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Assimilation in Multilingual Cities

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Abstract

Using the Public Use Microdata Files of the 2001 and 2006 Canadian Censuses, we study the determinants of the assimilation of language minorities into the city majority language. We show that official minority members (i.e. francophones in English-speaking cities and anglophones in French-speaking cities) assimilate less than the "allophones" (the individuals with a mother tongue other than English or French), and that immigrants generally assimilate less than natives. In addition, the language composition of cities is shown to be an important determinant of assimilation both for allophones and for official minorities. Finally, we show that assimilation into French in French-majority cities is lower than assimilation into English in English-majority cities even when controlling for the language composition of the cities and including a rich set of language dummmies.

JEL Classifications: F22, J15
Keywords : immigration, assimilation, language policies, minorities

1 Introduction

Officially bilingual countries are often characterised by the existence of heated debates on the role of the existing languages. This may be, as stressed by sociolinguists, because bilingualism is seldom purely symmetric (see e.g. Fishman, 1967) or because it is generally unstable in the sense that, over generations, populations shift from the weak to the dominant language (Paulston, 2003).[1]

In addition, in many cases, the populations speaking the minority language are geographically concentrated, and actually constitute a majority in certain locations. Then, a sensitive issue for minority language speakers in those locations is whether majority members and individuals with other mother tongues end up speaking the minority language. This is for instance one of the reasons for which officially multilingual countries such as Belgium or Switzerland have chosen to determine the language of instruction in schools according to a "territoriality principle" by which each region has only schools in the majority language of that region (see McRae, 1983, and McRae, 1986).

While there exists a theoretical literature studying the incentives for the members of each language group to learn the other language (see in particular John and Yi, 2001, and Church and King, 1993), the existing empirical literature on assimilation in officially bilingual countries concentrates only on the assimilation of a specific group (the immigrants)[2] and treats symmetrically the assimilation into the official languages in the majority-inhabited and minority-inhabited regions. This is the case in particular in Chiswick and Miller (1994) and Chiswick and Miller (2001), which study the determinants for the knowledge of English and/or French by immigrants living either in English Canada or in Quebec.

This paper contributes to the literature by explicitly studying the determinants of the assimilation of all language minority members into the city-majority language, and by comparing this assimilation process depending on whether the city-majority language is the majority or minority language at the national level.

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[1] "The major point about bilingualism (...) is that maintained group bilingualism is unusual. The norm for groups in prolonged contact with a nation-state is for subordinate group to shift to the language of the dominant group." (Paulston, 2003, p. 401)

[2] One exception in a different context is Lang and Siniver (2009) which studies the incentives for immigrants to Israel to learn Hebrew and English and for native Israelis to learn English.

For this type of analysis, the case of Canada is particularly interesting for several reasons. First, the majority language and the size of the language majority greatly vary across Canadian provinces and cities, and, in contrast with other multilingual countries as Belgium and Spain, the Canadian Census includes questions on the mother tongue of individuals and their knowledge of the two official languages (English and French). Second, English-French bilingualism is likely to be asymmetric, as anglophones account for a much larger share (59%) of the population than francophones (22.5%)[3] and English is currently the international *lingua franca.* At the same time, the extent of this asymmetry is unclear, as French remains an international language, both languages have been given co-official status since the 1969 Official Language Act, and the province of Quebec has implemented a very active policy of promotion of French.[4] Finally, immigration is a central phenomenon as non native anglophone or francophone immigrants accounted for nearly 20% of the population in 2001.

Using the Public Use Microdata Files (PUMF) of the 2001 and 2006 Canadian Censuses, we regress the knowledge of the city-majority language by minority members in the city against the characteristics of individuals and the language composition of the city. An individual is defined as being a city language-minority member if he/she does not have the city majority language as his/her mother tongue. Our sample of individuals thus includes the "official (language) minorities" i.e. the francophones in English-majority cities and the anglophones in French-majority cities, and the "allophones", i.e. the individuals with a mother tongue other than English or French. It is important to note that mother tongue and immigrant status are not perfectly correlated: in our sample, 6.8% of the mother tongue francophones and 17.6% of the mother tongue anglophones are actually immigrants. Similarly, 17% of the allophones and 16.8% of the allophones with a non native American mother tongue are not immigrants.

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[3]These data are from the 2006 Census 100% tabulations, www12.statcan.ca

[4]The legal history of Canada contains examples of legislation aimed at favouring assimilation of immigrants or minorities in a particular language. For instance, after the British North America Act (1867) established the provincial responsibility over education, the corresponding provincial educational acts (except in the cases of Quebec and Ontario) "banned the use of French as a medium of instruction in the system of public schools and/or abolished the provision of financial support to Catholic [French-speaking] schools" (Mougeon, 1998, p. 227). More recently, Bill 101 of Quebec (1977) stated that "only children whose father or mother received most of their primary education in English, in Quebec, have access to English schools" (Barbaud, 1998, p. 185). While the children of immigrants in Quebec can still only attend schools in French, the Canada Constitution Act (1982) partly overturned Bill 101 by establishing the right for Canadian citizens whose mother tongue is English or French to get education in that same language everywhere in Canada (when the number of children so warrants).

As far as the individual characteristics are concerned, assimilation into the city-majority language is shown to be higher for individuals with a diploma, for male, and for employed individuals. Among allophone immigrants, as in Chiswick and Miller (1994) and Chiswick and Miller (2001), assimilation is increasing in the number of years in Canada, and decreasing in the age at migration. In addition, while age at immigration remains a negative determinant of assimilation for official minority immigrants, the number of years in Canada is not correlated with knowledge of the city-majority language for this group of individuals.

A robust result in our regressions is that official minority members assimilate less into the city-majority language than allophones. This result holds both for English- and French-majority cities, and even when the size of the different language groups is taken into account. Intuitively, the lower assimilation of official minorities could be related to institutions stemming from Canada's official bilingualism, such as for instance the right for Canadian citizens whose mother tongue is English or French to get education in that same language everywhere in Canada (when the number of children so warrants).

We also show that allophone immigrants assimilate less than allophone natives, and that anglophone immigrants assimilate less into French than allophone natives. In contrast, and this constitutes the first asymmetry between the anglophone and francophone minorities, the English-language assimilation of francophone immigrants is actually higher than that of francophone natives.[5]

The language composition of cities is shown to be an important determinant of assimilation for allophones in both types of cities. Specifically, knowledge of the city-majority language is negatively related to the proportion of own mother tongue speakers in the city,[6] and positively related to the size of the majority. This results still holds when the proportion of own mother tongue speakers is instrumented à la Card (2001) to account for the fact that allophones may choose their city as a function of their unobserved previous knowledge of the language of the city. The assimilation of official minorities is also shown to be negatively related to the size of the minority and less so to the size of the majority.

