BUTTERWORTH HEINEMANN

Political Geography, Vol. 14, No. 5, pp. 435–449, 1995

0962–6298/95 $10.00 + 0.00

Ethnic voting patterns: a case study of Metropolitan Toronto

JANET LANDA

York University, Department of Economics, North York, Ontario, Canada M3J 1P3

MICHAEL COPELAND

York University, Department of Economics, North York, Ontario, Canada M3J 1P3

AND

BERNARD GROFMAN

University of California, Irvine, CA 92717, USA

ABSTRACT. This study proposes a number of hypotheses about ethnic voting patterns. In an application of one element of the theory, ecological regressions are used to explain the proportion of the vote in Metropolitan Toronto received by ethnic (Italian, Chinese and Jewish) candidates for the Liberal, Progressive Conservative and New Democratic parties in the September 1987 provincial election. After allowing for the effects of income, age distribution and mother tongue on voting patterns, the ethnicity of the party candidate has a significant effect.

A theory of ethnic voting patterns

The study of ethnic voting patterns is of considerable interest both in itself in that it will tell us about the role of ethnicity in a multicultural/multi-ethnic society such as Canada, and in its uses in comparative political analysis with data from other countries.[1] Moreover, analysis of electoral coalition politics is of considerable theoretical importance in the area of research in economics and political science known as 'public choice theory' (i.e., 'the economics of politics').[2] While it is generally acknowledged that ethnic origin has an effect on voting behaviour, there has been little work done in Canada analyzing behaviour of groups other than French and English.[3] Usually studies include an 'other' or 'non-charter' group, and sometimes finer breakdowns.[4] In those studies the basic unit is the constituency, a unit so broad that many ethnic groups have very limited presence in most units, making any 'non-charter' group effects too small to pick up.[5]

The authors are Associate Professor of Economics, York University, Assistant Professor of Economics, York University, Professor of Political Science, University of California, Irvine, respectively.

In our work we use a rational choice economic theory of ethnic voting behaviour as the basis for our empirical work.[6] A voter tends to vote for a party candidate who is a member of the same ethnic group because of the higher probability that the candidate will keep his/her political promises to members of their own ethnic community and, because of the lower costs of communicating with a candidate of one's own community, more effective representation of the community's interests in the parliament will likely result. Our primary focus is on ethnic bloc voting for candidates of the same ethnicity. Many of our hypotheses about the factors which affect inter-ethnic differences in degree of block voting also apply to elections when there are no 'same-ethnicity' candidates available. Thus, similarities in voting behaviour across members of a given ethnicity, e.g., in terms of the degree of party loyalty, can also be dealt with in the form of a 'group homogeneity' voting model.

Using a group homogeneity voting model leads to the following testable hypotheses on ethnic voting behaviour:

1. Voters belonging to a particular ethnic group are more likely to vote for candidates belonging to the same ethnic group, especially if the ethnic group is small relative to other ethnic groups, than other voters. (All voters belong to ethnic groups.)
2. The greater the proportion of the ethnic population which is of recent immigrant status, the greater the ethnic voting homogeneity.
3. More generally, we may postulate that, as the degree of assimilation[7] increases, the degree of ethnic voting homogeneity decreases. In particular, since, as ethnic members assimilate, they often move outside those areas of greatest ethnic concentration, in comparisons across ethnic groups, *ceteris paribus*:
   (a) the greater the degree of ethnic residential clustering, the greater the degree of ethnic voting homogeneity;
   (b) within any given ethnic group the greater the concentration in any given area, the greater the degree of expected ethnic voting homogeneity in the area, in comparison across ethnic groups;
   (c) the greater the density of organizations which reinforce ethnic cultural identity such as ethnic churches, ethnic and clan associations, social clubs, etc., the higher the expected voting homogeneity;
   (d) the lower the variations in socio-economic differences among ethnic group members, the more likely is ethnic voting homogeneity due to a perception of group shared interest;
   (e) the greater the socio-economic differences between ethnic group members and the larger society, the more likely is ethnic voting homogeneity.
4. As education levels go up—this is a 'proxy' variable for cross-ethnic contact/degree of English language competence—ethnic voting homogeneity will decrease.
5. In comparison across ethnic groups, voter turnout will be higher for groups which:
   (a) are not of recent immigrant status;
   (b) are not oriented to the politics in their homeland as compared with that in Canada;
   (c) have achieved some level of previous political success of ethnic candidates;
   (d) are attuned, because of cultural factors, to clientalist politics, in which 'brokers' trade ethnic votes for tangible political goods to serve ethnic interests.

We do recognize, of course, that our study is not the first attempt to model ethnic voting behaviour. However, we do not see our initial work as leading us to a sharp test of competing group-oriented models of ethnic voting behaviour—e.g., those based on

policy-linked partisan loyalties or on the notion that ethnic group members share group loyalties and identity[8] versus our own emphasis on the importance of shared ethnicity as a signal for potential trustworthiness, for the simple reason that we see our model as co-extensive with these other group-oriented approaches to voting behaviour, complementing them rather than replacing them. For example, group-oriented theories of voting behaviour, including our own, emphasize the cohesive nature of ethnic groups which implies the existence of social networks through which monitoring of behaviour can take place, and by which reliable rewards and punishments can be administered. We believe that the hypotheses identified above can, with only a few exceptions, be tested with existing electoral and census data, and that they can provide a straightforward study of the relative importance of many of the key factors which affect ethnic voting behaviour.

