phase were chosen as "anchors" to their respective parent factors to assign the metric of the latent variables EFA identified 23 variables which clustered across 5 factors (individual trust, institutional trust, linguistic bonding, membership in organizations and interaction with others) [7].

Confirmatory analysis results of the MIMIC model are presented as a path diagram in chart 1. Following SEM (Structural EquationModels) each factor (represented in circles) influences the scores of the measured variables (in squares). Single arrows represent linear dependencies of indicators to their factors and double headed arrows connect factors. The absence of arrows from certain factors to indicators reflect the particular constraints placed on measurement parameters. The first factor loaded on indicators of trust in several institutions of the community, particularly on the justice system and schools (loadings=.64 and .60), trust in the health system, welfare and the police also significant variables representing this construct (loadings higher than .50). A second construct, which reflected memberships in several types of organizations highly loaded moderately on organizations such as cultural and neighbourhood groups (loadings of .53 and .49 respectively). Linguistic homogeneity of networks, the third construct, loaded with indicators, related to the respondents linguistic similarities to their institutional and friendship network (loadings of .75 and .59 respectively). The fourth construct tapped an overall dimension of trust in individuals such as neighbours,colleagues and strangers as well as the belief that certain groups would return a wallet that had been lost. Trust in neighbours (loading=.72) in particular was illustrative in this respect. The final construct tapped sense of belonging to different social and geographical entities such as the province, Canada and their communities. he highest loading for this construct was observed sense of belonging to the province (loading=.76).

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[6] This was the case of several indicators related to the number and frequency of interactions with family, close friends and neighbours as well as indicators of network homogeneity in terms of gender, age, education and other socio-economic attributes.

[7] The MIMIC model produced a significant X^2 (p<.01) of 14,221.3, d.f.=154. The goodness of fit statistics (see Browne and Tucker, 1993) corresponding for this model suggested a relatively good model fit: RMSEA=.044, CFI=.838 and TLI=.898 The TLI (Tucker Lewis) and CFI (Comparative Fit) indices are additional measures of model fit are additional goodness of fit measures and values close to 1 reveal a close fit.

Chart 2: MIMIC Structural Equation Model of Social Capital Indicators

RMSEA=.044
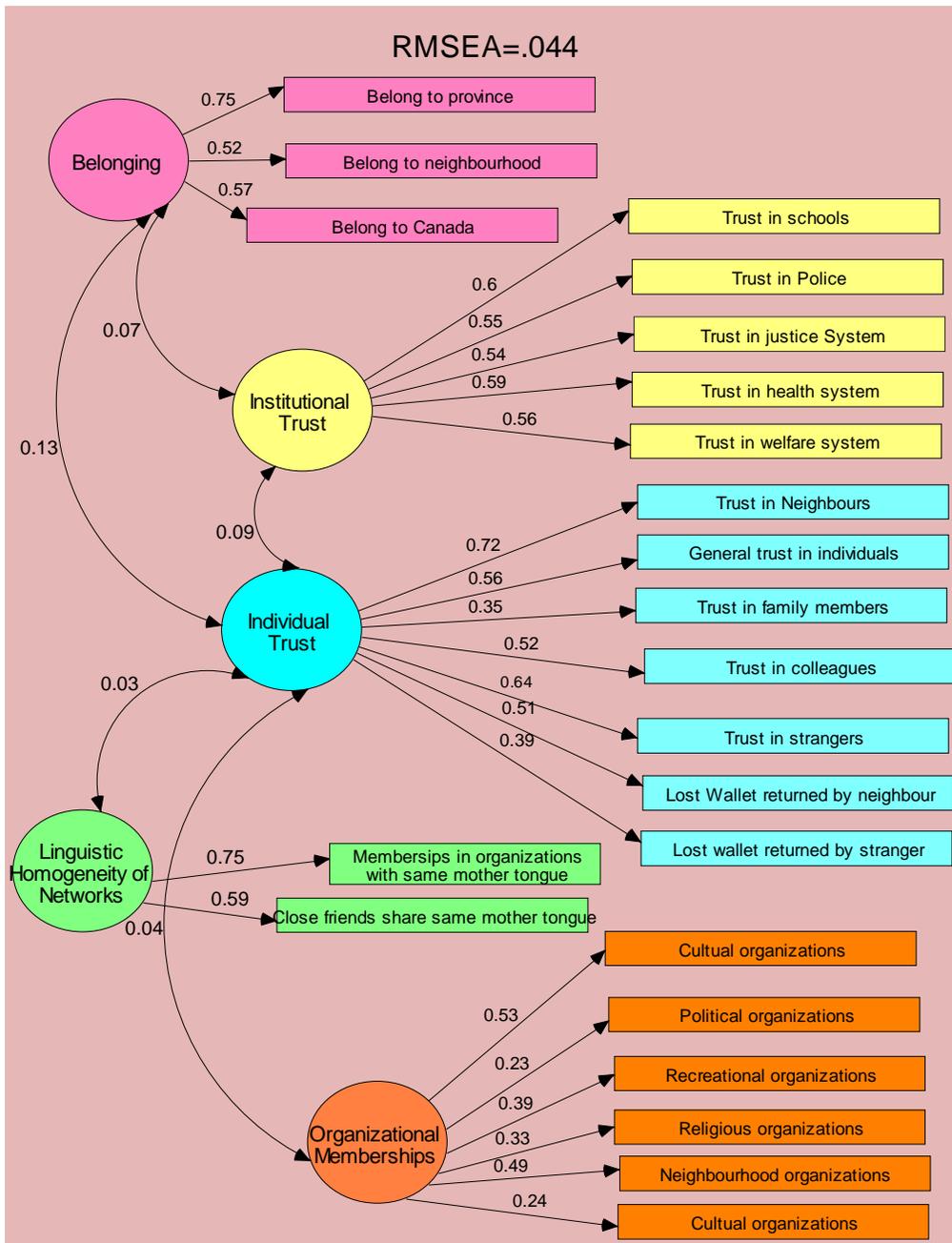
*-All factor loadings significant at the p.<.001 level. Not shown=correlations between factors equal or less to an absolute value of .02.

The MIMIC model allowed also to take into account inter-factor correlations (denoted by double headed arrows in the path diagram). The belonging factor positively correlated with the individual trust (r=.13) and institutional trust (r=.07). A positive correlation was also observed between institutional trust and individual trust constructs (r=.09). It should also be noted that MIMIC models with the 22 variables were also run separately for each GSS cycle. Factor loading structures remained fairly stable (described in SEM terminology as measurement invariance) suggesting that cycle (time) had negligible effects on the correlational structures established between social capital indicators. RMSEAs found for the 2003 and 2008 cycles were .036 and .0.04 respectively.

4.3. Variations in Social Capital Indices

Factor scores[8] that were estimated by the MIMIC models were used as synthetic indices of social capital. Though the means of indices were centered around zero, their standard deviations reflected different spread ranges around this average. The corresponding standard deviations were as follows: institutional trust: .34, organizational memberships: 15, linguistic homogeneity: .51, institutional trust: .67 and belonging: 48. Institutional trust indices had the greatest variance while the organizational memberships index the smallest [9].

Table 3: Correlation matrix of Synthetic Indices* by year of GSS cycles

	Institutional Trust	Organizational Memberships	Linguistic Homogeneity	Individual Trust	Belonging
Institutional Trust	1.00	0.04**	0.09**	0.37**	0.39**
Organizational Memberships	0.05**	1.00	-0.04**	0.38**	0.21**
Linguistic Homogeneity	0.06**	-0.05**	1.00	0.09**	0.08**
Individual Trust	0.38**	0.37**	0.07**	1.00	0.41**
Belonging	0.39**	0.21**	0.04**	0.36**	1.00

S-Lower diagonal=2003 GSS respondents correlations, Upper diagonal=2008 GSS respondents correlations, **=significant correlations at the .01 level.

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[8] A factor score is a numerical value that indicates a person's relative spacing or standing on a latent factor (five in this case) Individual factor scores follow a standard normal scoring (standard deviation units) with mean 0 and approximate variance
[9] A mean score represents averages expressed as the deviation from the mean score of the group in units of standard deviations. Mean scores near 0 suggest scores average scores, positive ones greater than average and negative ones lower than average. Following a simple rule an absolute value of .10 in this metric represents approximately 4% of the cases above or below the average value of 50%.

4.3.1. Index Variations by Cycles

The social capital synthetic indices showed a remarkable stability across the GSS cycles (see table 5). Correlation matrices by each cycle revealed that, regardless of cycle, individuals with higher scores of institutional trust indices were also more likely to score high on individual trust and sense of belonging indices (r's around .39). Also, those who were more participatory in organizations tended have higher scores in individual and sense of belonging indices. Linguistic homogeneity of networks (individuals who bonded more with organizations and friends of similar mother tongues) showed the weakest links to the other key constructs.

4.3.2. Index Variations by Socio-Demographic Attributes

Average index scores for the combined sample across the demographic groups of the sample revealed no significant differences across all indices among males and females. Contrasts in terms of age groups revealed that, though both younger (15-30 years old) and older (61+ years old) cohorts displayed higher than average individual trust index scores (+.20 and +.16 standard deviation points respectively), the younger cohort displayed lower sense of belonging ones than the older one (-.13 to +.18 standard deviation points respectively). Also in terms of individual trust scores, higher level of education (post-secondary) was positively related with higher scores in this domain (-.14 to +.17 standard deviation points). Immigrant status appeared particularly related to linguistic homogeneity imndex (+.30 for the foreign-born, +.09 for the Canadian-born) while in terms of individual trust, those who were foreign=born revealed to be slightly more distrustful than the Canadian-born (-.07 to +.02 standard deviation units).

4.3.3. Index Variations by Mother Tongue and Home Language Groups

Chart 3 presents average mean scores for synthetic indices for the five mother tongue groups. Overall, mean scores suggest that, despite a large variability of scores, mother tongue groups which had deficits in certain types were compensated with surpluses in others. There were relatively small group differences in terms of institutional trust and organizational memberships for mother tongue groups. Major differences, however, were found with respect to linguistic homogeneity of networks indices where Anglophones, Francophones and Bilinguals had the highest scores compared to Allophones and individuals of mixed (multiple linguistic backgrounds). Average negative scores suggested that the former mother tongue groups had a less linguistically diversified network than the latter ones. Noticeable also in the chart are social capital challenges facing francophone groups in terms of institutional and individual trust indices. They ranked at the lower end of these indices (mean scores=-.09 and -.16 standard deviation points respectively). To assess if group means distinct, ANOVA tests were undertaken. The largest and statistically significant F ratio corresponded to the linguistic homogeneity index (1664.3, p<.001). The other F ratios were lower but still statistically significant: memberships (F=256.2,p<.001), individual trust (F=237.6 .p<.001), institutional trust (F=153.9, p<.001) and belonging (F=12.2, p<.01). Similar patterns (e.g. direction of group means) for home language groups were observed (see chart 4). ANOVA tests revealed again greater discrepancies of group means with respect to the linguistic homogeneity index (F ratio=385.7, p<.01). The other F ratios found were smaller in size but still significant.