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[5]This holds only when Ottawa is not included in the sample. When Ottawa is included, native and immigrant francophones have similar levels of assimilation into English.

[6]This result is also found in Lazear (1999) and in Chiswick and Miller (2001).

Finally, this paper shows that assimilation into French in French-majority cities and assimilation into English in English-majority cities are asymmetric in several respects. First, after controlling for city composition, francophones are shown to assimilate into English more than anglophones into French. Second, allophone assimilation is also lower in French-majority cities than in English-majority cities, even when allowing the language dummies and the individual characteristics of allophones to have a different effect for the two groups of cities. Finally, the role played by several individual characteristics on assimilation varies across the two groups of cities. In particular, the likelihood for anglophones to speak French in French-majority cities is more sensitive to employment status than the likelihood for francophones to speak English in English-majority cities.

The paper is organised as follows. Section 2 presents the data, section 3 studies the assimilation of official minorities, section 4 follows with the assimilation of allophones, and finally section 5 jointly studies the assimilation of all minorities.

2 Data

We use the Public Use Microdata Files (PUMF) of the 2001 and 2006 Canadian Censuses[7] to study the determinants of the assimilation of language minorities into the city majority language. We define an individual as being a city language minority member if he/she does not have the city majority language as his/her mother tongue. Our sample of individuals thus includes (i) the "official minority" members -i.e. the nearly 30,000 mother tongue francophones living in one of the 20 English-majority Census Metropolitan Areas (CMAs)[8] and the 19,000 mother tongue anglophones living in one of the 3 French-majority CMAs[9]- and (ii) the 230,000 individuals with a mother tongue other than French or English living in a CMA, referred to as "allophones".[10]

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[7]Corresponding to 2.7% samples of the Census populations.

[8]Calgary, Edmonton, Halifax, Hamilton, Kitchener, Greater-Sudbury-Thunder Bay, London, Oshawa, Ottawa-Hull-Gatineau, Regina-Saskatoon, St-Catherines-Niagara, Toronto, Vancouver, Victoria, Windsor, and Winnipeg for both 2001 and 2006, and Moncton-Saint John, Brantford-Guelph-Barrie, Kingston-Peterborough, and Kelowna-Abbotsford only for 2006. We restrict our attention to individuals living in CMAs because the city of residence for individuals living in smaller cities is not available in the PUMFs.

[9]Montréal, Québec, and Sherbrooke-Trois Rivières.

[10]From our definition of minority, individuals having several mother tongues are not included in the city minority if one of their mother tongues is the city majority language.

Table 1: Number of observations by mother tongue and immigration status: Invididuals aged 15 or more living in a CMA, PUMF 2001 and 2006

Mother tongue	Total	Natives	Immigrants
English	19,023	15,671	3,352
French	30,549	28,477	2,072
Allophones	228,671	39,047	189,624

Interestingly, mother tongue and immigrant status are not perfectly correlated: in our sample (see Table 1), 6.8% of the mother tongue francophones and 17.6% of the mother tongue anglophones are actually immigrants. Similarly, 17% of the allophones and 16.8% of the allophones with a non native American mother tongue are not immigrants. In order to determine the minority status of each individual, we exploit the question on the mother tongue of the respondent available in the Census ("What is the language that this person first learned at home in childhood and still understands? If the person no longer understands the language learned, indicate the second language learned").

Canadian cities substantially differ in terms of the majority language, the size of this majority, and the proportion of allophones. This important cross-city heterogeneity is already apparent when considering the most populated seven cities in the country (see Table 2). Quebec City is overwhelmingly native French-speaking, while Toronto, Vancouver, Calgary or Edmonton have less than 2% native francophones and a large proportion of allophones (ranging between 16% and 36%), and finally cities as Montreal or Ottawa have significant shares of both official languages.

Cities also differ in terms of the size and the identity of the largest allophone group in 2006. Indeed, Table 3 shows that the size of the largest allophone group as a share of the total population ranges from 0.22% in Moncton-Saint John to almost 7.7% in Kelowna-Abbotsford. As a fraction of the allophone population, the share of the largest group is always quite big, but ranges from 7.26% in Moncton-Saint John to almost 38% in Kelowna-Abbotsford. In addition, the identity itself of the largest group importantly varies across the CMAs in the sample, with 8 different languages for 23 CMAs.[11]

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[11]The largest allophone group was the same in 2001 in 20 out of the 23 CMAs under consideration. The three exceptions are Winnipeg (from German in 2001 to Filipino in 2006), London (from Polish to Spanish), and Oshawa (from Polish to Italian).

Table 2: Mother tongue composition (2006)

	Canada	Toronto	Montreal	Vancouver	Ottawa	Calgary	Edmonton	Quebec city
E	58.79	57.91	11.97	59.69	50.40	76.60	78.66	1.29
F	21.65	1.07	65.13	1.01	31.29	1.36	1.95	95.32
A	16.47	35.75	17.77	35.00	14.04	19.13	16.45	2.08
EF	.76	.32	1.70	.29	2.08	.38	.44	.86
EA	1.87	4.71	.89	3.84	1.41	2.40	2.37	.02
FA	.26	.08	1.53	.05	.39	.01	.05	.32
EFA	.20	.16	1.00	.12	.39	.09	.08	..10

Notes: E: English; F: French; A: allophone; EF: English and French; EA: English and allophone; FA: French and allophone; EFO: English, French, and allophone. *Source*:100% Census tabulations, http://census2006.ca

Table 3: Share of the largest allophone mother tongue in the city population of CMAs, 2006, 100% Census Tabulations