An applied study: ethnic voting patterns in Metropolitan Toronto in the 1987 provincial election

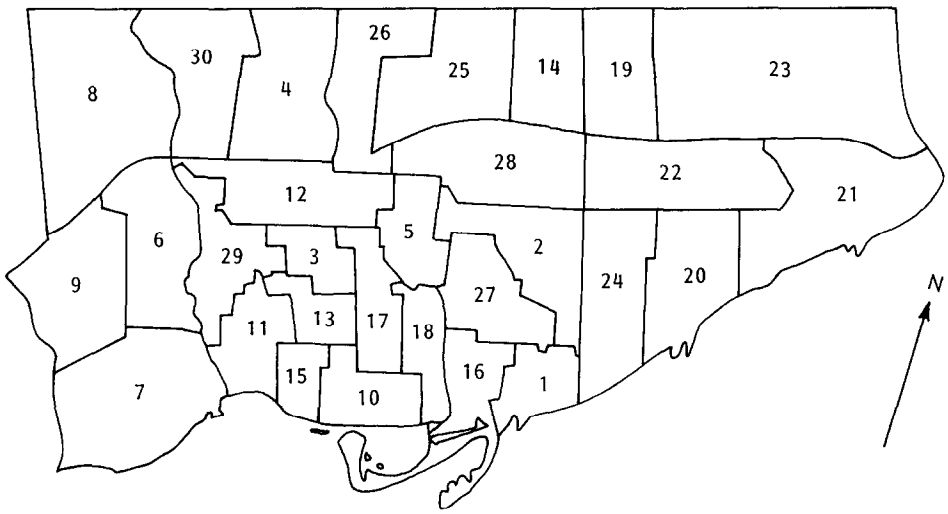
As a first test of the hypotheses outlined above we looked at ethnic voting patterns in Metropolitan Toronto in the 10 September 1987 Ontario election. In particular, we focused on the impact of ethnic candidates on voting patterns.

The Progressive Conservative Party (PC) had governed Ontario since 1943. For most of this period these had been majority governments with the Liberal Party (LIB) as the official opposition. There were minority governments in 1943–45, 1975–77 and 1977–81 with the New Democratic Party (NDP) as the official opposition in 1975–77 and Liberals in 1943–45 and 1977–81. The Conservatives had held large majorities from 1951 to 1975. They had been successful in replacing leaders over this long period, but the leadership change was less than successful in 1985. The election of a majority Conservative federal government in 1984 followed a tradition of Canadian voters wanting provincial governments that counterbalance the federal government.

In the 1985 election no party won a majority; the Liberals formed a government with NDP backing, but with no NDP participation in the cabinet. The Liberals and the NDP did formally agree to a two-year 'Accord', a program of things to be done by their *de facto* coalition. In 1987, at the end of the 'Accord' period, Liberal Premier David Peterson called an election which resulted in one of the largest majorities in Ontario history; with 47.3 percent of the popular vote, they won 95 of the 130 seats. (The election which followed in 1990 saw the NDP receive 38 percent of the vote, winning a majority of the seats in the Ontario provincial house, defeating the Liberal government which finished second, with the Conservatives third.)[9]

Metropolitan Toronto is on the north shore of Lake Ontario and has a population of about 2.5 million. Created in its present form in 1967, it consists of six local governments: the City of Toronto; Scarborough on the east; North York on the north; Etobicoke on the west; East York, bordered by Toronto, Scarborough and North York; and York, bordered by Toronto, North York and Etobicoke (*Figure 1*). The Metro government manages the Police and Fire Departments, the transit system and some of the roads.

Prior to the Second World War most of the population lived in the city proper and some 80 percent were of British extraction; by 1981 only 47 percent were of British origin.[10] Following the war the population increased rapidly from the wave of European immigrants, Italians being the largest in number. The immigrants generally moved into older neighbourhoods near the downtown core as earlier residents there moved to the low density suburbs.[11] With liberalization of Canadian immigration laws in the 1960s,



No.	Constituency: Name	Number of Polls	Matches	No.	Riding: Name	Number of Polls	Matches	No.	Riding: Name	Number of Polls	Matches
1.	Beaches-Woodbine	154	9	11.	High Park-Swansea	159	20	21.	Scarborough East	199	32
2.	Don Mills	162	15	12.	Lawrence	179	23	22.	Scarborough-Ellesmere	174	22
3.	Dovercourt	142	27	13.	Oakwood	138	16	23.	Scarborough North	213	23
4.	Downsview	158	33	14.	Oriole	164	35	24.	Scarborough West	165	20
5.	Eglinton	205	9	15.	Parkdale	127	16	25.	Willowdale	214	19
6.	Etobicoke-Humber	193	31	16.	Riverdale	140	18	26.	Wilson Heights	199	17
7.	Etobicoke-Lakeshore	222	15	17.	St. Andrew-St. Patrick	212	20	27.	York East	175	24
8.	Etobicoke-Rexdale	171	23	18.	St. George-St. David	201	61	28.	York Mills	173	11
9.	Etobicoke West	185	35	19.	Scarborough-Agincourt	226	33	29.	York South	157	17
10.	Fort York	160	59	20.	Scarborough Centre	166	23	30.	Yorkview	142	21

FIGURE 1. Constituency Boundaries, Metropolitan Toronto, 1987 provincial election.

immigration from Asia, the Caribbean, Latin America and Africa has grown rapidly. Gentrification has brought some people back from the suburbs to the downtown and newer immigrant groups have created pockets of their own in the suburbs.[12] There are three Chinatowns, the original one downtown in the constituency of Fort York (see constituency 10 in *Figure 1*), a second in the east end of the city in the consituency of Riverdale (16 in *Figure 1*), and one in the North East in the constituencies of Scarborough-Agincourt and Scarborough Centre (*Figure 1*, 19 and 20 respectively). Italians in the west end of the city have yielded to more recent Portuguese immigrants and have moved north and west into Oakwood, York South and Yorkview (*Figure 1*, 16, 29, and 30 respectively).

Beyond the borders of Metropolitan Toronto, on what was until the late 1960s rolling farmland, lie the City of Mississauga to the west, the City of Vaughn and the Township of Markham to the north, and the City of Pickering to the east. They are very rapidly growing areas that are part of what is called the Greater Toronto Area, with a total population of over four million people.