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Chart 3: Mean Scores of Social Capital Indices, Mother Tongue Groups, Combined Sample GSS 2003-2008 Surveys

Synthetic Indices of Social Capital

Institutional Trust
- English & French: 0.02
- Other lang only: -0.01
- English only: -0.04
- English &French& Other: -0.08
- French only: -0.09

Organizational Memberships
- French only: 0.05
- English only: 0.02
- English & French: 0.01
- Other lang only: -0.01
- English &French& Other: -0.02

Linguistic Homogeneity of Networks
- French only: 0.12
- English only: 0.11
- English & French: 0.03
- English &French& Other: -0.34
- Other lang only: -0.46

Individual Trust
- English only: 0.1
- English & French: 0.01
- English &French& Other: -0.04
- Other lang only: -0.11
- French only: -0.16

Belonging
- French only: 0.03
- English only: 0.01
- English & French: 0.01
- Other lang only: 0.01
- English &French& Other: -0.1

Mean Standard Score

Chart 4: Mean Scores of Social Capital Indices, Household Language Groups, Mother Tongue Groups, Combined Sample GSS 2003-2008 Surveys

Synthetic Indices of Social Capital

Institutional Trust
- Other lang only: 0.05
- French only: 0.09
- English only: -0.04
- English & French&Other: 0
- English & French: -0.01

Organizational Memberships
- English only: 0.02
- English & French: 0
- English & French&Other: -0.01
- Other lang only: -0.04
- French only: -0.05

Linguistic Homogeneity of Networks
- English & French: 0.38
- French only: 0.14
- English only: 0.03
- Other lang only: -0.27
- English & French&Other: -0.43

Individual Trust
- English only: 0.12
- English & French: -0.05
- Other lang only: -0.13
- English & French&Other: -0.14
- French only: -0.17

Belonging
- English only: 0.04
- English & French: 0.02
- English & French&Other: 0.02
- Other lang only: -0.03
- French only: -0.03

Mean Standard Score

4.3.4. Index Variations by Linguistic Groups in Provinces

Charts 5 to 9 present index profiles for various mother tongue groups residing in Canadian provinces during the 2003 and 2008 cycles of the GSS. Groups presented in the charts represented those with a miminal sample of 100 respondents or more. Examination of mean index scores for both institutional trust and organizational memberships revealed limited sample variability around group averages (i.e. "narrow" profiles with close proximity to the horizontal axis). Greater score variability was observed with respect to the linguistic bonding, individual trust and belonging indices. Linguistic homogeneity indices were relatively higher for Anglophone groups in Atlantic provinces such as New Foundland, Nova Scotia and Prince Edward Island as well as Saskatchewan while they were found negative for various Allophone groups (regardless of province) as well as the outlier case of Francophone speakers living in British Columbia. Mean individual trust scores were found higher (positive) for Anglophone groups living in the Atlantic provinces and relatively lower (negative) among Allophones of Ontario and Quebec as well as Francophones residing in the province of Quebec. Profiles of the belonging index suggest some polarizations between the higher scores of Anglophones residents in the Atlantic Provinces in contrast with Quebec residents of various linguistic profiles and Francophones residents of British Columbia.

Chart 5: Mean Scores of Institutional Trust Index*, Mother Tongue Groups, Combined Sample GSS 2003-2008 Surveys
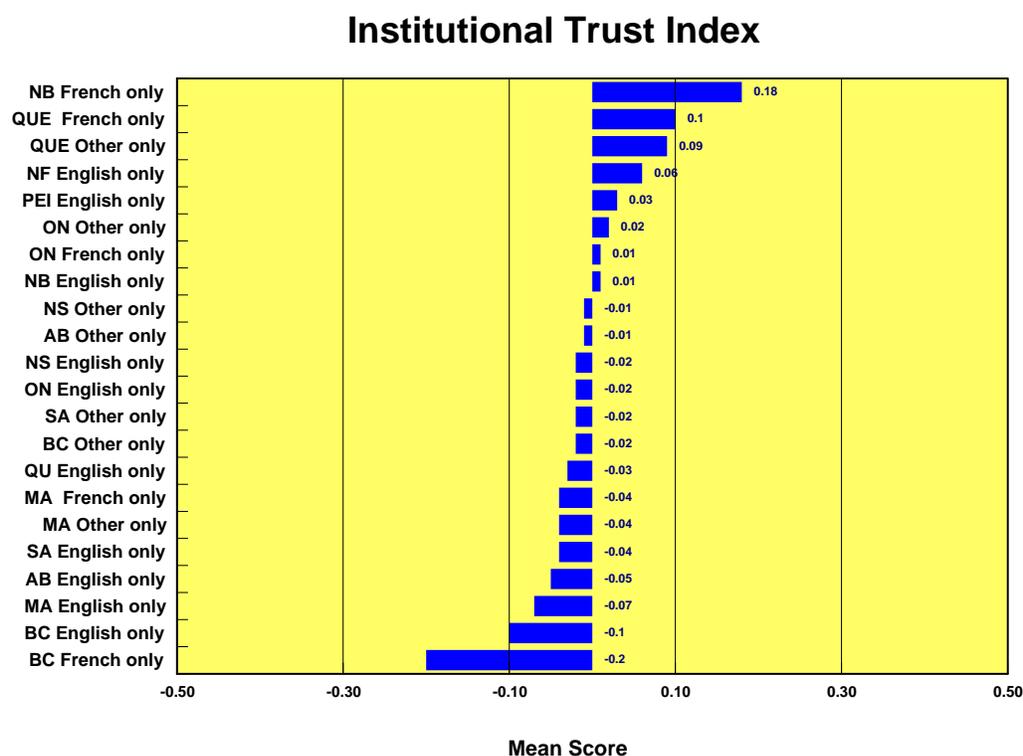
Institutional Trust Index

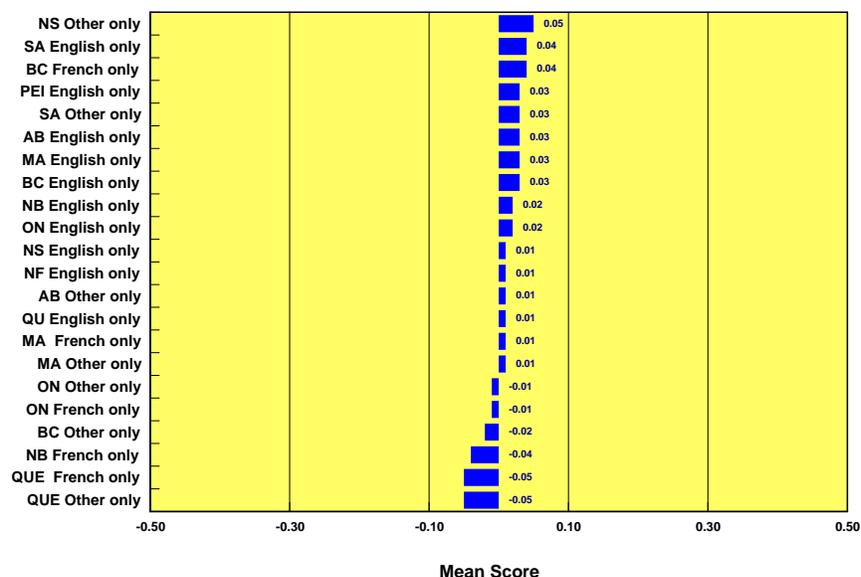
*-Only groups with an unweighted count of 100 or more respondents are shown. Symbols: NF=New Foundland, PEI=Prince Edward Island, NS=Nova Scotia, NB=New Brunswick, QUE=Quebec, ON=Ontario, MA=Manitoba, SA=Saskatchewan, AB=Alberta, BC=British Columbia

Chart 6: Mean Scores of Organizational Memberships Index, Mother Tongue Groups, Combined Sample GSS 2003-2008 Surveys
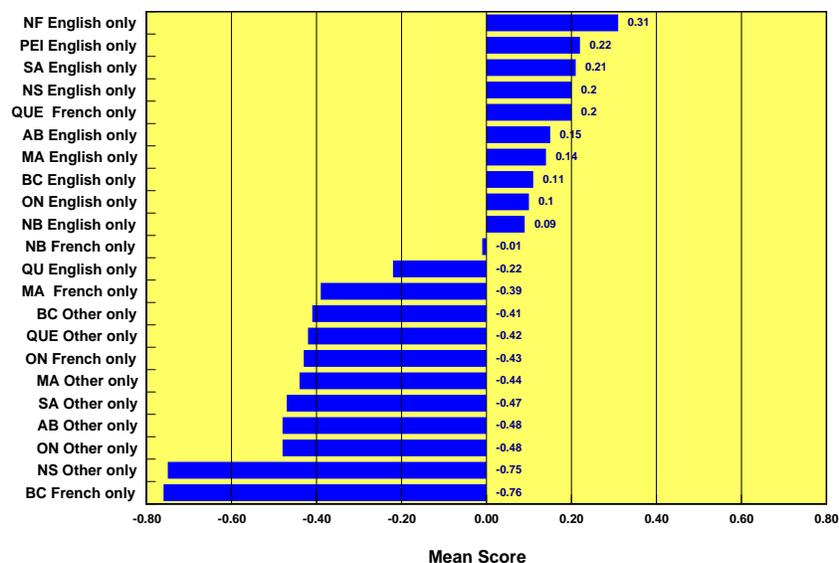
Organizational Memberships Index

Group	Mean Score
NS Other only	0.05
SA English only	0.04
BC French only	0.04
PEI English only	0.03
SA Other only	0.03
AB English only	0.03
MA English only	0.03
BC English only	0.03
NB English only	0.02
ON English only	0.02
NS English only	0.01
NF English only	0.01
AB Other only	0.01
QU English only	0.01
MA French only	0.01
MA Other only	0.01
ON Other only	-0.01
ON French only	-0.01
BC Other only	-0.02
NB French only	-0.04
QUE French only	-0.05
QUE Other only	-0.05

Mean Score

*-Only groups with an unweighted count of 100 or more respondents are shown. Symbols: NF=New Foundland, PEI=Prince Edward Island, NS=Nova Scotia, NB=New Brunswick, QUE=Quebec, ON=Ontario, MA=Manitoba, SA=Saskatchewan, AB=Alberta, BC=British Columbia

Chart 7: Mean Scores of Linguistic Bonding Index, Mother Tongue Groups, Combined Sample GSS 2003-2008 Surveys

Linguistic Homogeneity of Networks Index

Group	Mean Score
NF English only	0.31
PEI English only	0.22
SA English only	0.21
NS English only	0.2
QUE French only	0.2
AB English only	0.15
MA English only	0.14
BC English only	0.11
ON English only	0.1
NB English only	0.09
NB French only	-0.01
QU English only	-0.22
MA French only	-0.39
BC Other only	-0.41
QUE Other only	-0.42
ON French only	-0.43
MA Other only	-0.44
SA Other only	-0.47
AB Other only	-0.48
ON Other only	-0.48
NS Other only	-0.75
BC French only	-0.76