CMA	Larger allophone language	Population share	Share among allophones
Kelowna-Abbotsford (Bc)	Punjabi	7.73	37.86
Vancouver (Bc)	Chinese	6.13	15.26
Toronto (Ont)	Italian	3.84	9.05
Windsor (Ont)	Italian	3.62	16.02
St. Catherines-Niagara (Ont)	Italian	3.57	23.29
Winnipeg (Man)	Filipino	3.57	17.78
Montréal (Qc, F)	Italian	3.5	17.23
Kitchener (Ont)	German	3.37	14.98
Hamilton (Ont)	Italian	3.20	14.72
Greater Sudbury/Thunder Bay (Ont)	Italian	2.77	29.98
Ottawa-Gatineau (Ont/Qc, F)	Arabic	2.77	17.68
Regina-Saskatoon (Sas)	German	2.63	24.18
Calgary (Al)	Chinese	2.62	11.67
Edmonton (Al)	Chinese	2.06	10.43
London (Ont)	Spanish	1.85	10.74
Victoria (Bc)	German	1.63	12.85
Brantford-Guelph-Barrie (Ont)	Italian	1.63	13.76
Oshawa (Ont)	Italian	1.32	12.51
Halifax (Ns)	Arabic	1.10	21.82
Kingston-Peterborough (Ont)	German	0.98	13.18
Sherbrooke-Trois Rivières (Qc, F)	Spanish	2.78	17.19
Québec (Qc, F)	Spanish	0.67	27.49
Moncton-Saint John (Nb)	Chinese	0.22	7.26

Notes: F: CMA with a French mother tongue majority. Provinces: Al: Alberta, Bc: British Columbia, Man: Manitoba, Nb: New Brunswick, Ns: Nova Scotia, Ont: Ontario, Qc: Quebec, Sas: Saskatchewan. *Source*:100% Census tabulations, http://census2006.ca

Our measure of assimilation into the city majority language is based on Question 13 in the Census: "Can this person speak English or French well enough to conduct a conversation?". Table 4 reports the proportion of minority members declaring to speak well enough the city majority language. One can first note that there is variation in this proportion across cities, as the 2006 assimilation rates range from .983 in Regina-Saskatoon to .75 in Montreal. Second, assimilation in French-majority cities is clearly lower than in English-majority cities, and comes both from lower assimilation rates of allophones and official minorities (anglophones). Next, when one excludes Ottawa, it appears that the relative assimilation pattern of official minorities versus allophones is different in French- and English-majority cities. Indeed, in French-majority cities, the anglophones assimilate less than the allophones (.734 versus .769 in 2006) while in English-majority cities, the francophones assimilate more than the allophones (.974 versus .911). Finally, assimilation increased between 2001 to 2006 for both types of cities, although to a larger extent for English-majority cities. In addition, within English-majority cities, assimilation generally goes up in Ontario and instead falls in Alberta and British Columbia.

The assimilation outcomes of the individual may also depend on the distance between its mother tongue and the city majority language. In some regressions, this distance is accounted for by a dummy for the individuals' mother tongues. In addition, we use two alternative measures of language distance. The first measure was proposed in Dyen, Kruskal, and Black (1992) and is based on the similarity of words across Indoeuropean languages. As a result, this measure enables us to assign a distance between English, French, and the Indoeuropean language groups identified in the PUMFs (Dutch, German, Greek, Italian, Portuguese, Punjabi, Russian, Spanish, and Ukrainian). Alternatively, we use the measure of distance with respect to English proposed by Chiswick and Miller (2005) which is based on the difficulties a sample of Americans have in learning other languages. In our context, this provides us with a measure of the distance to English of Arabic, Dutch, Chinese, French, German, Greek, Italian, Polish, Portuguese, Russian, and Spanish.

The mothertongue language composition of cities is measured using the 100% Census tabulations, available at http://www12.statcan.ca/english/census01 and http://census2006.ca. Specifically, for each city, we compute the proportion of official minority members, the propor-

Table 4: Proportion of city minority members 15 or over declaring to know the city-majority language

CMA	All min. 2001	All min. 2006	Official min. 2006	Allophones 2006
Regina-Saskatoon (Sas)	.978	.983	.983	.983
Greater Sudbury-Thunder Bay (Ont)	.969	.972	.974	.969
Brantford-Guelph-Barrie (Ont)	n.a.	.970	.969	.970
Halifax (Ns)	.982	.968	.974	.965
St. Catherines-Niagara (Ont)	.955	.966	.95	.969
Winnipeg (Man)	.965	.965	.982	.961
Oshawa (Ont)	.964	.963	.966	.963
Windsor (Ont)	.95	.957	.98	.953
Kingston-Peterborough (Ont)	n.a.	.957	.972	.953
London (Ont)	.948	.951	.957	.95
Kitchener (Ont)	.937	.947	.987	.945
Victoria (Bc)	.954	.947	.993	.941
Hamilton (Ont)	.940	.946	.983	.944
Moncton-St John (Nb)	n.a.	.94	.942	.922
Edmonton (Al)	.948	.938	.981	.933
Québec (Qc, F)	.944	.932	.95	.922
Calgary (Al)	.929	.924	.99	.919
Toronto (Ont)	.908	.909	.986	.906
Kelowna-Abbotsford (Bc)	n.a.	.908	.971	.904
Vancouver (Bc)	.882	.875	.984	.872
Sherbrooke-Trois Rivières (Qc, F)	.825	.858	.798	.929
Ottawa-Gatineau (Ont-Qc, F)	.867	.853	.82	.917
Montréal (Qc, F)	.729	.75	.727	.763
All CMAs	.878	.881	.836	.891
All CMAs (without Ottawa)	.879	.884	.843	.89
English-majority CMAs	.912	.91	.898	.912
English-majority CMAs (without Ottawa)	.865	.916	.974	.911
French-majority CMAs	.735	.756	.734	.769

Notes: F: CMA with a French mother tongue majority. Provinces: Al: Alberta, Bc: British Columbia, Ma: Manitoba, Nb: New Brunswick, Nf: Newfoundland, Ns: Nova Scotia, Ont: Ontario, Qc: Quebec, Sas: Saskatchewan.
Sources: PUMF 2001 and 2006.

tion of majority members, the proportion of allophones, and the proportion of mother tongue speakers of a series of languages.[12]

In addition, we include variables that describe the other individual characteristics of individuals. Specifically, we include the age and sex of the respondent, its employment and immigration status, the age at migration, and dummies establishing whether the individual has ever been married or has a diploma.[13]

3   Assimilation of official minorities

Table 5 presents regressions on the determinants of knowledge of English by francophone minorities in English-majority cities. Column 1 includes only individual characteristics as regressors, while columns 2 to 7 add to these the characteristics of the city of residence, with the last two columns excluding Ottawa. Concerning individual characteristics, throughout specifications, knowledge of English among francophones is higher for the individuals that are employed, educated, married, and among immigrants, for those who were younger when they moved to Canada. More surprisingly, francophone immigrants tend to know English more often than native francophones. However, this coefficient seems to be driven by the inclusion of Ottawa in the sample. Indeed, when Ottawa is excluded from the sample (regressions 6 and 7), the coefficient becomes insignificant.