Data collection

The best possible sample would be based on the ballots cast by individual voters whose socio-economic characteristics were known to the researchers. Such a sample is virtually impossible to obtain, although interviews with voters as they leave the polling station ('exit poll surveying'), or at a later date, may yield some of the required data. In Ontario

elections, the smallest sample point for which actual vote totals are recorded is the polling station. Socio-economic data are available through the census; the smallest census reporting unit is called an Enumeration Area (EA). The boundaries of polls and enumeration areas are coincident in some cases and, as discussed below, other matches can be found. We use sample points that have matching poll and enumeration area boundaries; census data then can be used to help explain voting behaviour.

Data for this study were gathered from three sources:

1. the 1986 Census of Canada from StatsCan;
2. the 1987 Ontario Election results from the Chief Election Officer of the province; and
3. from interviews with candidates and/or campaign managers conducted during the election period.

Population by age, average household income, mother tongue and type of residence (house or apartment, owned or rented) were collected by Statistics Canada in the 1986 census.

It will not be possible to test fully the hypotheses listed above because not all the data necessary for such tests are available. In Canada there are two types of censuses. In years ending in 1 (e.g. 1961, 1971, 1981) there is a full census which asks many more questions than are asked in the years ending in 6 (e.g. 1966, 1976, 1986), questions dealing with education levels, ethnicity, religion, household plumbing, etc. The very limited number of variables available for 1986 makes it difficult to test most of our hypotheses. Nonetheless, we chose to use the 1986 census because it is closest in time to the 1987 election, and is therefore a better indication of those who lived in the EA and were eligible to vote at the polling station in the 1987 election. A cost to this decision is that we do not have self-reported ethnicity that would be available from the 1991 census, and we have had to use 'Mother Tongue' as a proxy for ethnicity.

Thirty of Ontario's 130 electoral districts (constituencies or ridings) are in Metropolitan Toronto. They have an average of 44,828 voters, the smallest having 31,336 eligible voters, the largest with 53,953. The average number of polling stations is 176 per constituency, with a low of 127, and a high of 226, yielding an average of 262 voters per polling station, and a range of about 200 to 300 per poll. The Chief Election Officer publishes poll-by-poll results following each election. Each poll draws voters from an area whose boundaries are determined prior to each election by the local returning officer who administers the local (constituency) election. The size of a poll (and of an EA) is roughly two or three city blocks, with an average population of about 700 persons. The boundaries frequently run down the centre of streets or through the backyards. Where major traffic arteries and ravines cross the urban landscape, they are almost always used as part of the boundary.

Since minors and non-citizens are not eligible to vote, the census enumeration areas are on average slightly larger than the electoral polling station areas (700 persons including minors and non-citizens vs. 250 eligible voters), but their ranges have substantial overlap. In fact in some instances the boundaries of a poll coincide exactly with those of an Enumeration Area. For each such match, the census data can tell us something about the socio-economic characteristics of the population from which the voters are drawn. The fact that the census predates the election by just over a year means that there will have been some turnover in population; consequently those voting are not entirely the same people as those who responded to the census takers.

Simple one-for-one matches of poll and EA boundaries form only part of our sample. Additional sample points can be found where boundary coincidence occurs for areas

larger than a single poll and EA. In such a case, the outer boundary of two contiguous polls may coincide with the outer boundary of one, two, three or more EAs. Other matches involving three or more polls and any number of EAs also form part of the sample. Finding these matches of election and census boundaries was a time-consuming task. Census EA boundaries are indicated on maps available from the federal government. The election poll boundaries are described in a document called a 'Poll Description' which defines the area of the poll. (See Appendix I for two examples.)

Matching election and census areas were found by drawing the poll boundaries in colour on the census maps, and then noting coincident boundaries.[13] This process produced 674 matches in the 30 constituencies, with the range of 9 to 61 matches per constituency. From the election data, the number of votes for each of the three major parties, the total turnout and the number on the voters list were prepared for each of the matches (observations or points). For the one-to-one matches this meant taking the published figure for the poll in question. Where an observation contains more than one poll, the required totals were calculated. Population by age, mean household income and mother tongue for the EAs used in our sample were pulled down from the census tapes. Where more than one EA is used in an observation, the totals (for population), or averages weighted by EA populations (for income), were calculated.

Since the boundaries of both polls and EAs are selected independently, and since each is chosen to some degree for compactness, it seems reasonable to assume that our sample is random. In our sample, the Liberal vote was 48.0 percent, the Conservative vote was 19.8 percent, and the NDP vote was 28.7 percent. These are very close to the actual vote percentages across Metropolitan Toronto which were 47.7, 20.3 and 28.4 respectively. This supports the assumption that the sample is random.

Also used in the analysis are a number of dummy variables for separate constituency intercepts and for candidate ethnicity. Much of the information used in the generation of the dummy variables came from the interviews that were conducted in the period of the election. Two graduate students conducted these interviews, meeting most of the

TABLE 1. Impact of ethnic candidates on the vote

Voting shares	*Percentage*
Italian candidates, Liberal vote:	
Overall Liberal share	47.65
Liberal share in ridings with Italian candidates	44.78
Liberal share in ridings with non-Italian candidates	48.52
Liberal share, Italian candidates in polls with 10 percent or more Italian mother tongue	50.07
Liberal share, Italian candidates in polls with 25 percent or more Italian mother tongue	52.02
Jewish candidates, NDP vote:	
Overall NDP vote	28.52
NDP share in ridings with Jewish candidates	18.69
NDP share in ridings with non-Jewish candidates	30.13
NDP share, Jewish candidates in polls with 2 percent or more Yiddish mother tongue	20.84
NDP share, Jewish candidates in polls with 4 percent or more Yiddish mother tongue	22.03

campaign managers, and/or candidates, of the three major parties. The interviews generally lasted about half an hour, focusing on questions of ethnicity of the voters, of the campaign workers and of the candidates.