Mean Score

*-Only groups with an unweighted count of 100 or more respondents are shown. Symbols: NF=New Foundland, PEI=Prince Edward Island, NS=Nova Scotia, NB=New Brunswick, QUE=Quebec, ON=Ontario, MA=Manitoba, SA=Saskatchewan, AB=Alberta, BC=British Columbia
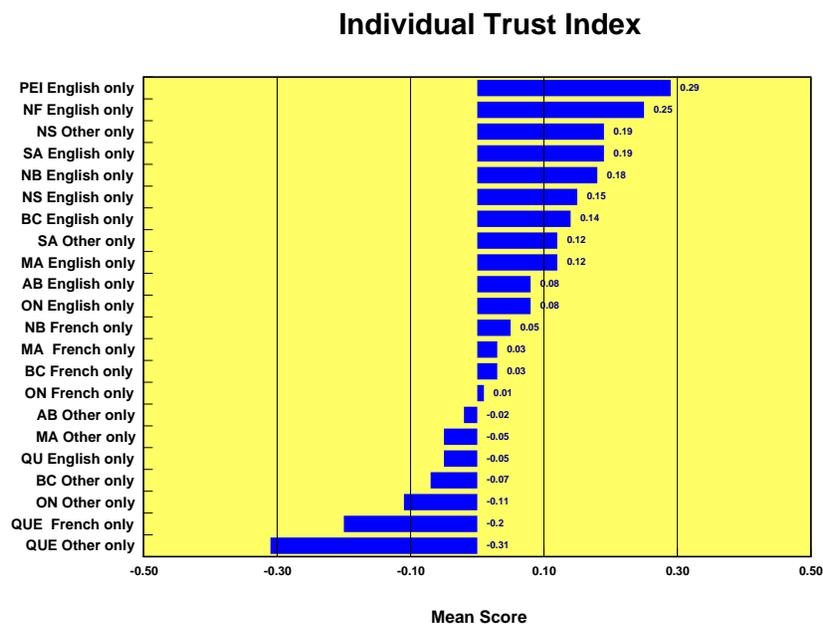
Chart 8: Mean Scores of Individual Trust   Index, Mother Tongue Groups, Combined Sample GSS 2003-2008

Individual Trust Index

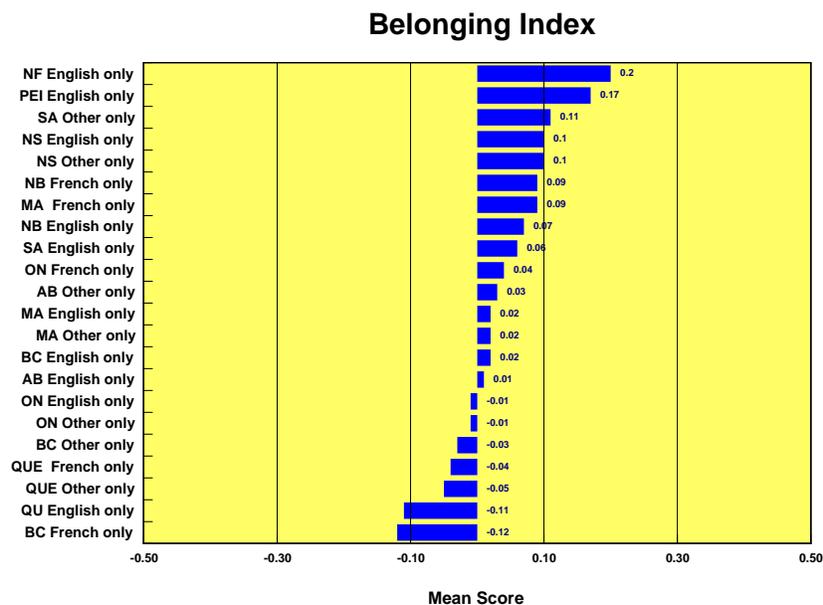| Group	Mean Score
PEI English only	0.29
NF English only	0.25
NS Other only	0.19
SA English only	0.19
NB English only	0.18
NS English only	0.15
BC English only	0.14
SA Other only	0.12
MA English only	0.12
AB English only	0.08
ON English only	0.08
NB French only	0.05
MA French only	0.03
BC French only	0.03
ON French only	0.01
AB Other only	-0.02
MA Other only	-0.05
QU English only	-0.05
BC Other only	-0.07
ON Other only	-0.11
QUE French only	-0.2
QUE Other only	-0.31

Mean Score

*-Only groups with an unweighted count of 100 or more respondents are shown. Symbols: NF=New Foundland, PEI=Prince Edward Island, NS=Nova Scotia, NB=New Brunswick, QUE=Quebec, ON=Ontario, MA=Manitoba, SA=Saskatchewan, AB=Alberta, BC=British Columbia

Chart 9: Mean Scores of Belonging Index, Mother Tongue Groups, Combined Sample GSS 2003-2008 Surveys

Belonging Index

Group	Mean Score
NF English only	0.2
PEI English only	0.17
SA Other only	0.11
NS English only	0.1
NS Other only	0.1
NB French only	0.09
MA French only	0.09
NB English only	0.07
SA English only	0.06
ON French only	0.04
AB Other only	0.03
MA English only	0.02
MA Other only	0.02
BC English only	0.02
AB English only	0.01
ON English only	-0.01
ON Other only	-0.01
BC Other only	-0.03
QUE French only	-0.04
QUE Other only	-0.05
QU English only	-0.11
BC French only	-0.12

Mean Score

*-Only groups with an unweighted count of 100 or more respondents are shown. Symbols: NF=New Foundland, PEI=Prince Edward Island, NS=Nova Scotia, NB=New Brunswick, QUE=Quebec, ON=Ontario, MA=Manitoba, SA=Saskatchewan, AB=Alberta, BC=British Columbia

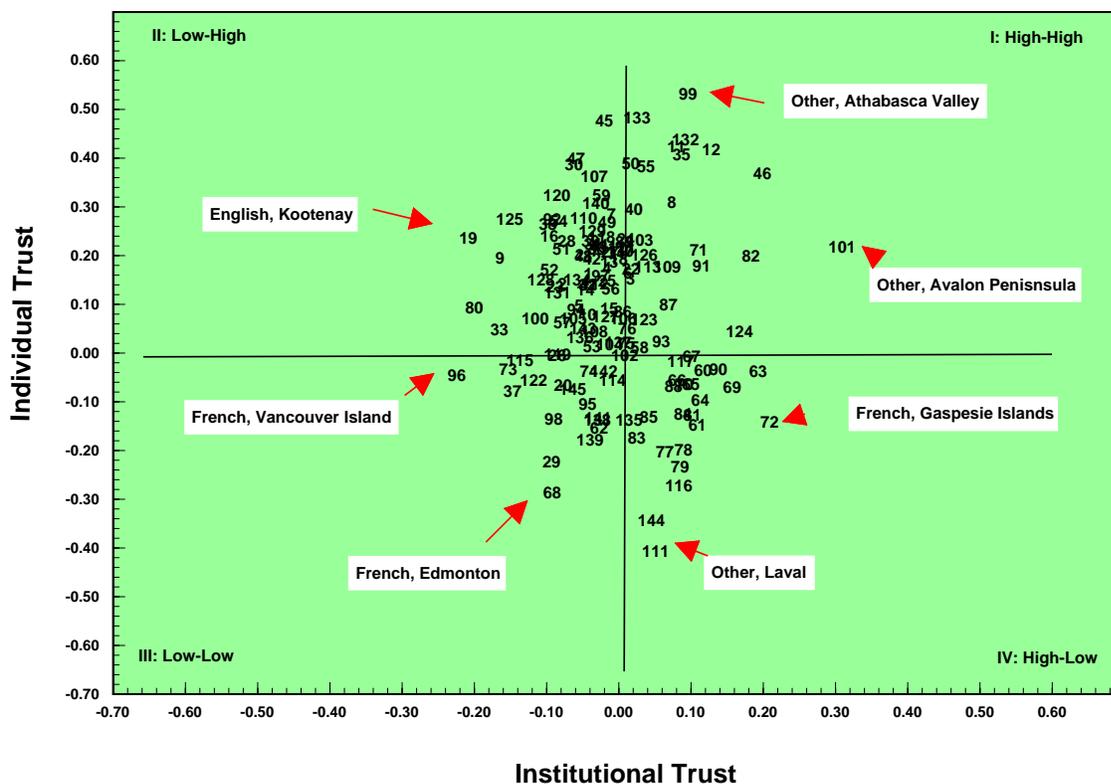### *4.3.5. Index Variations by Mother Tongue Groups in Economic Regions*

A further investigation on the geographic variations of indices was carried out by calculating averages for GSS respondents residing in the 76 economic regions between 2003 and 2008. This process involved matching information of the place of residence by province, census tract and/or combinations of enumeration area codes. The matching isolated 41,971 respondents (94.3%) of the total number of respondents for which language related characteristics were available .To minimize sample variability, mother tongue groups with a minimal sample of 20 observations were selected producing 145 mother tongue groups comprising approximately 40,803 GSS respondents.

Biplots 10 and 11 present selected bi-plots representing combinations of mean social capital indices for the 145 mother tongue groups residing in various economic regions of the country. Numbers in the plot represents the IDs (identification numbers). Numbers located near the center of the bi-plot represent positions near average values across both dimensions (x=0.00,y=.00) For analytical purposes, the plane of these plots may be divided into four quadrants reflecting the combination of values across index dimensions (I=higher-higher, II=lower-higher, III=lower-lower, IV=higher, lower). The positions of mother tongue groups in the plots are informative both in terms of magnitudes of social capital, clustering and identification of outlier cases.

As already seen in the previous sections, institutional and individual trust are key dimensions of social capital. The bi-plot of chart 10 suggests that groups such as Allophones living in the economic regions corresponding to the Athabasca valley (Alberta) and the Avalon Peninsula (Newfoundland) scored high in both dimensions (relative high positions in quadrant I). Groups such as Allophones residing in Laval (Quebec) and Francophones in the Gaspesie area (Quebec), on average, trusted more institutions than individuals The opposite was the case of Anglophones living in the Kootenay region (British Columbia) where individuals were more trusted that institutions. Outlier groups located in quadrant IV illustrate lower than average scores in both these key dimensions of social capital: Francophones residents of Edmonton (Alberta) and Vancouver Islands (British Columbia).