Cities' language composition in turn seems to be an important determinant of assimilation into English mostly when Ottawa is included in the sample. Indeed, while the proportion of francophones is always negatively correlated to the knowledge of English, the contribution of city variables to the Pseudo R2 when Ottawa is excluded is very limited. This seems to indicate that assimilation of francophone minorities into English in anglophone cities other than the capital is quite homogeneous across cities and mainly depends on individual characteristics. This would also explain why adding a dummy for Ottawa starting from a specification that

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[12]The idea is here to have a measure of the relative size of different mother tongue language networks, i.e. the relative number of individuals that can be reached with one's mother tongue. Individuals who declare to have several mother tongues belong to several mother tongue networks, and for this reason the measure of the total population of the city used to construct these proportions counts bilingual individuals twice.

[13]The question on the years of education of the individuals is different for the 2001 and 2006 Censuses, which leaves the possession of some diploma as the only common measure for both Census years. Interestingly, nearly one fourth of the individuals in the sample do not hold any diploma at all.

Table 5: Assimilation of francophones in anglophone cities

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Dependent variable: Knowledge of English						
Age	-.003	-.004***	-.004***	-.004***	-.004***	-.0001	-.0001
	(.003)	(.001)	(.001)	(.001)	(.001)	(.002)	(.002)
Years in Canada*Immigrant	-.005	-.005	-.005	-.005	-.005	-.002	-.002
	(.003)	(.004)	(.004)	(.004)	(.004)	(.002)	(.002)
Age at Immigration*Immigrant	-.025***	-.027***	-.026***	-.028***	-.028***	-.007***	-.007***
	(.007)	(.003)	(.002)	(.002)	(.002)	(.002)	(.002)
Male	.027**	.022***	.023***	.022***	.022***	.004***	.004***
	(.012)	(.003)	(.002)	(.002)	(.002)	(.001)	(.001)
Employed	.025***	.020***	.021***	.021***	.021***	.008**	.008**
	(.008)	(.003)	(.002)	(.002)	(.002)	(.004)	(.004)
Unemployed	.002	-.003	-.004	-.003	-.003	-.001	-.001
	(.005)	(.004)	(.005)	(.004)	(.004)	(.006)	(.007)
No diploma	-.077**	-.067***	-.069***	-.067***	-.068***	-.011**	-.012***
	(.033)	(.011)	(.008)	(.009)	(.009)	(.005)	(.004)
Ever married	.043***	.026***	.027***	.026***	.026***	.010*	.010*
	(.010)	(.003)	(.004)	(.003)	(.003)	(.005)	(.005)
Immigrant	.090***	.055***	.057***	.055***	.055***	-.0003	.00002
	(.030)	(.013)	(.011)	(.012)	(.012)	(.010)	(.009)
2001	-.01	.001	.005	.005	.0002	.010***	.010***
	(.007)	(.004)	(.005)	(.004)	(.006)	(.003)	(.003)
Proportion of francophones		-.394***		-.188**	-.244***	-.105***	-.114***
		(.051)		(.085)	(.089)	(.021)	(.022)
Proportion of anglophones		.106*		-.077*	1.161**	-.047***	.164
		(.061)		(.046)	(.579)	(.014)	(.195)
Ottawa			-.134***	-.099***	-.049		
			(.005)	(.027)	(.036)		
Proportion of anglophones^2					-.835**		-.142
					(.388)		(.130)
Ottawa included	Yes	Yes	Yes	Yes	Yes	No	No
Observations	30,067	30,067	30,067	30,067	30,067	14,695	14,695
Pseudo R^2	.06	.159	.161	.162	.162	.057	.058

Notes: The table displays the marginal effects estimates from a Probit model for the probability of knowledge of English. The sample includes the individuals living in English-majority CMAs who have French as their mother tongue and do not have English as an additional mother tongue. *Sources*: PUMF 2001 and 2006.

only includes individual characteristics (i.e. going from regression 1 to regression 3) improves the explanatory power of the initial specification to an extent similar to that of adding the proportion of francophones and the proportion of anglophones (i.e., going from regression 1 to regression 2).

Table 6 extends the analysis to all official minorities, i.e. includes now also the assimilation of anglophones in French-majority CMAs. The first column includes only individual characteristics as regressors and shows the same signs as in the preceding table. In column 2, we allow for potentially different patterns of assimilation in English-majority and French-majority cities by introducing a dummy variable for francophone cities and interaction terms. This results in an important increase in the explanatory power with respect to the initial regression and to changes in the importance of the relevance of different individual characteristics. Specifically, the likelihood for anglophones to speak French in French-majority cities is more sensitive to employment status than the likelihood for francophones to speak English in English-majority cities. Also, knowledge of French is more strongly (and positively) related to the number of years in Canada than knowledge of English, which seems could be linked to the dominant role played by English both at the international and at the Canadian level. Another difference that appears from the regressions is that immigrant anglophones are actually worse than native anglophones at speaking French, while the reverse was true when comparing native and immigrant francophones in the previous table. Finally, column 3 also includes the language composition of cities as regressors, and shows that assimilation into the majority language is decreasing in the size of the official minority. As this was not the case when only anglophone cities were considered, this clearly indicates that city language composition matters more in francophone cities as a determinant of assimilation of official minorities.

4 Assimilation of allophones

4.1 Probit estimates

We next turn to the assimilation of allophones. Table 7 presents the determinants of knowledge of English by allophones in English-majority cities. The correlations between individual char-

Table 6: Assimilation of official minorities

Dependent variable: Knowledge of the city-majority language			
	(1)	(2)	(3)
Age	-.023*	-.003	-.006***
	(.014)	(.004)	(.002)
Years in Canada*Immigrant	.004	-.007	-.008
	(.009)	(.005)	(.006)
Age at immigration*Immigrant	-.065***	-.033***	-.043***
	(.015)	(.006)	(.004)
Male	.022*	.037***	.036***
	(.012)	(.011)	(.004)
Employed	.062***	.035***	.033***
	(.022)	(.007)	(.003)
Unemployed	.004	.002	-.005
	(.006)	(.007)	(.007)
No diploma	-.079***	-.107***	-.104***
	(.029)	(.031)	(.015)
Ever married	.053***	.058***	.041***
	(.007)	(.008)	(.005)
Immigrant	.006	.129***	.093***
	(.099)	(.026)	(.021)
2001	-.004	-.003	.006
	(.007)	(.007)	(.005)
Age*Native		-.035***	-.027***
		(.003)	(.003)
Years in Canada*Immigrant*F		.021***	.020***
		(.004)	(.006)
Age at immigration*Immigrant*F		.002	.017***
		(.004)	(.003)
Male*F		-.031***	-.032***
		(.011)	(.005)
Employed*F		.037***	.030***
		(.007)	(.003)
Unemployed*F		.012	.017**
		(.009)	(.007)
No diploma*F		.012	.016
		(.016)	(.012)
Ever married*F		-.044***	-.029***
		(.008)	(.005)
Immigrant*F		-.472***	-.397***
		(.047)	(.064)
F		.077*	-.057**
		(.040)	(.024)
Ottawa			-.069
			(.056)
Proportion of official minority			-.441***
			(.139)
Proportion of majority			.133
			(.111)
Observations	48,756	48,756	48,756
Pseudo R^2	.077	.162	.209