With this array of data we are able to look at the impact of ethnic candidates on the vote. The impact of Italian candidates on the Liberal vote, and Jewish candidates on the NDP vote, are shown in *Table 1*. These figures show that ethnic candidates do attract voters from the same ethnic group. As the ethnic density increases so does support for the party of the ethnic candidate; this is true when the ethnic group is more likely than average to vote for the party (as with Italian mother tongue Liberals) or less likely to do so (as with Yiddish mother tongue NDPers). This paper measures the effect of ethnic candidates after controlling for income and age distribution, and after allowing for differences in baseline voting pattern through the use of separate intercepts.

Research design and methodology

The basic model uses multivariate ecological regressions to estimate our dependent variable, the proportion of the vote gained by each party. Since the 1986 census provides only mother tongue as an ethnic proxy, we will use the proportion mother tongue (PROPMT), average household income (INC), the proportion 65 years and older (PROP65), and the dummy variables in our equations. We ran a series of three sets of regressions. The variables used in the first set are the following:

Let P_{mij} be the share of the vote of the mth party (m = 1, 2, 3 for Conservative, Liberal and NDP; i.e. P_{mij} = $PROPPC_{ij}$, $PROPLIB_{ij}$, or $PROPNDP_{ij}$) in the ith constituency and at the jth sample point within that constituency. Ethnic proportions are denoted by $PROPMT_{nij}$ where i and j are as above with subscript n indicating the 23 Mother Tongue groups. INC_{ij} stands for average household income, and $PROP65_{ij}$ is the proportion of the population age 65 or greater. If the equations were to be fitted using a single intercept, the coefficients would be biased because the variables used in the equations do not pick up all of the causes of variation in the vote. There are many excluded variables that would be nice to add to the equations. The absence of data on religious affiliation in the 1986 census, as mentioned above, was especially disappointing since one of the election issues was that of government support for Catholic high schools.

We fitted the equations with separate intercept terms (using dummy variables D_i) for each of the 30 constituencies in order to reduce the bias due to excluded variables. This allows the voting pattern in each constituency to find its own level or, to express it differently, its own historic pattern of party support. We then estimated the coefficients of income, age and ethnicity across the 30 pooled constituencies. The paucity of data available from the 1986 census emphasizes that in all regression analysis there are some excluded variables. If the levels of such excluded variables vary substantially across constituencies, but if they do not vary greatly within each constituency, the bias in the coefficients of the included variables will be reduced through the use of separate intercept terms.[14]

This gives us Equation (1):

$$P_{mij} = \sum_{i=1}^{30} (a_{mi}.D_i) + b_{mn}.PROPMT_{nij} + c_{mn1}.INC_{ij} + c_{mn2}.PROP65_{ij} + u_{mnij}$$

where the a_{mi} are the intercepts, and b_{mn}, c_{mn1}, and c_{mn2} are the coefficients of the variables indicated above.

Using separate intercepts for each constituency means that we cannot include a dummy variable to indicate candidates who are incumbents, because such a variable would be identical to one of the intercept dummies.[15]

Therefore the separate intercept terms will carry the incumbency effect as well as those of the excluded variables, and we are unable to isolate an incumbency coefficient from that of the intercept/excluded variables. Then we ran sets of equations in which we attempted to measure the impact of ethnic candidates on voting patterns. Since voters of mother tongues Italian and Chinese are the two largest language groups (after English), and since Italian, Jewish and Chinese candidates were the most numerous, we chose these three ethnic groups for further study.

Nine equations were fitted, one for each of the three parties and for the three ethnic groups. One additional explanatory variable was used in this set. This variable was defined as the product of the PROPMT_{nij} and a dummy variable D_{mni} indicating the ethnicity of the party candidate. From here on the subscript n denotes either Italian, Chinese or Yiddish/Jewish. For simplicity we called this product variable ZZ_{mnij}. That is $\text{ZZ}_{mnij} = \text{PROPMT}_{nij}.\text{D}_{mni}$. The coefficient of the ZZ variable will measure the effect that the ethnic candidate has on his or her party's vote. It is non-zero only when there is a candidate of the 'right' ethnicity.

The assumption here is that the attraction of the ethnic candidate will be in direct proportion to the number of voters of the same ethnicity. Thus we have Equation (2):

$$\text{P}_{mij} = \sum_{i=1}^{30} (\text{a}_{mi}.\text{D}_i) + \text{b}_{mn}.\text{PROPMT}_{nij} + \text{c}_{mn1}.\text{INC}_{ij} + \text{c}_{mn2}.\text{PROP65}_{ij} + \text{e}_{mn}.\text{ZZ}_{nij} + \text{u}_{mnij}$$

In the third set, we estimated equations which included two of, or all three of the ethnicities/mother tongues at a time. Thus, Equation (3):

$$\text{P}_{mij} = \sum_{i=1}^{30} (\text{a}_{mni}.\text{D}_i) + \sum_{n=1}^{3} (\text{b}_{mn}.\text{PROPMT}_{nij}) + \text{c}_{mn1}.\text{INC}_{ij} + \text{c}_{mn2}.\text{PROP65}_{ij} + \sum_{n=1}^{3} (\text{e}_{mn}.\text{ZZ}_{nij}) + \text{u}_{mij}$$

Some of the expected signs of the coefficients will be obvious, others not. For example, recent immigrants have traditionally voted Liberal in Federal elections so we would expect positive b_{mn}s in the Liberal equation, negative b_{mn}s in the Conservative equation. The same holds true for c_{mni}s, the income coefficients. We would generally expect a negative c in the NDP equation, and a positive c in the PC equation. Our hypotheses have more to do with the strength and statistical significance of the effects of ethnic patterns rather than the signs.

Empirical results

Table 2 provides information on income, party support, age distribution and the ethnic composition of our sample. The sample appears to be quite representative.