Bi-plot 11 shows the positions of mother tongue groups linguistic homogeneity and belonging indices. The large spread of points around the origin suggests that belonging is a relatively independent dimension from that of the linguistic homogeneity of networks configuration displayed by groups (already advanced in the MIMIC SEM phase of data analysis described in a previous section). Spread of data points was substantial across the four quadrants of the bi-plot. Groups of higher linguistic network homogeneity such as Francophones in Hamilton-Niagara (Ontario) or Allophones in Swift Current-Thompson (Saskatchewan) economic regions displayed higher sense of belonging as much as groups with less network linguistic heterogeneity such Allophones in Kootenay (British Columbia) and North Shore (Nova Scotia) economic regions. Similar patterns were observed on the lower spectrum of the belonging dimension. Here, Francophone groups residing in mainly Anglophone provinces such as those in Halifax (high homogeneity) and Calgary (low homogeneity) economic regions were the most outstanding in this respect

Chart 10: Bi-plot of individual trust vs. institutional trust Indices, GSS 2003 and 2008 respondents of various mother tongue profiles residing in economic regions

ID Symbols; 1=English/Annapolis Valley, 2=English/Athabasca – Gran, 3=English/Avalon Peninsula, 4=English/Banff - Jasper -, 5=English/Calgary, 6=English/Campbellton - Mi 7=English/Camrose – Drumhe, 8=English/Cape Breton, 9=English/Cariboo, 10=English/Edmonton, 1=English/Edmundston – Woo, 12=English/Estrie, 13=English/Fredericton – Or, 14=English/Halifax, 15=English/Hamilton – Niaga, 16=English/Interlake 17=English/Kingston – Pembr, 18=English/Kitchener – Wate, 19=English/Kootenay, 20=English/Laurentides, 21=English/Lethbridge – Med, 22=English/London, 23=English/Lower Mainland -24=English/Moncton – Richib, 25=English/Montréal, 26=English/Montérégie 27=English/Muskoka - Kawart 28=English/Nechako, 29=English/North / Nord 30=English/North Central 31=English/North Shore / Cô 32=English/Northeast / Nord 33=English/Northern / Nord. 34=English/Northwest / Nord, 35=English/Notre Dame – Cen, 36=English/Ottawa, 37=English/Outaouais, 38=English/Parklands, 39=English/Prince Albert, 40=English/Prince Edward Is, 41=English/Red Deer, 42=English/Regina - Moose M 43=English/Saint John - St. 44=English/Saskatoon – Bigg 45=English/South Central 46=English/South Coast – Bu, 47=English/Southeast / Sud- 48=English/Southern / Sud 49=English/Southwest / Sud- 50=English/Stratford – Bruc 51=English/Swift Current - 52=English/Thompson – Okana, 53=English/Toronto 54=English/Vancouver Island, 55=English/West Coast – Nor, 56=English/Windsor – Sarnia, 57=English/Winnipeg, 58=English/Wood Buffalo – C 59=English/Yorkton – Melvil, 60=French/Abitibi – Témisc, 61=French/Bas-Saint-Lauren, 62=French/Calgary, 63=French/Campbellton – Mi 64=French/Capitale-Nationa 65=French/Centre-du-Québec 66=French/Chaudière – Appa, 67=French/Côte-Nord, 68=French/Edmonton, 69=French/Edmundston – Woo, 70=French/Estrie 71=French/Fredericton – Or 72=French/Gaspésie - Iles- 73=French/Halifax 74=French/Hamilton – Niaga 75=French/Kingston – Pembr 76=French/Kitchener – Wate 77=French/Lanaudière 78=French/Laurentides 79=French/Laval 80=French/Lower Mainland 81=French/Mauricie 82=French/Moncton – Richib 83=French/Montréal 84=French/Montérégie 85=French/Nord-du-Québec 86=French/Northeast / Nord 87=French/Ottawa 88=French/Outaouais 89=French/Prince Edward Is 90=French/Saguenay – Lac-S 91=French/Saint John - St. 92=French/Southeast / Sud- 93=French/Southern / Sud 94=French/Thompson – Okana 95=French/Toronto 96=French/Vancouver Island 97=French/Windsor - Sarnia 98=French/Winnipeg 99=Other/Annapolis Valley 100=Other/Athabasca – Gran 101=Other/Avalon Peninsula 102=Other/Calgary 103=Other/Camrose – Drumhe 104=Other/Edmonton 105=Other/Halifax 106=Other/Hamilton – Niaga 107=Other/Interlake 108=Other/Kingston – Pembr 109=Other/Kitchener – Wate 110=Other/Kootenay 111=Other/Laval 112=Other/Lethbridge – Med 113=Other/London 114=Other/Lower Mainland - 115=Other/Moncton – Richib 116=Other/Montréal 117=Other/Montérégie 118=Other/Muskoka – Kawart 119=Other/North / Nord 120=Other/North Shore / Cô 121=Other/Northeast / Nord 122=Other/Northwest / Nord 123=Other/Ottawa 124=Other/Outaouais 125=Other/Parklands 126=Other/Prince Albert 127=Other/Regina - Moose M 128=Other/Saskatoon – Bigg 129=Other/South Central / 130=Other/Southeast / Sud- 131=Other/Southwest / Sud- 132=Other/Stratford – Bruc 133=Other/Swift Current - 134=Other/Thompson – Okana 135=Other/Toronto 136=Other/Vancouver Island 137=Other/Windsor – Sarnia 138=Other/Winnipeg 139=Other/Wood Buffalo – C 140=Other/Yorkton - Melvil 141=Bilingual/Montréal, 142=Bilingual/Toronto, 143=Mixed/Lower Mainland - 144=Mixed/Montréal 145=Mixed/Toronto

Chart 11: Bi-plot of Linguistic Homogeneity of Networks vs. Belonging Indices, GSS 2003 and 2008 respondents of various mother tongue profiles residing in economic regions
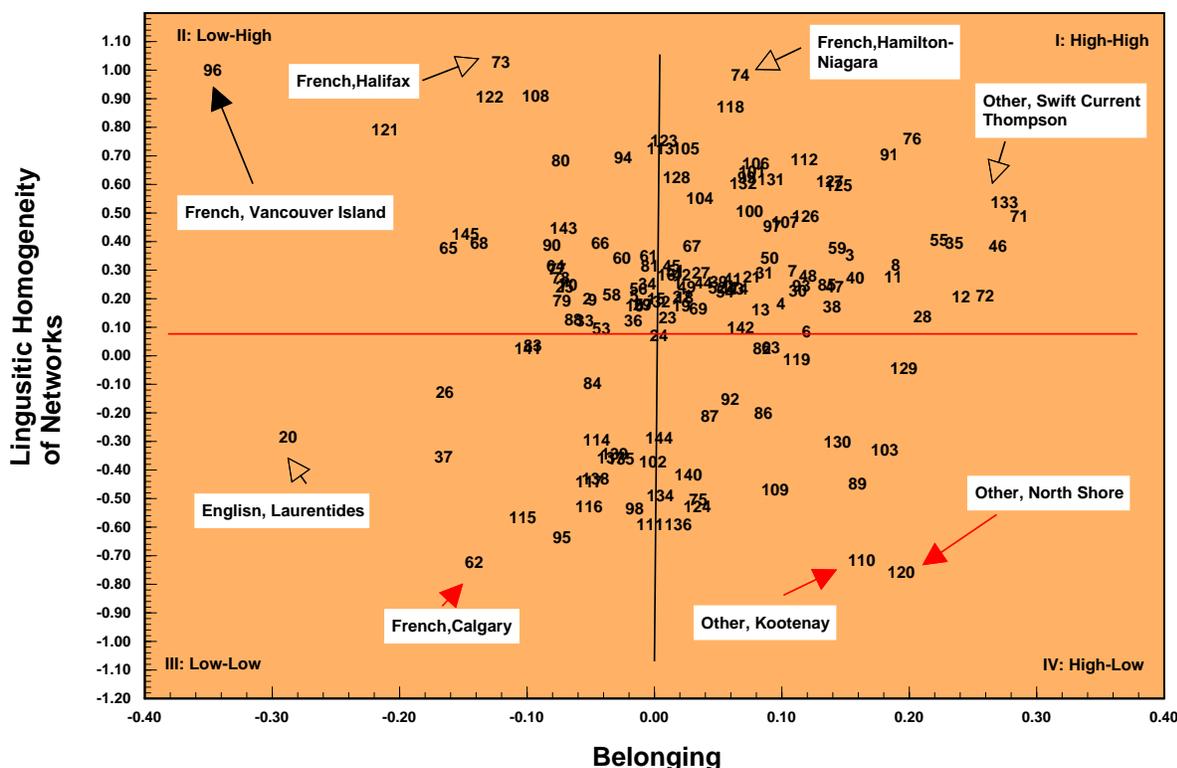
ID Symbols; 1=English/Annapolis Valley, 2=English/Athabasca – Gran, 3=English/Avalon Peninsula, 4=English/Banff - Jasper -, 5=English/Calgary, 6=English/Campbellton - Mi 7=English/Camrose – Drumhe, 8=English/Cape Breton, 9=English/Cariboo, 10=English/Edmonton, 11=English/Edmundston – Woo, 12=English/Estrie, 13=English/Fredericton – Or, 14=English/Halifax, 15=English/Hamilton – Niaga, 16=English/Interlake 17=English/Kingston – Pembr, 18=English/Kitchener – Wate, 19=English/Kootenay, 20=English/Laurentides, 21=English/Lethbridge – Med, 22=English/London, 23=English/Lower Mainland -24=English/Moncton – Richib, 25=English/Montréal, 26=English/Montérégie 27=English/Muskoka - Kawart 28=English/Nechako, 29=English/North / Nord 30=English/North Central 31=English/North Shore / Cô 32=English/Northeast / Nord 33=English/Northern / Nord. 34=English/Northwest / Nord, 35=English/Notre Dame – Cen, 36=English/Ottawa, 37=English/Outaouais, 38=English/Parklands, 39=English/Prince Albert, 40=English/Prince Edward Is, 41=English/Red Deer, 42=English/Regina - Moose M 43=English/Saint John - St. 44=English/Saskatoon – Bigg 45=English/South Central 46=English/South Coast – Bu, 47=English/Southeast / Sud- 48=English/Southern / Sud 49=English/Southwest / Sud- 50=English/Stratford – Bruc 51=English/Swift Current - 52=English/Thompson – Okana, 53=English/Toronto 54=English/Vancouver Island, 55=English/West Coast – Nor, 56=English/Windsor – Sarnia, 57=English/Winnipeg, 58=English/Wood Buffalo – C 59=English/Yorkton – Melvil, 60=French/Abitibi – Témisc, 61=French/Bas-Saint-Lauren, 62=French/Calgary, 63=French/Campbellton – Mi 64=French/Capitale-Nationa 65=French/Centre-du-Québec 66=French/Chaudière – Appa, 67=French/Côte-Nord, 68=French/Edmonton, 69=French/Edmundston – Woo, 70=French/Estrie 71=French/Fredericton – Or 72=French/Gaspésie - Iles- 73=French/Halifax 74=French/Hamilton – Niaga 75=French/Kingston – Pembr 76=French/Kitchener – Wate 77=French/Lanaudière 78=French/Laurentides 79=French/Laval 80=French/Lower Mainland 81=French/Mauricie 82=French/Moncton – Richib 83=French/Montréal 84=French/Montérégie 85=French/Nord-du-Québec 86=French/Nord 87=French/Ottawa 88=French/Outaouais 89=French/Prince Edward Is 90=French/Saguenay - Lac-S 91=French/Saint John - St. 92=French/Southeast / Sud- 93=French/Southern / Sud 94=French/Thompson – Okana 95=French/Toronto 96=French/Vancouver Island 97=French/Windsor - Sarnia 98=French/Winnipeg 99=Other/Annapolis Valley 100=Other/Athabasca – Gran 101=Other/Avalon Peninsula 102=Other/Calgary 103=Other/Camrose – Drumhe 104=Other/Edmonton 105=Other/Halifax 106=Other/Hamilton – Niaga 107=Other/Interlake 108=Other/Kingston – Pembr 109=Other/Kitchener – Wate 110=Other/Kootenay 111=Other/Laval 112=Other/Lethbridge – Med 113=Other/London 114=Other/Lower Mainland - 115=Other/Moncton – Richib 116=Other/Montréal 117=Other/Montérégie 118=Other/Muskoka – Kawart 119=Other/North / Nord 120=Other/North Shore / Cô 121=Other/Northeast / Nord 122=Other/Northwest / Nord 123=Other/Ottawa 124=Other/Outaouais 125=Other/Parklands 126=Other/Prince Albert 127=Other/Regina - Moose M 128=Other/Saskatoon – Bigg 129=Other/South Central / 130=Other/Southeast / Sud- 131=Other/Southwest / Sud- 132=Other/Stratford – Bruc 133=Other/Swift Current - 134=Other/Thompson – Okana 135=Other/Toronto 136=Other/Vancouver Island 137=Other/Windsor – Sarnia 138=Other/Winnipeg 139=Other/Wood Buffalo – C 140=Other/Yorkton - Melvil 141=Bilingual/Montréal, 142=Bilingual/Toronto, 143=Mixed/Lower Mainland - 144=Mixed/Montréal 145=Mixed/Toronto