Notes: The table displays the marginal effects estimates from a Probit model for the probability of knowledge of the city-majority language. The sample includes the individuals living in English-majority CMAs who have French as their mother tongue and do not have English as an additional mother tongue, and the individuals living in French-majority CMAs who have English as their mother tongue and do not have French as an additional mother tongue. F denotes the dummy for a French-majority CMA. *Sources*: PUMF 2001 and 2006.

acteristics and knowledge of English are quite stable across the five specifications, and present the expected signs. Indeed, for immigrants, knowledge of English is negatively related to the age at arrival and positively related to years in Canada. As for the remaining individual characteristics, they present the same signs as in the preceding table with three exceptions. First, marriage is negatively correlated with English proficiency, which could potentially come from a higher prevalence of within-group marriage than for the francophones. Second, allophone immigrants end up with a lower English proficiency than native allophones. Finally, assimilation seems to be lower in 2006 than in 2001. In contrast to our previous results for francophones in Table 5, the assimilation of allophones seems to be quite sensitive to city language composition. Indeed, city-level variables are always strongly significant, and contribute in an important way to explaining the variation of the endogenous variable. Specifically, knowledge of English is negatively correlated to the proportion of own mother tongue speakers in the city, and positively related to the proportion of anglophones, even when language dummies and a measure of distance to English are included in the regression as in columns 4 and 5.

Table 8 extends the analysis to all cities, i.e. includes now also the assimilation of allophones in French-majority CMAs. Regressions 1 and 2 show that in the absence of interaction terms for French-majority cities, the signs associated to the individual characteristics remain the same as in the preceding Table. When interaction terms for individual characteristics and language dummies are included (see regression 3) a much larger share of the variation can be accounted for, which indicates that the patterns of assimilation in francophone cities are different at least to some extent. In addition, while individual characteristics have the same qualitative impact in anglophone and francophone cities (see regressions 3-5), their quantitative impact differs in some cases. Specifically, age at immigration and the absence of diploma have a much smaller negative role on assimilation in francophone cities, and the difference in the assimilation rates of men and women are also smaller. As for city-specific variables, assimilation of allophones into French in francophone cities is shown to be significantly lower than assimilation into English in anglophone cities, and assimilation decreases with the size of one's own language group and increases with the size of majority.

Table 7: Assimilation of allophones in English-majority cities

	Dependent variable: Knowledge of English				
	(1)	(2)	(3)	(4)	(5)
Age	.001	-.005***	-.006***	-.002***	-.009***
	(.002)	(.001)	(.001)	(.001)	(.002)
Years in Canada*Immigrant	.009***	.007**	.009***	.004***	.011***
	(.002)	(.001)	(.001)	(.001)	(.002)
Age at immigration	-.024***	-.016***	-.017***	-.011***	-.017***
	(.002)	(.001)	(.002)	(.001)	(.002)
Male	.011***	.010***	.011***	.007***	.011***
	(.001)	(.001)	(.001)	(.0004)	(.001)
Employed	.022***	.019***	.016***	.012***	.018***
	(.003)	(.002)	(.003)	(.001)	(.003)
Unemployed	.009***	.007***	.006***	.006***	.005***
	(.001)	(.001)	(.001)	(.001)	(.002)
No diploma	-.106***	-.083***	-.087***	-.037***	-.097***
	(.007)	(.003)	(.003)	(.001)	(.002)
Ever married	-.014***	-.010***	-.011***	-.0002	-.013***
	(.003)	(.002)	(.003)	(.001)	(.003)
Immigrant	-.013**	-.011***	-.018***	-.008**	-.020***
	(.006)	(.004)	(.004)	(.003)	(.005)
2001	.011***	.008***	.008***	.002***	.009***
	(.001)	(.001)	(.001)	(.001)	(.002)
Ottawa			-.001	-.014***	-.00003
			(.001)	(.003)	(.001)
Proportion of own mother tongue			-.039**	-.33***	-.048**
			(.018)	(.046)	(.02)
Proportion of anglophones			.044***	.015**	.064***
			(.007)	(.007)	(.01)
Similarity to English (DHB)				.013***	
				(.003)	
Similarity to English (CM)					.024
					(.029)
Language Dummies	No	Yes	Yes	Yes	Yes
Observations	182,902	182,902	118,130	71,750	98,151
Pseudo R^2	.364	.404	.428	.428	.412

Notes: The table displays the marginal effects estimates from a Probit model for the probability of knowledge of English. Regressions (1) and (2) include the individuals living in English-majority CMAs who do not have neither English nor French as their mother tongue. From this sample, regression (3) includes only the individuals for which the information on mother tongue is available in the data and thus the variable "Proportion of own mother tongue" can be computed (individuals having Arabic, Chinese, Dutch, German, Greek, Italian, Polish, Portuguese, Punjabi, Spanish, Russian, or Ukrainian as their mother tongue). Regression (4) further restricts the sample to individuals having an Indoeuropean mother tongue (i.e. all the above mentioned groups except Arabic or Chinese mother tongue speakers), and regression (5) does not include the individuals having a mother tongue for which the distance to English according to the CM is not available (i.e. those having Punjabi or Ukrainian as their mother tongue). *Sources*: PUMF 2001 and 2006.