The total of people whose mother tongue is non-official (neither English nor French) comes to 27 percent. The two largest mother tongue groups are Italian and Chinese. In the 1987 election the number of Italian, Jewish and Chinese candidates was 15, 10 and 5 respectively; there were many (47) candidates of English, Scottish or Irish background. There were 13 remaining candidates among the 90 candidates for the major parties in the 30 Metropolitan Toronto constituencies. These 13 candidates came from 10 different ethnic groups, with no group having more than two candidates. Since there were many more mother tongues than there were candidates of corresponding ethnic groups, our initial regressions were estimated without including variables based on candidate ethnicity (see Equation [1] above).

Weighted least squares was used in all estimation; voter turnout in each poll or combination of polls was used as the weight variable. The dependent variable is the

TABLE 2. Means of variables used in the analysis

Category	percent	Category	percent
PC	19.8	Punjabi MT	0.3
Liberal	48.0	Vietnamese MT	0.3
NDP	28.7	Italian MT	6.2
Household income	$40 170	Spanish MT	1.0
65 & over	12.2	Yiddish MT	0.4
English MT*	66.1	Ukrainian MT	1.2
French MT	1.3	Polish MT	1.4
Aboriginal MT	0.1	Hungarian MT	0.7
Portuguese MT	2.3	Arabian MT	0.3
German MT	1.6	Chinese MT	3.4
Dutch MT	0.3	Tagalog MT	0.5
Russian MT	0.3	Other MT	4.9
Finnish MT	0.2	Multiple MT	5.5
Greek MT	1.8	Non-official MT	27.0

*Mother Tongue

proportion of the vote going to the party in question; it is reasonable to assume that the sampling error will be smaller for larger areas. Only the R^2s for these equations (set [1]), and *t*-scores for the mother tongue coefficients are presented in *Table 3*. The income and proportion 65-and-over coefficients, which were generally highly significant, are

TABLE 3. Regression variables

	PROPPC		*PROPLIB*		*PROPNDP*	
Mother tongue	R^2	*t*	R^2	*t*	R^2	*t*
English	0.903	(15.66)	0.733	(−7.93)	0.861	(−2.24)
French	0.873	(5.97)	0.708	(−1.67)	0.861	(−2.76)
Aboriginal	0.868	(−3.11)	0.713	(3.78)	0.860	(3.78)
Italian	0.884	(−9.78)	0.719	(5.30)	0.860	(1.67)
Portuguese	0.873	(−5.59)	0.707	(−0.69)	0.863	(4.36)
Spanish	0.867	(−1.21)	0.709	(−2.34)	0.861	(2.97)
German	0.867	(3.47)	0.707	(−0.87)	0.860	(−1.73)
Yiddish	0.867	(−1.14)	0.708	(−1.64)	0.860	(1.34)
Dutch	0.871	(4.91)	0.708	(−1.32)	0.861	(−2.84)
Ukrainian	0.867	(−0.86)	0.709	(2.24)	0.860	(−1.41)
Russian	0.866	(0.59)	0.707	(0.82)	0.860	(−0.68)
Polish	0.867	(1.32)	0.708	(1.33)	0.860	(−1.56)
Finnish	0.866	(−0.24)	0.707	(0.39)	0.860	(0.20)
Hungarian	0.868	(2.69)	0.707	(0.71)	0.860	(−1.49)
Greek	0.879	(−8.33)	0.707	(0.82)	0.865	(5.14)
Arabian	0.867	(2.69)	0.711	(2.90)	0.863	(−3.84)
Punjabi	0.870	(1.06)	0.710	(2.48)	0.860	(0.04)
Chinese	0.871	(−3.97)	0.717	(4.73)	0.860	(0.83)
Vietnamese	0.867	(−4.62)	0.710	(2.75)	0.860	(0.18)
Tagalog	0.868	(−2.25)	0.716	(4.49)	0.860	(−1.48)
Other	0.868	(−2.63)	0.721	(5.69)	0.863	(−3.91)
Non–official	0.902	(−15.15)	0.731	(7.61)	0.861	(2.27)
Multiple	0.894	(−13.02)	0.729	(7.31)	0.860	(1.76)

Independent variables: (Set [1]: separate intercepts for each constituency), plus income, proportion 65 and over, incumbent dummy, % MT. Dependent variables: PROPPC, PROPLIB, PROPNDP.

TABLE 4. Separate intercepts for each constituency: regression results, single ethnicity, with and without ZZ term

Dependent variable	*Proportion 65 & over*	*Household income*	*Proportion MT*	*ZZ*	R^2
(a) Italian Candidates					
PROPPC	0.265	0.00343	−0.313		0.884
	(13.91)	(23.83)	(−9.78)		
PROPPC	0.267	0.00347	−0.390	0.310	0.887
	(14.23)	(24.37)	(−10.72)	(4.26)	
PROPLIB	−0.0463	−0.000393	0.226		0.719
	(−1.83)	(−2.04)	(5.30)		
PROPLIB	−0.0553	−0.000449	0.0544	0.317	0.725
	(−2.19)	(−2.35)	(0.87)	(3.74)	
PROPNDP	−0.233	−0.00285	−0.0714		0.860
	(−9.20)	(−14.86)	(1.67)		
PROPNDP	−0.234	−0.00285	0.0176	0.103	0.860
	(−9.23)	(−14.86)	(0.29)	(1.22)	
(b) Chinese candidates					
PROPPC	0.286	0.00335	−0.213		0.871
	(14.39)	(21.98)	(−4.62)		
PROPPC	0.273	0.00329	−0.353	0.295	0.873
	(13.54)	(21.63)	(−5.53)	(3.15)	
PROPLIB	−0.0611	−0.000301	0.277		0.717
	(−2.42)	(−1.56)	(−4.73)		
PROPLIB	−0.0764	−0.000327	0.140	0.363	0.720
	(−2.98)	(−1.70)	(1.89)	(2.96)	
PROPNDP	−0.239	−0.00285	−0.0486		0.860
	(−9.49)	(−14.82)	(−0.83)		
PROPNDP	−0.239	−0.00287	−0.0494	9.192	0.860
	(−9.51)	(−14.87)	(−0.85)	(1.20)	
(c) Jewish candidates					
PROPPC	0.294	0.00342	−0.183		0.867
	(14.05)	(22.05)	(−1.14)		
PROPPC	0.294	0.00342	−0.170	−0.0489	0.867
	(14.00)	(22.04)	(−0.92)	(−0.14)	
PROPLIB	−0.0516	−0.000338	−0.334		0.708
	(−1.94)	(−1.72)	(−1.64)		
PROPLIB	−0.0502	−0.000377	−0.774	1.406	0.713
	(−1.90)	(−1.93)	(−3.20)	(3.34)	
PROPNDP	−0.248	−0.00287	0.267		0.860
	(−9.49)	(−14.87)	(1.34)		
PROPNDP	−0.245	−0.00282	−0.421	0.870	0.860
	(−9.40)	(−14.58)	(−1.00)	(1.85)	