To summarize the patterns of similarity between the 145 mother tongue groups, a k-Means clustering algorithm was applied to the social capital indices. This algorithm measures the proximity between groups using Euclidean distances between group or class centroids (Jobson, 1992). Starting with an initial selection of groups, groups are reassigned until they are located in the group with the nearest centroid[10]. The validation of the cluster solution was done in terms of a fundamental reduction of the determinant of W (within group sum of squares) with a statistically significant Wilk's λ (lambda). Results of this clustering procedure are presented in table 4.

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[10] The centroid for each cluster is the point to which the sum of distances from all objects in that cluster is minimized.

Statistical significance in the reduction of the determinant of W appeared only after class solution k=4 forward (λ<.05). Further reduction of intra-cluster variability achieved in the k=5 and minimal changes in the latter after k=6, made the former solution the most adequate one to describe the data patterns.

The composition of classes varied also in terms of the main language (e.g. more presence of Anglophone groups in class 1 and 2, Francophones and Allophones in class 4, Allophones in class 3, etc.). Cluster centroids for the five classes suggested that:
-class 2 members (18 groups) comprised other tongue groups with the most *balanced* endowments in social capital,
-class 1 members (48 groups) were equally endowed as class 1 except they experienced somewhat lower scores in *institutional trust*,
-class 3 members (30 groups) were endowed by the most linguistically *heterogeneous* (diverse) networks,
-class 5 members (21 groups) were endowed by the most linguistically *homogeneous networks* and,
-class 4 members (28 groups) were those groups with lower scores on *individual trust*.

Table 4: k-Means Clustering Resuts of Social Capital Indices, Mother Tongue Groups in Economic Regions

k-Means Cluster Solutions	2 class	3 class	4 class	5 class	6 class
Clustering Statistics					
Trace of W	14,1	11.30	7.40	6.30	5.70
Determinant of W	2.40	1.10	0.30	0.20	0.20
Wilk's λ	**0.24**	**0.11**	**0.04**	**0.02**	**0.01**
Variance Decomposition Statistics					
Within	0.09	0.06	0.05	0.04	0.04
Between	0.10	0.13	0.15	0.16	0.16
Total	0.20	0.20	0.20	0.20	0.20
Five Class Solution	Class 1: Somewhat lower institutional trust scores	Class 2: High Scores in All domains I	Class 3: Bonding in Heterogeneous Linguistic Networks	Class 4: Lower individual Trust scoress	Class 5: Bonding in Homogeneous Linguistic Networks
Class Centroids					
Institutional Trust	-0.04	0.05	-0.01	0.06	-0.05
Organizational Memberships	0.02	-0.01	-0.02	-0.04	-0.03
Linguistic Homogeneity of Networks	0.13	0.38	-0.49	0.19	0.69
Individual trust	0.15	0.32	-0.03	-0.13	0.04
Belonging	0.05	0.16	0.00	-0.03	0.00
N All Cases	48	18	30	28	21
N Englisn MT Cases	44	9	3	3	0
N French MT Cases	2	2	7	11	7
N Other MT Cases	2	7	19	10	13
N Bilingual MT cases	0	0	0	2	0
N Mixed MT cases	0	0	1	2	0

Chart 12 displays a bi-plot of belonging vs. individual trust index scores showing the geometrical positions of mother tongue groups according to their class memberships (numbers). A linear pattern of association between indices is seen in the plot. Class 2 and 1

members were more visible in the high-high mix of quadrant I while other class members populated other quadrants of the plot. Table T-1 in the appendix lists all mother tongue groups by their respective class memberships, social capital indices and number of observations.

Chart 12: Mother Tongue Groups in Economic Regions by class memberships, combined GSS 2003-2008 sample
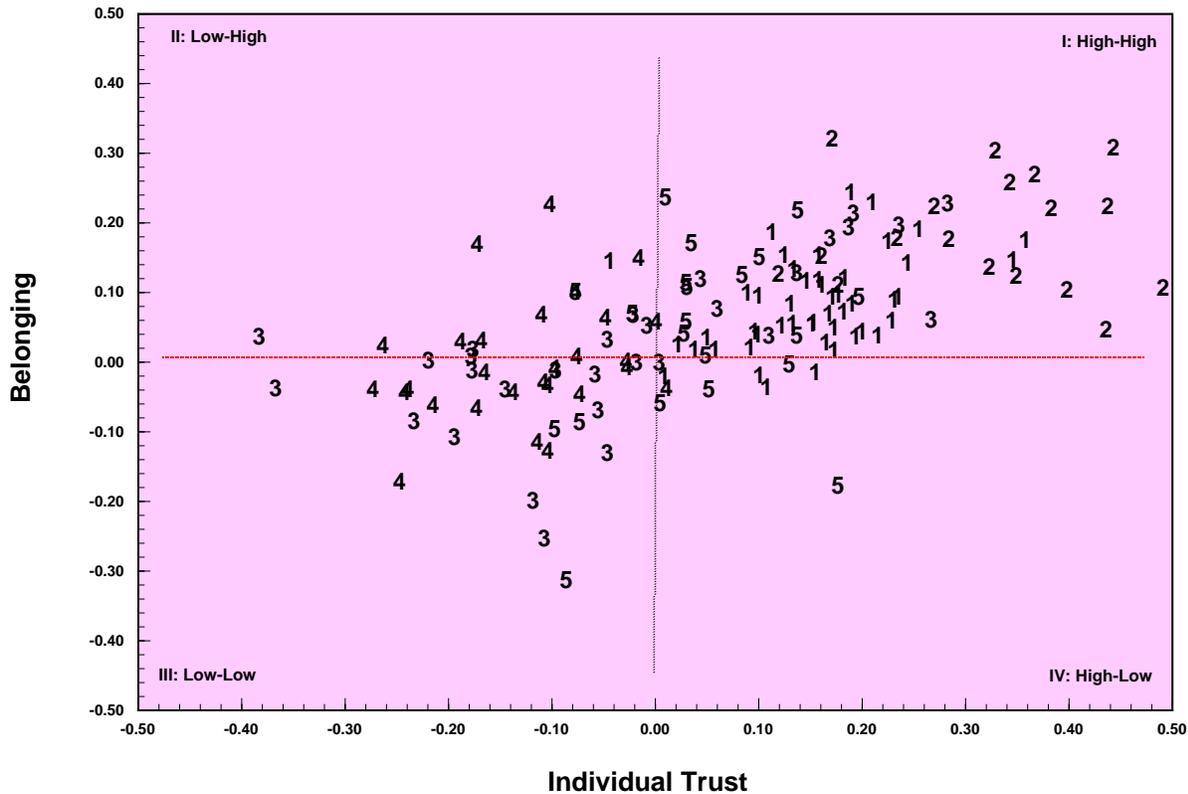
Symbols: 1=class 1 (some institutional trust deficits), 2=class 2 (all types of social capital), 3=class 3 (heterogenous linguistic networks), 4=class 4 (some individual trust deficits), 5=class 5 (homogeneous linguistic networks)

4.4. Index Prediction Findings

4.4.1. Index Prediction by Linguistic and Other Individual Covariates

The final stage of the data analysis of mother tongue groups addressed questions related to the influence of individual and contextual attributes on the variation of social capital indices. Effects of mother tongue attributes where subject of particular attention in these predictions, net from effects of other individual characteristics of GSS respondents as well as place-based attributes. MIMIC SEM models again and linear mixed models (random intercept with covariates) were used for this analytical purpose.

In the first part of prediction stage, individual covariates were represented by various dummy variables including: age (5 dummy variables), sex, marital status (4 dummy variables), presence of children under 5 and between 5-12 (2 dummy variables), highest level of schooling (5 dummy variables), immigrant status (4 dummy variables), ethnicity (11

dummy variables) and employment status (3 dummy variables) Place related covariates were of two types: city and neighbourhood level. City level covariates were drawn from the 2001 census and 2006 census and describe elements of the city or CMA of residence and include the total population of the city or CMA, the number of immigrants, the proportions of the population that is Aboriginal, English speaking, French speaking or bilingual and the percent of people in the city who have a university degree. From the two general social surveys neighbourhood level information was drawn to identify the percent of residents in the respondent's census tract or city that were below the low income cutoff and the percent who are recent immigrants.[11]

Table 5 shows selected results from the basic MIMIC SEM model with individual covariates. This model was the original one used in the CFA stage plus selected covariates. Examination of results for the institutional trust index, the model suggests that:

- Controlling for other individual covariates, membership in the Francophone group (compared to the English only group, the reference group) increased the standard deviation upwards by .20 standard deviation points (p<.01) while other mother tongue attributes had smaller but significant effects. Having resided in Canada between 5-9 years had a similar positive effect.

- With respect to organizational memberships, the most important predictor was having attained a level of education equivalent to a bachelor level of education or above (γ=.16,p<.01[12]) while membership in the Francophone group moved the standard deviation downward by.10 standard deviation points.