Table 8: Assimilation of allophones

Dependent variable: Knowledge of the city-majority language					
	(1)	(2)	(3)	(4)	(5)
Age	-.005	-.01**	-.007***	-.008***	-.004***
	(.004)	(.004)	(.002)	(.002)	(.001)
Years in Canada*Immigrant	.012***	.014***	.010***	.012***	.006***
	(.003)	(.005)	(.002)	(.002)	(.001)
Age at immigration*Immigrant	-.035***	-.027***	-.022***	-.022***	-.016***
	(.009)	(.007)	(.002)	(.002)	(.002)
Male	.014***	.015***	.014***	.014***	.010***
	(.001)	(.001)	(.001)	(.001)	(.001)
Employed	.039***	.038**	.026***	.021***	.017***
	(.014)	(.015)	(.002)	(.001)	(.001)
Unemployed	.011***	.008***	.010***	.007***	.010***
	(.002)	(.002)	(.002)	(.001)	(.001)
No diploma	-.117***	-.104***	-.106***	-.107***	-.052***
	(.008)	(.009)	(.004)	(.003)	(.001)
Ever married	-.018***	-.014***	-.013***	-.014***	.0002
	(.005)	(.005)	(.003)	(.003)	(.001)
Immigrant	-.019*	-.027	-.015**	-.023***	-.012**
	(.012)	(.020)	(.008)	(.006)	(.005)
2001	.012***	.010***	.008**	.008***	.002*
	(.002)	(.001)	(.003)	(.002)	(.001)
Age*F			-.004**	-.002	-.001
			(.002)	(.002)	(.001)
Years in Canada*Immigrant*F			.003*	-.005***	-.006***
			(.002)	(.002)	(.001)
Age at immigration*Immigrant*F			.015***	.011***	.007***
			(.002)	(.002)	(.001)
Male*F			-.013***	-.008***	-.003***
			(.001)	(.001)	(.001)
Employed*F			-.001	.003**	-.001
			(.001)	(.001)	(.001)
Unemployed*F			.002	.0003	-.013***
			(.003)	(.002)	(.003)
No diploma*F			.027***	.025***	.011***
			(.001)	(.001)	(.001)
Ever married*F			.002	.003	-.005**
			(.004)	(.004)	(.002)
Immigrant*F			-.080***	-.011	.005
			(.0219)	(.013)	(.006)
F			-.147***	-.04	-.283***
			(.03)	(.025)	(.082)
Ottawa				.01	-.017
				(.021)	(.020)
Proportion of own mother tongue				-.028	-.485***
				(.026)	(.063)
Proportion of official minority				-.036	-.004
				(.090)	(.038)
Proportion of majority				.068***	.026***
				(.011)	(.010)
Similarity to majority language (DHB)					.012***
					(.002)
Language Dummies	No	Yes	Yes	Yes	Yes
Language Dummies*F	No	No	Yes	Yes	Yes
N	214,395	214,395	214,395	138,681	86,507
Pseudo R^2	.26	.285	.383	.42	.419

Notes: The table displays the marginal effects estimates from a Probit model for the probability of knowledge of the city-majority language. Regressions (1) to (3) include the individuals living in English-majority or French-majority CMAs who do not have neither English nor French as their mother tongue. From this sample, regression (4) includes only the individuals for which the information on their mother tongue is available in the data and therefore the variable "Proportion of own mother tongue" can be computed (i.e. individuals having Arabic, Chinese, Dutch, German, Greek, Italian, Polish, Portuguese, Punjabi, Spanish, Russian, or Ukrainian as their mother tongue). Regression (5) further restricts the sample to the individuals with a Indoeuropean mother tongue (i.e. all the above mentioned groups except Arabic or Chinese mother tongue speakers). F is a dummy variable indicating a French-majority CMA. *Sources*: PUMF 2001 and 2006.

4.2 IV estimates

Our results show so far that the knowledge of the city majority language is positively correlated with the size of the majority and negatively correlated with the size of the allophone's own mother tongue group. One concern with such results, however, is whether they can be correctly interpreted as reflecting the effect of the size of the ethnic group in the city or whether they instead reflect unobserved individual heterogeneity that is correlated with the size of the group in the city. It might be reasonable to assume that the location choice of an individual depends on her previous knowledge or her ability to learn the language of the city. Individuals who know the language or those who have a lower learning cost are more likely to be less sensitive to the size of the community in the city when they choose their location. However, we do not observe whether individuals already know the language before immigrating and we are not able to control for differences in the ability of learning a language. These two unobserved factors might be correlated with the size of the group in the city and as a result our estimates of the impact of the size of the group in the city may partially reflect the fact that individuals with a lower learning cost or who already know the language might be less likely to live in a city with a high share of their group in the population.

To check the robustness of the estimates presented above, we use an instrumental variable strategy to purge the size of the group in the city from its potential correlation with unobserved factors influencing language acquisition and correlated with the size of the group in the city. Our instrument is based on the idea that part of the variations in the size of the group across cities depends on the respective importance of national immigrant inflows across cities (Card 2001, Bartel 1989). Past settlement patters and national inflows can thus be used to predict a counterfactual share of the group in the city uncorrelated by construction with the distribution of the unobserved determinants of language acquisition of previous immigrants already settled in the city. Specifically, we use the national growth rate of a group between 2001 and 2006 to construct an instrument for the size of the group in 2006 across cities. More precisely, denote by g_k the growth rate of group k between 2001 and 2006 in the entire population and $N_{lk,01}$ the number of individuals from the group k in city l in 2001. We predict a counterfactual size $\hat{N}_{lk,06}$ of the group in 2006 by using the national growth rate g_k and the initial distribution of

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groups across cities such that $\hat{N}_{lk,06} = g_k N_{lk,01}$. Our endogenous variable being the share of the group in the population of the city, we divide the counterfactual number by the population of the city in 2006 such that our final instrument is $p_{lk,06} = \hat{N}_{lk,06}/Pop_{l,06}$.

This instrument is valid if the distribution of unobserved factors influencing language acquisition is not correlated with differences in national growth rates across groups. Note however that it might be possible that the location decision of immigrants already living in Canada is influenced by the size of the immigrant flow between 2001 and 2006. For example, it might be the case that a large increase in the number of Chinese in Canada might influence the distribution of Chinese immigrants across cities. If internal migrations generated by the size of the migration flow are important, our instrument is potentially biased by the fact that changes in the distribution of the unobserved factor will be correlated with the difference between the instrument and the endogenous variable.

We find our instrument to be a strong predictor of the size of the allophone's own mother tongue group. A first stage regression of our instrument on the endogenous variable indicates a t-stat superior to 10, suggesting that problems of weak instruments are not an issue.

Marginal effects estimates of the impact of the size of the allophone's own mother tongue group on the knowledge of the city majority language are reported in table 9. Since we use data from 2001 to create the instrument, the sample only includes individuals observed in the 2006 Census for whom we were able to compute the instrument. Panel A reports results estimated using only anglophone cities while panel B reports results of models estimated including francophone cities. The models for both types of cities reported in table 9 include the same set of interactions between language dummies and individual covariates with francophone cities as in column 4 of Table 8. To ease the presentation, we only report here the coefficient of the endogenous variable, the size of the allophone's own mother tongue group. However, the estimates for the other variables are similar to those in Table 8.