suppressed. For Italian, Chinese and Yiddish mother tongue these suppressed coefficients can be found in *Table 4*. The coefficients for each of the parties across the various mother tongues seem to be consistent with conventional wisdom, for example the NDP has very little support among Eastern European groups.

Table 4 presents all of the coefficients of 18 regressions, nine of them the Italian, Chinese and Yiddish regressions (Equation [1]) from *Table 3*, along with the corresponding sets of coefficients from the nine regressions with the ZZ term (Equation [2]). The

income and PROP65 coefficients, shown in *Table 3*, are generally very highly significant.

In *Table 4* the coefficients of these equations, and the coefficients of the corresponding equations before the inclusion of the ZZ variables are shown. Even though not all of the coefficients of the ZZ terms are statistically significant (five of nine are significant at the 1 percent level, eight of the nine of the ZZ terms are positive, and the one negative term has the smallest t-score). This strongly suggests that voters do vote for candidates of their own ethnicity. With the inclusion of the ZZ term, the Italian NDP coefficient goes from negative to positive. The Yiddish NDP coefficient goes from positive to negative when the ZZ term is added to the equation.

The relative magnitudes of the Italian, Chinese and Jewish ZZ coefficients require some explanation. We have hypothesized that there would be stronger block voting with more recent immigrant groups. In Toronto, the first wave of immigration was Jewish, followed by Italian and then Chinese. The wave of the Jewish immigration began before the First World War, and diminished with the Great Depression. Most of the Italian immigrants came after the Second World War, and there is a continuing wave of Chinese immigrants. Thus, we expect the Chinese to have the largest coefficients, Italians next and Jews to have the smallest. The Chinese PC and LIB coefficients are about the same magnitude as the Italian ones, and the NDP coefficient is much larger, so large that we suspect there was something going on that our model does not capture.

However, the fact that the explanatory variable we have used is mother tongue, rather than ethnicity itself, requires that adjustments be made because many of the descendants of earlier immigrants will have lost their mother tongue. For example, the Jewish and Chinese populations in Toronto are roughly equal in size, but the proportion with Yiddish mother tongue is 0.4 percent, while Chinese mother tongue is 3.4 percent. We expect that block voting will continue with second- or third-generation voters, even though English may be reported as the mother tongue. But because mother tongue under-reports the number of Jews to a much greater degree than the number of Chinese, the Jewish ZZ coefficient should be larger than the Chinese, even if there were the same degree of block voting.

We would also expect lower t-scores for the Jewish coefficients, because the few with Yiddish mother tongue may have a geographical distribution substantially different than that of other Jews. Italian and Chinese mother tongues are better proxies for the location of the other Italians and Chinese, because of their more recent immigration. In our sample the maximum value of the Italian mother tongue variable is 44 percent, for Chinese 36 percent and for Yiddish 19 percent. The average values in the ridings with ethnic candidates are 12 to 14 percent Italian, depending on party, 3 to 7 percent Chinese and 2 to 4 percent Yiddish. The actual numbers of, say, Jewish voters will be substantially higher than the numbers with Yiddish mother tongue, while those with Chinese may be only slightly higher. This effect should inflate the ZZ and MT coefficients, so that they can carry the impact of the larger numbers of voters of each ethnicity than the mother tongue variables indicate. The coefficients shown in *Table 4* do not appear to provide support for the hypothesis of reduced block voting for earlier immigrant groups, but since we are using mother tongue, rather than stated ethnicity (which was not available in 1986), the case is not strong.

Table 5 shows the coefficients estimated when two or three ethnicities are included simultaneously in equations with individual intercepts for each constituency. The values of these coefficients vary little from the single ethnicity equations. This robustness is reassuring; it suggests that the coefficients do capture actual voting patterns.

TABLE 5. Separate intercepts for each constituency: regression results, two or three ethnicities in each equation