- Net from other controls, membership in the Allophone and mixed linguistic group had substantial effects on the linguistic bonding index (γ's of -.74 and -.61 respectively).

- The negative effect of being Francophone on the individual trust index was confirmed by the model (γ=-.37). Individual trust scores, however, increased with age, education and married marital status.

- Model results for the belonging index suggested significant negative effects for the French only language group (γ=-.10) and recency of arrival to Canada (γ=-.45)

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[11] Census tracts are analogous to neighbourhoods but are only available in Census Metropolitan Areas (regions with more than 100 thousand residents) and Census Agglomerations (regions with more than 50 thousand residents). For residents outside these areas, municipal level information is used.
[12] In SEM terminology, gamma coefficients (γ's) are structural coefficients representing the impact of observed indicators on latent variables (eta's or η's).

Table 5: MIMIC SEM Model of Social Capital Indices with Individual Covariates

Institutional Trust		Organizational Memberships		Linguistic Homogeneity		Individual Trust		Belonging	
Predictor	Coeff,.	Predictor	Coeff,.	Predictor	Coeff,.	Predictor	Coeff,.	Predictor	Coeff,.
Linguistic Predictors (dummy variables)									
French Only MT	+0.20**	French Only MT	-0.10**	French Only MT	-0.05**	French Only MT	-0.37**	French Only MT	-0.10**
Other Language MT	+0.03**	Other Language MT	-0.04**	Other Language MT	-0.74**	Other Language MT	-0.11**	Other Language MT	+0.06**
English & French MT	0.05ns	English & French MT	-0.03ns	English & French MT	-.024**	English & French MT	-0.13*	English & French MT	+0.02ns
English&French&Other MT	-0.06ns	English&French&Other MT	-0.01ns	English&French&Other MT	-0.61**	English&French&Other MT	-0.05ns	English&French&Other MT	-0.10ns
Other Selected Individual Covariates (dummy variables)									
5-9 years of residence in Canada	+0.13**	Bachelor and above level of education	+0.16**	10 + years of residence in Canada	-0.16**	45+54 years old	+0.51**	45-54 years old	+0.19**
						Married	+0.11**	55+ years old	+0.45**
						Bachelor and above level of education	+0.38**	Less than 5 years of residence in Canada	-0.14**
						Self-employed	+0.21**		

Symbols: **=significant coefficient at the p<.01 level, *=significant coefficient at the p<.05 level, ns=non statistically significant coefficient. All models with X2 tests significant at the p<.01 level. Reference groups: females, 18-24 years old, single marital status, English only mother tongue, no children in household, less than high school education, Canadian-born, not in labour force.

4.4.2 Index Predictions by Individual Covariates and Contextual Covariates

The combined GSS 2003-2008 data set presented a total of 47,589 index observations clustered in 4,441 cities (CMAs and CSD's) with an average of 10.7 observations per cluster. The within cluster standard deviations for the five indices were as follows: institutional trust (.3227), organizational memberships (.1463), linguistic bonding (.4813), individual trust (.6342) and belonging (.4664). The corresponding between cluster standard deviations were as follows: institutional trust (.1828), organizational memberships (.1008), linguistic bonding (.2654), individual trust (.3590) and belonging (.2559) These initial figures suggested the presence of a large degree of cluster variability to be found across individual trust and belonging indices compared to the other three. Between and within cluster variabilities for the membership index were the very similar in size (i.e. social capital indices varied as much across individuals as across cities or CSD's)

Charts C-1 and C-2 in the appendix presents the zero order correlations between index scores 2003 and city attributes drawn from the 2001 and 2006 census respectively. Correlations of an absolute value of .02 or higher are statistically significant at the P<.01 level. Inspection of these correlations suggested the presence of negative effects of the logarithm of city size, logarithm of the total immigrant population and percentage of university educated city population on linguistic bonding, individual trust and belonging indices at the two time periods. Percentage university educated population in cities correlated positively with the memberships index while the presence of Anglophones in the city population correlated negatively with both institutional and individual trust measures. Also noteworthy is that the presence of Francophones in the city population correlated negatively with indices of memberships, individual trust and belonging but positively with institutional trust and linguistic bonding.

Results of five multilevel random intercept models for the five models (one for each index) are presented in table 6[13]. As indicated in a previous, sections these type test the effects of city covariates (level 2) in the presence of individual attributes (level 1). Examination of the coefficients of the random intercept model suggests that

- effects of mother tongue covariates on the five social capital were not "wiped-out" neither by other individual covariates and/or place-related attributes of residence

- Compared to the Anglophone groups, there were still observable effects related to memberships in Francophone and Allophone mother tongue groups with respect to linguistic bonding and individual trust indices.

- Individual covariates that were significant in the MIMIC model continued to be so in the random intercept model including both individual and contextual covariates: recency of arrival and age in the institutional trust index, educational level on the membership index, language in the linguistic bonding index, education in the individual trust and age in the belonging one.

- In terms of the contextual predictors, these effects were small in size (equal or smaller than an absolute value of .03 standard deviation points) but observable. Three city characteristics were outstanding in this respect: population size, immigrant population size and percent Francophone speakers[14]. While city size produced an increase in both institutional trust and belonging indices, immigrant population size did the opposite. In terms of linguistic homogeneity of networks and individual trust indices, the direction of effects was reversed: greater bonding and individual trust occurred in cities of larger immigrant populations while it did so less in places of larger population size.

- Intraclass correlation coefficients (IC's) for each synthetic index were estimated by the random intercept models. These coefficients measure the degree of correlation of the observations (cases) within their clusters [15]. IC's were found small in size with the exception of the individual trust index (IC=.3954) suggesting important clustering effects taking place by the city or CSD of residence.

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[13] Not shown in the table are effects of ethnic predictors. The most notable and statistically significant ones were negative effects of ethnic memberships in various groups: Aboriginal origins on institutional trust (γ=-.10), Portuguese origins and Other European ethnicities on linguistic homogeneity of networks (γs=-.10 and -.14 respectively) and those of Chinese and Jewish ethnic origins on the sense sense of belonging (γs=-.12 and -.22 respectively).

[14] Initially, two municipal characteristics were also introduced in the regression equations: % city residents living under the LICO cutoff and percent recent immigrants (less than five years in Canada). Both municipal covariates failed to produced any significant effects and were excluded from the final predictions

[15] If the interclass correlation approaches 0 then there is minimal degree of clustering (individuals are very different within clusters), it it approaches 1 then there is strong degree of clustering (individuals are very similar within their respective clusters)

Table 6: Random Intercept Models of Social Capital Indices with Linguistic, Individual and Contextual Covariates Results

Institutional Trust		Organizational Memberships		Linguistic Homogeneity		Individual Trust		Belonging	
Predictor	Coeff,.	Predictor	Coeff,.	Predictor	Coeff,.	Predictor	Coeff,.	Predictor	Coeff,.
Linguistic Predictors (dummy variables)									
French Only MT	+0.05**	French Only MT	-0.03**	French Only MT	-0.18**	French Only MT	-0.15**	French Only MT	-0.01*
Other Language MT	+0.01**	Other Language MT	-0.01**	Other Language MT	-0.57**	Other Language MT	-0.07**	Other Language MT	+0.04**
English & French MT	0.01**	English & French MT	-0.01ns	English & French MT	-0.16**	English & French MT	-0.05**	English & French MT	+0.04*
English&French&Other MT	-0.06**	English&French&Other MT	-0.01ns	English&French&Other MT	-0.44**	English&French&Other MT	-0.03ns	English&French&Other MT	-0.07*
Other Selected Individual Covariates (dummy variables)									
Less than 5 years of residence in Canada	+0.09**	Bachelor and above level of education	+0.10**			55+ years old	+0.42**	45-54 years old	+0.27**
						Bachelor and above level of education	+0.36**	55+ years old	+0.32**
						Aboriginal ethnic origins	-0.24**		
Contextual Covariates (city characteristics)									
Logarithm of city total population	+0.03**	Logarithm of city total population	-0.01**	Logarithm of city total population	-0.03**	Logarithm of city immigrant population	-0.03**	Logarithm of city total population	+0.03**
Logarithm of city immigrant population	-0.03**			Logarithm of city immigrant population	+0.02**	Percentage of city population speaking French	-0.02**	Logarithm of city immigrant population	-0.03**
Model Statistics									
N Observations	44,434	N observations	44,434	N observations	44,434	N observations	44,434	N observatios	44,434
N Clusters	3,583	N Clusters	3,583	N Clusters	3,583	N Clusters	3,583	N Clusters	3,583
X2 test (48df)	2059.9**	X2 test (48df)	6464.3**	X2 test (48df)	6593.2**	X2 test (48df)	10894.4**	X2 test (48df)	3642.3**
ρ (intraclass correlation coefficient)	.0162	ρ (intraclass correlation coefficient)	.0074	ρ (intraclass correlation coefficient)	.0012	ρ (intraclass correlation coefficient)	.3954	ρ (intraclass correlation coefficient)	.0002

Symbols: **=significant coefficient at the p<.01 level, *=significant coefficient at the p<.05 level, ns=non statistically significant coefficient. Reference groups: females, 18-24 years old, single marital status, English only mother tongue, no children in household, less than high school ducation, Canadian-born, not in labour force, Canadian/British&French ethnic origins

5.0. Conclusions

 The literature tells us that social capital represents the productive value of relationships established between people. Individuals of different linguistic profiles in Canada create networks of relationship within families, friendships, work, clubs, religious groups, neighbourhood associations, political organizations and ethnic groups. In so doing, they develop identification with these networks, their individual members and to the communities where these are located. The sharing of a common language makes this desired result possible.

Increasing ethnic and linguistic diversity poses a significant challenge in terms of building social capital and social inclusion and understanding these processes is vital in order to develop strategies to address the impacts, and/or to support define strategies for alleviating the impacts. In this sense, this report provides important information for Departmental (PCH) programs on regional characteristics of social capital as well as enhancing and/or inhibiting factors of social capital formation.

Using exploratory factor analysis, MIMIC SEM modeling, cluster analysis and hierarchical linear models, this study adopted a broad approach aimed at assessing the relative status of linguistic groups with regards to its key constructs incorporating personal and contextual

attributes of Canadians. Twenty-two variables which reflect major dimensions of social capital were used in an exploratory factor analysis. Five major key constructs were identified in the EFA phase and confirmed using a MIMIC SEM model. The latter produced valid measurements of the key dimensions of social capital. Social capital indices were calculated from this model and subject to examination of their variability across mother tongue groups in provinces and economic regions. Clusters of mother tongue groups of similar social capital characteristics were indentified, Synthetic indices were later predicted by a selected number of covariates representing individual and place-related attributes. Overall, the results provide a simplified but meaningful picture of a complex reality. Each key construct reveals the patterns of associations among the variables used and provides a perspective on the relative position of each individual across groupings of variables.