The probit estimates (column 1) indicate that an increase of one standard deviation in the size of the group decreases the probability to know the city majority language by respectively 30% for English-majority cities and 38% for both types of cities. The results do not differ too much from the estimates in column 4 of Tables 7 and 8 with data for both the 2001 and 2006

Censuses. Column 2 reports the estimates from an instrumental variable probit estimated with conditional maximum likelihood. We find Panel A's results to be similar to those of the simple probit model, while the predicted marginal effect declines by 10% with when francophone cities are included in the sample (see Panel B). In both cases, however, the estimated marginal effects remain large and are statistically significant.

However, as the estimation of a probit model with endogenous explanatory variable demands fairly strong assumption (see e.g. Wooldridge, 2002, p. 585 for a discussion), we check the robustness of the results by estimating several linear probability models with 2SLS. To ease the comparison with the probit estimates, we rescale the parameters of interest in the regression by standardising the variable of interest to have an average of zero and a standard deviation of one across each sample. As a result, the estimates reported in columns 3 and 4 can be directly interpreted as the effect on the probability to know the city-majority language of an increase by one standard deviation in the size of the allophone's own mother tongue group . The OLS and 2SLS estimates reported respectively in columns 3 and 4 are similar to those obtained using a probit model. Specifically, the OLS estimates show that an increase in one standard deviation of the size of the allophone's group results in a 26% decline in the probability to know the city-majority language. In addition, when the potential endogeneity is accounted for (see column 4), the estimated effect declines only to 24%.[14]

5   Assimilation of all minorities

We jointly analyse now the assimilation of all language minorities, i.e. both official minorities and allophones. Table 10 presents the determinants of assimilation into English in English-majority cities, with columns 1 to 5 including all English-majority CMAs, and columns 6 and 7 excluding Ottawa. The signs of the individual characteristics are coherent with the estimates of tables 5 and 7, and the level of assimilation conditional on individual and city characteristics is shown again to have declined between 2001 and 2006. In addition, the assimilation of francophones is lower than the assimilation of allophones, even in the more complete set of

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[14]We also checked the sensitivity of the results by including also the Similarity to English (DHB) as a dependant variable as column 5 of in Table 7. We found the results (available upon request) to be barely affected by this inclusion.

Table 9: IV estimates

Allophone in anglophone cities				
Model	Probit	Iv-probit	OLS	2SLS
Proportion of own mother tongue	-0.295***	-0.290***	-0.260***	-0.239***
	(0.039)	(0.051)	(0.028)	(0.035)
N		59 169		
Language dummies	Yes	Yes	Yes	Yes
Allophones in all cities				
Proportion of own mother tongue	-0.375***	-0.285***	-0.260***	-0.235***
	(0.049)	(0.051)	(0.028)	(0.035)
N		69 816		
Language dummies	Yes	Yes	Yes	Yes
Language dummies * F	Yes	Yes	Yes	Yes

Notes: Each estimate comes from a different model. In all regressions, the dependent variable is the probability to know the city-majority language. Panel A presents regressions for English-majority CMAs, while Panel B also includes French-majority CMAs. Column 1 and 2 report marginal effects from respectively a probit and IV-probit model of increasing the proportion of own (allophone) mother tongue speakers in the CMA by one standard deviation. Columns 3 and 4 report respectively the corresponding OLS and 2SLS estimates, where the dependent variable has been standardised to have a zero average and a standard deviation equal to one.

regressions that include language dummies and interactions between individual characteristics and French as a mother tongue (3 to 7) and when Ottawa is excluded from the sample (6 and 7). Finally, the language composition of cities does matter. Indeed, on the one hand, assimilation is systematically increasing in the size of the anglophone majority. In addition, allophones' assimilation is decreasing in the size of the allophone's own mother tongue group, while this factor is less important in some specifications for the francophones.

When extending the analysis to include all cities (see Table 11, the impact of individual characteristics is unchanged, and again a lower assimilation is observed for 2006. In addition, a lower assimilation level of official minorities relative to allophones' assimilation is observed, both for francophones in English-majority cities and anglophones in French-majority cities. Also, the level of assimilation in francophone cities is systematically lower than in anglophone cities, even when allowing the language dummies and the individual characteristics of the official minority members to be different for anglophone and francophone cities (equations 3 to 5). Finally, city composition has the same qualitative impact as in the analysis for anglophone cities, except that the proportion of own mother tongue speakers is now non-significant.

Table 10: Assimilation of all minorities in anglophone cities

	Dependent variable: Knowledge of English						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Age	.0001	.001*	-.006***	-.008***	-.004***	-.004***	-.006***
	(.003)	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)
Years in Canada*Immigrant	.005*	.0004	.008***	.011***	.007***	.007***	.009***
	(.003)	(.001)	(.001)	(.002)	(.001)	(.001)	(.001)
Age at immigration*Immigrant	-.038***	-.030***	-.018***	-.021***	-.018***	-.015***	-.017***
	(.008)	(.005)	(.002)	(.002)	(.002)	(.002)	(.002)
Male	.017***	.015***	.012***	.013***	.011***	.01***	.011***
	(.005)	(.003)	(.0004)	(.001)	(.001)	(.0003)	(.001)
Employed	.022***	.019***	.021***	.020***	.019***	.018***	.016***
	(.002)	(.002)	(.001)	(.001)	(.001)	(.001)	(.001)
Unemployed	.009***	.008***	.008***	.007***	.011***	.007***	.005***
	(.002)	(.002)	(.001)	(.001)	(.001)	(.001)	(.001)
No diploma	-.114***	-.088***	-.093***	-.102***	-.059***	-.083***	-.087***
	(.011)	(.007)	(.002)	(.003)	(.002)	(.001)	(.002)
Ever married	-.005	-.003	-.011***	-.013***	-.0002	-.010***	-.011***
	(.010)	(.007)	(.002)	(.003)	(.002)	(.002)	(.003)
Immigrant	.143	.052**	-.012**	-.024***	-.014**	-.011***	-.019***
	(.088)	(.020)	(.005)	(.007)	(.007)	(.004)	(.005)
2001	.010***	.008***	.007***	.008***	.003**	.007***	.009***
	(.002)	(.002)	(.001)	(.002)	(.001)	(.001)	(.001)
French mother tongue (Fmt)		-.177***	-.204***	-.214***	-.12***	-.266***	-.250***
		(.057)	(.034)	(.037)	(.022)	(.057)	(.048)
Proportion of anglophones			.040***	.045***	.015	.029***	.032***
			(.006)	(.008)	(.009)	(.004)	(.007)
Ottawa			.007	-.002	-.022***		
			(.012)	(.002)	(.003)		
Ottawa*francophone			-.099***	-.127***	-.057***		
			(.008)	(.040)	(.022)		
Prop. own mother tongue				-.036***	-.561***		-.036***
				(.014)	(.073)		(.012)
Prop. own mother tongue*Fmt				.052	.576***		.023
				(.040)	(.071)		(.036)
Similarity to English (DHB)					.021***		
					(.004)		
Language Dummies	No	Yes	Yes	Yes	Yes	Yes	Yes
Indiv. Characteristics*Fmt	No	No	Yes	Yes	Yes	Yes	Yes
Ottawa included	Yes	Yes	Yes	Yes	Yes	No	No
Observations	212,969	212,969	212,969	148,197	101,817	190,923	128,777
Pseudo R^2	.279	.341	.369	.377	.34	.403	.424