Dependent variable	*Proportion 65 & over*	*Household income*	*Proportion MT Italian*	*Proportion MT Chinese*	*Proportion MT Yiddish*	*ZZ Italian*	*ZZ Chinese*	*ZZ Yiddish*	R^2
PROPPC	0.251	0.00336	−0.398	−0.378		0.285	0.291		0.894
	(13.50)	(24.09)	(−11.28)	(−6.45)		(4.04)	(3.39)		
PROPPC	0.277	0.00350	−0.395		−0.331	0.302		0.258	0.888
	(14.25)	(24.46)	(−10.82)		(−1.93)	(4.16)		(0.78)	
PROPPC	0.281	0.00331		−0.358	−0.207		0.296	−0.0821	0.873
	(13.41)	(21.67)		(−5.59)	(−1.14)		(3.16)	(−.23)	
PROPPC	0.263	0.00339	−0.404	−0.384	−0.386	−0.276	0.292	0.239	0.895
	(13.69)	(24.27)	(−11.42)	(−6.57)	(2.32)	(3.92)	(3.41)	(0.75)	
PROPLIB	−0.0654	−0.000398	0.0781	0.175		0.301	0.331		0.740
	(−2.61)	(−2.14)	(1.28)	(2.43)		(3.64)	(2.79)		
PROPLIB	−0.0459	−0.000459	0.0680		−0.613	0.286		1.281	0.730
	(−1.77)	(−2.41)	(1.09)		(−2.59)	(3.39)		(3.11)	
PROPLIB	−0.0654	−0.000342		0.135	−0.707		0.359	1.386	0.726
	(−2.48)	(1.78)		(1.84)	(−2.99)		(2.96)	(3.36)	
PROPLIB	−0.0585	−0.000416	0.0914	0.171	−0.540	0.272	0.331	1.268	0.744
	(−2.27)	(−2.23)	(1.51)	(2.39)	(−2.34)	(3.30)	(2.81)	(3.16)	
PROPNDP	−0.235	−0.00288	0.0177	−0.0370		0.0991	9.173		0.861
	(−9.26)	(−14.92)	(0.29)	(−0.63)		(1.17)	(1.20)		
PROPNDP	−0.243	−0.00285	0.0146		−0.175	0.0967		0.621	0.861
	(−9.29)	(−14.68)	(0.24)		(−0.40)	(1.11)		(1.27)	
PROPNDP	−0.246	−0.00285		−0.0411	−0.421		9.245	0.861	0.861
	(−9.42)	(−14.64)		(−0.71)	(−1.00)		(1.21)	(1.83)	
PROPNDP	−0.244	−0.00287	0.0146	−0.0299	−0.184	0.0931	9.213	0.623	0.862
	(−9.30)	(−14.73)	(0.24)	(−0.51)	(−0.42)	(1.07)	(1.20)	(1.27)	

Empirical extensions of this study

Our study has been hampered by the scarcity of explanatory variables provided by the 1986 census. Studies based on the 1991 census would provide better insight into ethnic voting patterns, since many more variables should be available. The most important addition would be ethnicity rather than mother tongue, but information on education levels, religion, etc. would make possible other tests of the many hypotheses of the theory. The fact that we have been able to measure significant block voting for ethnic candidates, in spite of the data limitations, indicates that future work will yield further insights.

We think that the work should be extended to include other cities, at least to Vancouver and Montreal. For a federal election regressions could be run across sample points in all three cities. For provincial elections, comparisons of separate studies would be of interest.

Acknowledgements

This paper was supported by a grant (#410–87–0751) from the Social Science and Humanities Research Council of Canada. We wish to thank the SSHRCC, and to thank Barbara Crow and Peter Shephard for their work in interviewing the candidates, and matching the census and electoral boundaries. An early version was presented at the Public Choice Meetings in Tucson, Arizona, March, 1990. We would like to thank Seymour Martin Lipset and John Londregan for helpful comments on an earlier version.

Notes

1. With respect to rational choice modelling in political science, comparative politics is the next great frontier; see Wuffle (1992).
2. For a survey of public choice literature, see Mueller (1989).
3. For an analysis of the sources of unity and tension between the English and French in Canada, see Breton *et al.* (1980).
4. For an analysis of the more recent ethnic immigrant groups, see Driedger (1987).
5. For Canada, see Regenstreif (1965), Laponce (1969), Flanagan (1977), Blake (1972, 1978), and Meisel (1975). For the UK, see Miller (1977). For the USA, see Cain and Kiewiet (1978).
6. The theory of ethnic voting behaviour used in this study is based on an extension of the theory of the ethnically homogeneous middleman group (EHMG) developed by Landa (1981, 1991) and Carr and Landa (1983). Basic to the theory of the EHMG is the idea that the EHMG is an institutional arrangement, alternative to contract law, for economizing on costs of enforcing contracts. Under conditions of contract-uncertainty, a trader prefers to choose trading partners whom he can trust to keep his promises because this lowers the risks (hence costs) of breach of contract. The theory of the EHMG can be extended to explain why voters tend to vote along ethnic lines in multi-ethnic societies such as Canada and the United States. For a survey of the Canadian literature on voting behaviour, see Elkins and Blake (1975). See also Drieger (1987, 1991), and Breton *et al.* (1980) for background on ethnic issues in Canada.
7. For a discussion of ethnic assimilation in Canada, see Vallee *et al.* (1957). For a discussion of the intramarriage rate of ethnic groups in Canada, see Abernathy (1983). For theories of ethnic change and persistence, which include theories of assimilation, see Driedger (Ch. 2, 1989).
8. See Uhlaner (1989a, 1989b), and Uhlaner *et al.* (1989).
9. Provinces have often elected provincial governments of parties different than the government that voters in these provinces have supported in federal elections. Such a choice represents voters, at the margin, weighing the benefits of a provincial party distinct from the party in national power as a source of resistance from federal policies/control (Paul Johnson, University

of Alberta, personal communication with Grofman, November 1991. See also Grofman [1992]).

10. See Driedger (1991), p. 192.
11. For geographers' study of spatial aspects of elections, see Johnston *et al.* (1990).
12. For a discussion of Canadian patterns of immigration up to 1976, see Richmond (1978).
13. A good eye, attention to detail and much patience is required to do this work successfully; it is all too easy to misdraw the coloured lines, or to fail to see the matches that are more complicated than one-to-one. Two graduate students were hired to do the matching of polls and EAs. They then compared the results; differences were checked and corrected, with the common matches used as our sample points. The use of two students may seem redundant, but it was not, since it ensured greater accuracy. It eliminated most errors of commission; it also eliminated errors of omission and so produced more matches.
14. Fisher (1966) shows that the bias in estimated coefficients of the included variables, owing to the exclusion of relevant variables, is proportional to the importance of the excluded variables. Our constituency dummy variables will carry most of the information in the excluded variables if the assumption is that most of the variation in the excluded variables is across constituencies rather than within constituencies. Thus the remaining information in the excluded variables will have reduced impact on the bias of the estimates of the included variables.
15. See Cunningham (1971) who suggests that the impact of local candidates is diminished when there is an incumbent in the race.