In terms of the analysis itself, the main findings of the report can be summarized as follows:

1. *Multidimensionality of the Social Capital Construct.* Social capital appeared to be a super-construct comprising multiple dimensions. Five major constructs were found underlying the correlational structure of indicators and these were identified in the EFA and MIMIMIC-SEM models fitted to the GSS data. These key constructs were related to institutional trust, organizational memberships, linguistic bonding, individual trust and sense of belonging. Some constructs appear inter-related and reinforced each other (e.g. individual trust and belonging).

2. *Rich diversity of social capital among linguistic groups.* Though the magnitude and types of social differed widely across linguistic groups, deficits in one dimension were compensated with surpluses on another. No group displayed extreme deficits or surpluses in all social capital indices simultaneously. This diversity extended itself through provinces and cities where GSS respondents lived. This was particularly evident when the social capital of various mother tongue groups residing in regions were examined using the synthetic indices.

3. *Bonding processes different across linguistic groups.* The linguistic homogeneity had considerable variation compared to the other four. Anglophones, Francophones and Bilinguals had higher degrees of homogeneity compared to Allophones and individuals of mixed linguistic backgrounds. The former group interacted more frequently with institutions and close friends using as communication vehicles the two official languages, while the latter group benefited not only from these but from contacts using their mother tongues as main communication vehicles.

4. *Linguistic differences in social capital persisted even after the introduction of personal and contextual attributes as controls.* These were of limited magnitude, however, to other personal characteristics such as age, education and ethnicity.

5. *Place-based indicators had smaller effects but were still visible in the prediction of social capital indices.* Social capital formation appeared to be influenced by city characteristics such as population size and immigrant population size somewhat consistently. Clustering effects were more noticeable with respect to the individual trust indices suggesting that city attributes may matter in this dimension.

In terms of individual social capital indices themselves:

1. The institutional trust index appeared to describe well the confidence that individuals put into various institutions. Greater capital of this nature was observed Francophone

groups living in Quebec and among Anglophone groups living in the Atlantic provinces. Lesser capital was observed among Aboriginals and recently arrived groups such as those reporting African ethnic origins.

2. The organizational membership index described a set of attributes corresponding to the degree of involvement of individuals in their communities through membership in several which ranged from neighbourhood associations to cultural and religious ones. This index had a very limited range of variability which made difficult to establish major differences between linguistic groups. Despite this limitation, Anglophones and more established immigrant groups seemed to have higher standings with respect to this index.

3. The third index was associated with linguistic homogeneity of networks which is tapping into bonding activities taking place in the linguistic groups of Canada. As indicated before, this index contrasted mostly Anglophones, Francophones and Bilinguals with the rest of mother tongue groups.

4. The fourth index tapped attitudes related to trust in different groups of people ranging from family to strangers. Anglophones residing in the Atlantic Provinces ranged at top levels with respect to this index while Quebec Francophones and Allophones residing in various Canadian provinces ranked at lower standings i.e. those reporting Aboriginal and/or other ethnic backgrounds).

5. The fifth index, the belonging one reflected the degree of attachment to various geographical and social units which comprised Canada, the province and their neighbourhoods. Here we noticed preferential belongings depending on the mother tongue group that was examined.

Pooling 2003 and 2008 respondents brought analytical benefits but also made important assumptions (i.e. identical populations, stability of correlational structures between social capital indicators and contextual attributes). Also, the analysis was limited to variables which were consistently collected in the two observation periods. In addition, network size and density was not examined as these were only available in one GSS cycle and not in the other. Information about these characteristics can provide also important clues on how social capital is created, maintained and reproduced by the various linguistic groups in Canada. Another important limitation stems from the sample design itself. Limited sample counts in the GSS combined sample, made difficult to make inferences about more differentiated groups such as Allophones with different linguistic combinations. Because of its national scope, general social surveys are not particularly equipped to respond questions regarding minority attitudes and behaviours like post-censal surveys or those where minority counts are generally "boosted" by oversampling.

In spite of these, however, the study allowed for an insight into a complex process whereby social capital is accumulated and created by linguistic groups in Canada. These individuals create networks of relationship within families, friendships, work, clubs, religious groups, neighbourhood associations, political organizations and ethnic groups. In so doing, they develop identification with these networks, their individual members and to the communities where these are located. The sharing of a common language makes this desired result possible. Indices of social capital are helpful in monitoring and setting policy priorities and in benchmarking or monitoring performance. They have a two-fold utility: they can identify groups where social capital reproduction is more difficult and can compare complex dimensions effectively.

Finally, it is hoped that this analysis leads us into a deeper reflection n the policy interventions that could strengthen the positions of linguistic groups in various social capital domains. The mandate of the Department of Canadian Heritage calls for the development of vital linguistic communities and the promotion of the use of English and French in the country. Departmental programs are particularly active in social capital domains such as institutional trust, belonging and configuration of linguistic networks. This analysis found that increasing institutional trust can, indirectly, boost individual trust and sense belonging contributing to a greater level of overall well-being in terms of social capital. If interventions are successful then it will be possible to strengthen the standings of many types of linguistic groups who scored lower in some social capital domains (e.g. class 1 and 4 members of the cluster analysis) residing in the various OLMCs communities of Canada. This work requires solidifying community networks, develop strategies for civic participation and promoting a wider range of bridging and bonding activities with other community residents.

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APPENDIX

Table T-1: Mean Scores of Social of Social Capital Indices by GSS Respondents in Economic
    Regions * (Class 1 members)

ID	Mother Tongue	Economic Region	Inst. Trust	Org. Memberships	Linguistic Homogeneity	Ind. Trust	Belonging
1	English	Annapolis Valley	-0.043	-0.006	0.185	0.122	0.018
2	English	Athabasca - Gran	-0.079	0.025	0.132	0.101	-0.053
3	English	Avalon Peninsula	0.016	0.002	0.283	0.113	0.153
4	English	Banff - Jasper -	-0.017	0.007	0.113	0.134	0.099
5	English	Calgary	-0.056	0.040	0.142	0.058	-0.016
6	English	Campbellton - Mi	0.012	0.004	0.017	0.125	0.119
7	English	Camrose - Drumhe	-0.011	0.044	0.229	0.244	0.108
9	English	Cariboo	-0.165	0.038	0.128	0.155	-0.049
10	English	Edmonton	-0.044	0.021	0.105	0.038	-0.016
13	English	Fredericton - Or	-0.014	0.023	0.093	0.146	0.083
14	English	Halifax	-0.047	0.017	0.165	0.089	0.066
15	English	Hamilton - Niaga	-0.014	0.012	0.130	0.050	0.001
16	English	Interlake	-0.097	0.017	0.213	0.200	0.009
17	English	Kingston - Pembr	0.008	0.019	0.170	0.171	0.059
18	English	Kitchener - Wate	-0.001	0.029	0.133	0.153	0.023
19	English	Kootenay	-0.179	0.051	0.175	0.235	0.038
21	English	Lethbridge - Med	-0.049	0.039	0.209	0.161	0.076
22	English	London	0.016	0.022	0.138	0.133	0.021
23	English	Lower Mainland -	-0.089	0.025	0.064	0.096	0.010
24	English	Moncton - Richib	0.009	-0.020	0.001	0.194	0.003
25	English	Montréal	-0.017	-0.009	0.174	0.108	-0.071
27	English	Muskoka - Kawart	-0.013	0.030	0.223	0.168	0.036
28	English	Nechako	-0.073	0.024	0.068	0.189	0.210
30	English	North Central /	-0.063	0.067	0.160	0.346	0.112
31	English	North Shore / Cô	-0.036	0.019	0.223	0.183	0.086
32	English	Northeast / Nord	-0.044	0.013	0.119	0.099	0.005
33	English	Northern / Nord	-0.166	0.076	0.053	0.009	-0.055
34	English	Northwest / Nord	-0.004	0.031	0.183	0.165	-0.006
36	English	Ottawa	-0.032	0.029	0.056	0.173	-0.017
38	English	Parklands	-0.099	0.040	0.103	0.225	0.139

*-All indices presented are for groups with an unweighted count>20

Table T-1: Mean Scores of Social of Social Capital Indices by GSS Respondents in Economic Regions (Class1 members contin...)

ID	Mother Tongue	Economic Region	Inst. Trust	Org. Memberships	Linguistic Homogeneity	Ind. Trust	Belonging
39	English	Prince Albert	-0.040	0.021	0.189	0.190	0.050
40	English	Prince Edward Is	0.020	0.028	0.205	0.255	0.157
41	English	Red Deer	-0.043	0.025	0.201	0.100	0.061
42	English	Regina - Moose M	-0.038	0.032	0.216	0.152	0.021
43	English	Saint John - St.	-0.029	0.019	0.167	0.177	0.063
44	English	Saskatoon - Bigg	-0.028	0.032	0.186	0.182	0.038
47	English	Southeast / Sud-	-0.060	0.039	0.172	0.358	0.141
48	English	Southern / Sud	-0.050	0.000	0.210	0.158	0.120
49	English	Southwest / Sud-	-0.017	0.037	0.173	0.229	0.025
51	English	Swift Current - Thompson -	-0.080	0.057	0.227	0.173	0.016
52	English	Okana	-0.097	0.023	0.169	0.131	0.049
54	English	Vancouver Island	-0.084	0.037	0.156	0.231	0.055
56	English	Windsor - Sarnia	-0.012	0.014	0.165	0.092	-0.013
57	English	Winnipeg	-0.079	0.019	0.110	0.022	-0.009
82	French	Moncton - Richib	0.182	-0.029	-0.042	0.158	0.084
92	French	Southeast / Sud-	-0.093	0.023	-0.222	0.235	0.059
119	Other	North / Nord	-0.086	-0.022	-0.083	-0.044	0.111
129	Other	South Central /	-0.038	-0.004	-0.112	0.210	0.195

*-All indices presented are for groups with an unweighted count>20

Table T-1: Mean Scores of Social of Social Capital Indices by GSS Respondents in Economic Regions (Class 2 members)

ID	Mother Tongue	Economic Region	Inst. Trust	Org. Memberships	Linguistic Homogeneity	Ind. Trust	Belonging
8	English	Cape Breton	0.073	0.017	0.249	0.270	0.189
11	English	Edmundston - Woo	0.079	0.010	0.207	0.383	0.187
12	English	Estrie	0.097	-0.047	0.206	0.418	0.223
35	English	Notre Dame - Cen	0.086	-0.004	0.327	0.367	0.235
45	English	South Central /	-0.021	0.036	0.246	0.436	0.013
46	English	South Coast - Bu	0.198	-0.015	0.317	0.329	0.269
50	English	Stratford - Bruc	0.016	0.046	0.272	0.349	0.090
55	English	West Coast - Nor	0.037	0.005	0.338	0.343	0.223
59	English	Yorkton - Melvil	-0.025	0.067	0.308	0.284	0.143
71	French	Fredericton - Or	0.110	-0.044	0.419	0.171	0.286
97	French	Windsor - Sarnia	-0.026	-0.021	0.384	0.119	0.092
99	Other	Annapolis Valley	0.095	-0.012	0.555	0.491	0.072
101	Other	Avalon Peninsula	0.308	-0.037	0.575	0.177	0.076
107	Other	Interlake	-0.035	-0.029	0.399	0.323	0.102
125	Other	Parklands	-0.152	-0.021	0.527	0.234	0.144
126	Other	Prince Albert	0.034	-0.022	0.420	0.161	0.118
132	Other	Stratford - Bruc	0.091	-0.015	0.535	0.398	0.069
133	Other	Swift Current -	0.024	-0.061	0.470	0.443	0.274