Notes: The table displays the marginal effects estimates from a Probit model for the probability of knowledge of English. Regressions (1) to (3) and (6) include the individuals living in English-majority CMAs who do not have English as their mother tongue. From this sample, regressions (4) and (7) include only the individuals for which the information on their mother tongue is available in the data and the variable "Proportion of own mother tongue" can be computed (i.e. individuals having Arabic, Chinese, Dutch, French, German, Greek, Italian, Polish, Portuguese, Punjabi, Spanish, Russian, or Ukrainian as their mother tongue). Regression (5) further restricts the sample to include only the individuals having a Indoeuropean mother tongue (i.e. all the above mentioned groups except Arabic or Chinese mother tongue speakers). *Sources*: PUMF 2001 and 2006.

Table 11: Assimilation of all minorities

Dependent variable: Knowledge of the city-majority language					
	(1)	(2)	(3)	(4)	(5)
Age	-.013	-.009	-.008***	-.011***	-.007***
	(.011)	(.008)	(.002)	(.002)	(.002)
Years in Canada*Immigrant	.010*	.009	.012***	.016***	.012***
	(.006)	(.008)	(.002)	(.003)	(.002)
Age at immigration*Immigrant	-.038***	-.036***	-.026***	-.030***	-.029***
	(.007)	(.007)	(.003)	(.003)	(.003)
Male	.020***	.018***	.017***	.019***	.019***
	(.003)	(.003)	(.0005)	(.001)	(.001)
Employed	.042***	.039***	.032***	.029***	.033***
	(.015)	(.013)	(.002)	(.002)	(.002)
Unemployed	.006*	.008***	.013***	.010***	.019***
	(.004)	(.003)	(.002)	(.002)	(.002)
No diploma	-.109***	-.104***	-.129***	-.141***	-.098***
	(.014)	(.008)	(.002)	(.003)	(.003)
Ever married	.005	-.003	-.017***	-.019***	-.001
	(.012)	(.008)	(.004)	(.005)	(.003)
Immigrant	.079	-.015	-.019**	-.035***	-.024*
	(.060)	(.056)	(.008)	(.011)	(.013)
2001	.005	.008***	.007**	.007***	.004**
	(.005)	(.002)	(.003)	(.003)	(.002)
French mother tongue		-.189***	-.262***	-.275***	-.114***
		(.071)	(.043)	(.048)	(.020)
English mother tongue		-.442***	-.125***	-.273***	.042***
		(.028)	(.006)	(.022)	(.004)
F			-.116***	-.044*	-.404***
			(.034)	(.027)	(.069)
Proportion of majority			.079***	.098***	.085***
			(.013)	(.018)	(.020)
Proportion of official minority			-.157**	-.168*	-.114
			(.076)	(.094)	(.083)
Ottawa			.029**	.038***	.021
			(.012)	(.013)	(.017)
Proportion of own mother tongue				.012	-.023
				(.036)	(.070)
Similarity to majority language (DHB)					.028***
					(.001)
Language Dummies	No	Yes	Yes	Yes	Yes
Language Dummies *F	No	No	Yes	Yes	Yes
Individual Characteristics*Official Minority Member	No	No	Yes	Yes	Yes
Individual Characteristics*francophone	No	No	Yes	Yes	Yes
Observations	263,151	263,151	263,151	187,437	135,263
Pseudo R^2	.169	.249	.348	.359	.333

Notes: The table displays the marginal effects estimates from a Probit model for the probability of knowledge of the city-majority language. Regressions (1) to (3) include the individuals living in English-majority CMAs who do not have English as their mother tongue and the individuals living in French-majority CMAs who do not have French as their mother tongue. From this sample, regression (4) includes only the individuals for which the information on their mother tongue is available in the data (individuals having Arabic, Chinese, Dutch, English, German, French, Greek, Italian, Polish, Portuguese, Punjabi, Spanish, Russian, or Ukrainian as their mother tongue). Regression (5) further restricts the sample to individuals having an Indoeuropean mother tongue (i.e. all the above mentioned groups except Arabic or Chinese mother tongue speakers). F is a dummy variable indicating a French-majority CMA. *Sources*: PUMF 2001 and 2006.

6 Conclusion

The existing empirical literature on language assimilation in officially bilingual countries has focused on the assimilation of immigrants. While this is a very important issue in the debates or conflicts accompanying official multilingualism, the assimilation of official language minorities is also a particularly sensitive issue. This is because official language minorities at the national level are frequently majorities in some geographical locations, and one important dimension along which official bilingualism is frequently judged is its ability to provide incentives for majority members to learn the national-minority but local-majority language. For this reason, this paper studies the assimilation into the city-majority language of all language minority members, no matter their immigrant or official-language status. The country chosen for the analysis is Canada, given the availability of data and also the importance of the language debate, which was one of the key elements put forward by the proponents of Quebec's secession in the 1980 and 1995 referenda. Our results confirm the asymmetric nature of Canadian biligualism: assimilation into French in French-majority cities is lower than assimilation into English in English-majority cities even when account is taken of the language composition of cities and a rich set of dummies. In addition, the role played by several individual characteristics varies across the two groups of cities. We also show that the official language minorities assimilate less than the allophones, and immigrants tend to assimilate less than natives. Finally, we show that assimilation increases in the size of the majority and decreases in the size the individual's own language group, and that this applies both to allophones and to the official minorities.

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