References

Abernathy, T. J. (1983) Status Integration and ethnic intra-marriage in Canada. In *Racial Minorities in Multicultural Canada* (Peter S. Li and B. Singh Bolaria eds) pp. 97–102. Toronto: Garamond Press.

Blake, D. E. (1972) The measurement of regionalism in Canadian voting patterns. *Canadian Journal of Political Science* **V** (March), 55–81.

Blake, D. E. (1978) Constituency contexts and Canadian elections: an exploratory study. *Canadian Journal of Political Science* **XI** (June), 279–305.

Breton, R., Reitz, J. and Valentine, V. (1980) *Cultural Boundaries and the Cohesion of Canada.* Montreal: The Institute for Research on Public Policy.

Breton, R., Reitz, J. and Valentine, V. (1978) Constituency contexts and Canadian elections: an exploratory study. *Canadian Journal of Political Science* **XI** (June), 279–305.

Cain, B. E., Kiewiet, D. R. and Uhlaner, C. J. (1991) The Acquisition of Partisanship by Latinos and Asian Americans, *American Journal of Political Science*, **35** (May), 390–422.

Carr, J. and Landa, J. (1983) The economics of symbols, clan names and religion. *Journal of Legal Studies* **XIII** (January), 135–156.

Cunningham, R. (1971) The impact of the local candidate in Canadian federal elections. *Canadian Journal of Political Science* **IV** (June), 287–290.

Driedger, L., ed. (1987) *Ethnic Canada: Identities and Inequalities.* Toronto: Copp Clark Pitman.

Driedger, L. (1989) *The Ethnic Factor: Identity in Crisis.* McGraw-Hill Ryerson

Driedger, L. (1991) *The Urban Factor: Sociology of Canadian Cities.* Oxford: Oxford University Press.

Elkins, D. J. and Blake, D. E. (1975) Voting research in Canada: problems and prospects. *Canadian Journal of Political Science* **VIII** (June), 313–325.

Fisher, F.M. (1966) *The Identification Problem.* New York: McGraw Hill.

Flanagan, T. (1971) Ethnic voting in Alberta provincial elections 1921–1971. *Canadian Ethnic Studies* 3 (December), 139–164.

Grofman, B. (1992) There is no such thing as the rational choice model of anything: evidence from the study of divided government. Paper presented at the National Science Foundation Workshop on 'Rational Choice Models of Comparative Politics', sponsored by the University of California, Irvine, 22–23 May 1992.

Johnston, R. J., Shelly, F. M. and Taylor, P. J. (1990) eds *Developments in Electoral Geography.* London: Routledge.

Landa, J. (1981) A theory of the ethnically homogeneous middleman group: an institutional alternative to contract law. *Journal of Legal Studies* **X** (June), 349–362.

Landa, J. (1991) Culture and entrepreneurship in less developed countries: ethnic trading networks as economic organizations. In *The Culture of Entrepreneurship* (B. Berger ed.). San Francisco: ICS Press.

LAPONCE, J. A. (1969) Ethnicity, religion and politics in Canada: a comparative analysis of survey and census data. In *Quantitative Ecological Analysis in the Social Sciences* (M. Dogan and S. Rokkan eds). Cambridge, MA: MIT Press.

MEISEL, J. (1975) *Working Papers on Canadian Politics*. Montreal: McGill-Queen's University Press.

MILLER, W. L. (1977) *Electoral Dynamics in Britain Since 1918*. Basingstoke: Macmillan.

MUELLER, D. C. (1989) *Public Choice II: a Revised Edition of Public Choice*. Cambridge: Cambridge University Press.

REGENSTREIF, P. (1965) *The Diefenbaker Interlude*. Longmans Canada.

RICHMOND, A. (1978) Canadian immigration: recent developments and future prospects. In *The Canadian Ethnic Mosaic: A Quest for Identity* (L. Driedger, ed.) 105–123. Toronto, McClelland and Stewart.

UHLANER, C. J. (1989a) Rational turnout: the neglected role of groups. *American Journal of Political Science* 33 (May), 390–422.

UHLANER, C. J. (1989b). Relational goods and participation: incorporating sociability into a theory of rational action. *Public Choice* 62, 253–285.

UHLANER, C.J., CAIN, B. E. AND KIEWIET, D. R. (1989) Political participation of ethnic minorities in the 1980s. *Political Behavior* 11, 195–231.

VALLEE, F., SCHWARTZ, M. AND DARKNELL, F. (1957) Ethnic assimilation and differentiation in Canada. *Canadian Journal of Economics and Political Science* 23 (November), 540–549.

WUFFLE, A. (1992) Credo of a 'reasonable choice' modeller. Paper presented at the National Science Foundation Workshop on 'Rational Choice Models of Comparative Politics', sponsored by the University of California, Irvine, 22–23 May 1992.

Appendix I: Poll Boundaries

Here are two examples, the first drawn from the constituency of St Andrew–St Patrick in the downtown area with a complex ethnic mix, the second from Scarborough–Agincourt, a suburban riding with a large Chinese population:

RIDING OF ST ANDREW–ST PATRICK (No. 17 in *Figure 1*)

POLLING SUBDIVISION NO. 157: COMPRISING:

BLOOR STREET WEST, north side, from Huron St. to Spadina Rd., not including No. 310;
HURON STREET, both sides, from Bloor St. to Lowther Ave.;
LOWTHER AVENUE, both sides, from Huron St. to Spadina Rd.;
MADISON AVENUE, both sides, from Bloor St. to Lowther Ave.;
SPADINA ROAD, east side, from Bloor St. to Lowther Ave.

RIDING OF SCARBOROUGH–AGINCOURT (No. 19 in *Figure 1*)

POLLING SUBDIVISION NO. 3:

Bounded on the South by the MacDonald-Cartier Freeway; on the West by Pharmacy Avenue and Wishing Well Drive; on the North by Seabury Gate and Vradenberg Drive; on the East by the Hydro-Electric Power Corridor.