*-All indices presented are for groups with an unweighted count>20

Table T-1: Mean Scores of Social of Social Capital Indices by GSS Respondents in Economic Regions (Class 3 members)

ID	Mother Tongue	Economic Region	Inst. Trust	Org. Memberships	Linguistic Homogeneity	Ind. Trust	Belonging
20	English	Laurentides	-0.078	-0.006	-0.352	-0.107	-0.288
26	English	Montérégie	-0.086	-0.025	-0.197	-0.046	-0.165
37	English	Outaouais	-0.148	-0.029	-0.286	-0.118	-0.166
62	French	Calgary	-0.028	-0.012	-0.790	-0.194	-0.142
75	French	Kingston - Pembr	0.010	-0.026	-0.571	-0.021	0.034
86	French	Northeast / Nord	0.005	-0.004	-0.270	0.044	0.085
87	French	Ottawa	0.068	-0.018	-0.280	0.060	0.043
89	French	Prince Edward Is	0.007	-0.021	-0.517	0.187	0.159
95	French	Toronto	-0.044	-0.017	-0.704	-0.145	-0.073
98	French	Winnipeg	-0.091	-0.027	-0.603	-0.176	-0.016
102	Other	Calgary	0.007	-0.003	-0.439	-0.046	-0.002
103	Other	Camrose - Drumhe	0.028	-0.005	-0.400	0.192	0.180
109	Other	Kitchener - Wate	0.066	-0.005	-0.536	0.137	0.094
110	Other	Kootenay	-0.050	-0.016	-0.784	0.236	0.162
111	Other	Laval	0.050	-0.047	-0.523	-0.367	-0.004
114	Other	Lower Mainland -	-0.010	-0.022	-0.362	-0.096	-0.046
115	Other	Moncton - Richib	-0.138	-0.020	-0.634	-0.055	-0.104
116	Other	Montréal	0.082	-0.056	-0.461	-0.233	-0.052
117	Other	Montérégie	0.085	-0.066	-0.511	-0.058	-0.052
120	Other	North Shore / Cô	-0.087	0.106	-0.825	0.283	0.193
124	Other	Outaouais	0.166	-0.077	-0.462	0.004	0.033
130	Other	Southeast / Sud-	0.001	-0.006	-0.371	0.169	0.143
134	Other	Thompson - Okana	-0.059	-0.019	-0.559	0.110	0.004
135	Other	Toronto	0.013	-0.011	-0.431	-0.178	-0.027
136	Other	Vancouver Island	-0.055	-0.004	-0.659	-0.008	0.018
137	Other	Windsor - Sarnia	-0.002	-0.030	-0.425	-0.018	-0.035
138	Other	Winnipeg	-0.031	-0.013	-0.498	-0.177	-0.047
139	Other	Wood Buffalo - C	-0.041	-0.028	-0.412	-0.219	-0.032
140	Other	Yorkton - Melvil	-0.033	-0.015	-0.486	0.267	0.026
144	Mixed	Montréal	0.044	-0.096	-0.357	-0.383	0.003

*-All indices presented are for groups with an unweighted count>20

Table T-1: Mean Scores of Social of Social Capital Indices by GSS Respondents in Economic Regions (Class 4 members)

ID	Mother Tongue	Economic Region	Inst. Trust	Org. Memberships	Linguistic Homogeneity	Ind. Trust	Belonging
29	English	North / Nord	-0.094	0.024	0.111	-0.263	-0.010
53	English	Toronto	-0.038	0.015	0.028	-0.027	-0.042
58	English	Wood Buffalo - C	0.028	-0.001	0.144	-0.028	-0.034
60	French	Abitibi - Témisc	0.116	-0.031	0.273	-0.076	-0.026
61	French	Bas-Saint-Lauren	0.108	-0.047	0.280	-0.188	-0.005
63	French	Campbellton - Mi	0.192	-0.054	0.096	0.001	0.091
64	French	Capitale-Nationa	0.112	-0.046	0.247	-0.137	-0.078
65	French	Centre-du-Québec	0.099	-0.029	0.310	-0.104	-0.162
66	French	Chaudière - Appa	0.080	-0.053	0.327	-0.097	-0.043
67	French	Côte-Nord	0.100	-0.032	0.316	-0.048	0.029
68	French	Edmonton	-0.093	-0.041	0.462	-0.247	-0.138
69	French	Edmundston - Woo	0.156	-0.048	0.097	-0.110	0.034
70	French	Estrie	0.090	-0.048	0.179	-0.104	-0.068
72	French	Gaspésie - Iles-	0.208	-0.052	0.276	-0.102	0.259
77	French	Lanaudière	0.063	-0.059	0.234	-0.242	-0.077
78	French	Laurentides	0.089	-0.069	0.204	-0.239	-0.074
79	French	Laval	0.084	-0.056	0.124	-0.273	-0.073
81	French	Mauricie	0.101	-0.053	0.245	-0.168	-0.004
83	French	Montréal	0.024	-0.052	-0.034	-0.215	-0.096
84	French	Montérégie	0.088	-0.062	-0.164	-0.165	-0.049
85	French	Nord-du-Québec	0.041	-0.063	0.179	-0.172	0.135
88	French	Outaouais	0.075	-0.036	0.059	-0.108	-0.064
90	French	Saguenay - Lac-S	0.137	-0.044	0.319	-0.073	-0.081
93	French	Southern / Sud	0.058	-0.005	0.177	-0.016	0.115
141	Bilingual	Montréal	-0.030	0.006	-0.043	-0.173	-0.100
142	Bilingual	Toronto	-0.022	-0.064	0.029	-0.077	0.067
143	Mixed	Lower Mainland -	-0.051	-0.054	0.377	0.011	-0.072
145	Mixed	Toronto	-0.065	-0.014	0.357	-0.114	-0.149

*-All indices presented are for groups with an unweighted count>20

Table T-1: Mean Scores of Social of Social Capital Indices by GSS Respondents in Economic Regions (Class 5 members)

ID	Mother Tongue	Economic Region	Inst. Trust	Org. Memberships	Linguistic Homogeneity	Ind. Trust	Belonging
73	French	Halifax	-0.154	-0.052	0.960	-0.073	-0.121
74	French	Hamilton - Niaga	-0.042	-0.012	0.914	-0.077	0.067
76	French	Kitchener - Wate	0.011	-0.017	0.690	0.010	0.202
80	French	Lower Mainland -	-0.201	0.000	0.615	0.052	-0.074
91	French	Saint John - St.	0.114	-0.005	0.636	0.138	0.184
94	French	Thompson - Okana	-0.060	-0.074	0.624	0.049	-0.025
96	French	Vancouver Island	-0.225	-0.077	0.930	-0.086	-0.347
100	Other	Athabasca - Gran	-0.117	-0.019	0.437	0.031	0.074
104	Other	Edmonton	-0.014	-0.004	0.484	-0.022	0.035
105	Other	Halifax	-0.064	-0.027	0.656	0.030	0.024
106	Other	Hamilton - Niaga	0.005	-0.001	0.603	0.030	0.079
108	Other	Kingston - Pembr	-0.035	-0.015	0.842	0.005	-0.094
112	Other	Lethbridge - Med	-0.034	-0.053	0.617	0.101	0.117
113	Other	London	0.039	-0.022	0.655	0.137	0.004
118	Other	Muskoka - Kawart	-0.025	-0.034	0.804	0.197	0.059
121	Other	Northeast / Nord	0.003	-0.001	0.721	0.177	-0.212
122	Other	Northwest / Nord	-0.119	-0.044	0.839	-0.097	-0.130
123	Other	Ottawa	0.034	-0.014	0.685	0.028	0.007
127	Other	Regina - Moose M	-0.020	-0.016	0.542	0.035	0.137
128	Other	Saskatoon - Bigg	-0.109	-0.071	0.625	0.110	-0.004
131	Other	Southwest / Sud-	-0.086	-0.079	0.550	0.084	0.091

*-All indices presented are for groups with an unweighted count>20

Chart C-1: Zero order correlations of 2003 Social Capital Indices with City Characteristics of the 2001 census, Canada
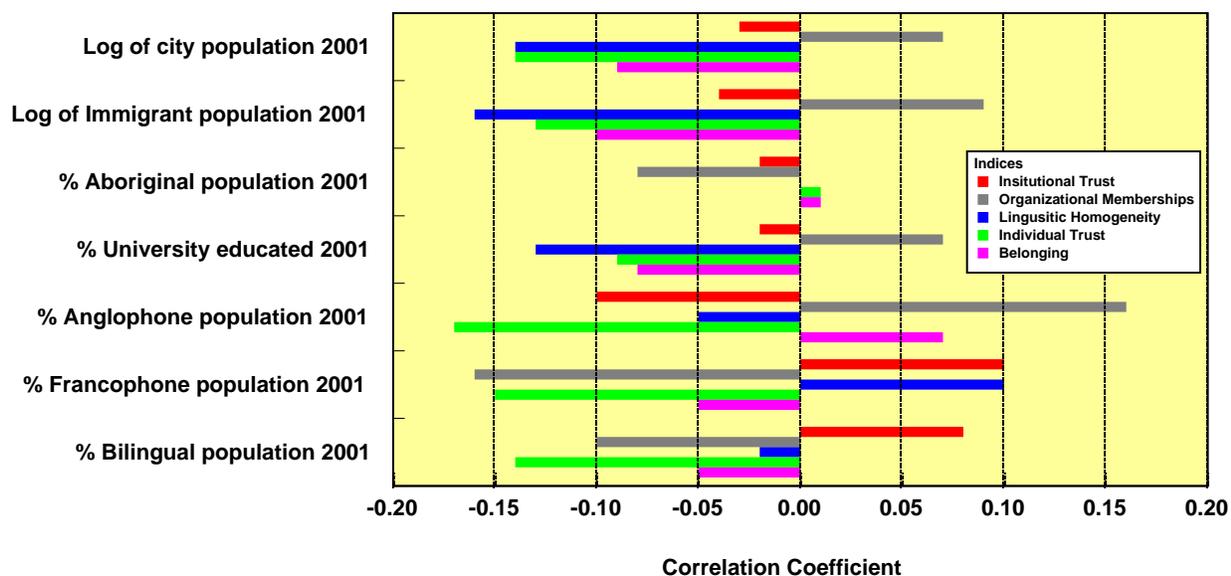

Chart C-2: Zero order correlations of 2008 Social Capital Indices with City Characteristics of the 2006 census, Canada