

# Speaking in Tongues: Language as Both Human Capital and Ethnicity<sup>1</sup>

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## Abstract

We estimate earnings differentials for knowledge of 13 minority languages in Canada's three largest urban areas. We find that conditional on knowledge of a majority language, knowledge of a minority language is associated with lower earnings. However, the negative differential diminishes for those languages with large local populations. This suggests a positive human capital effect which is for the most part swamped by a negative factor. We argue that this factor is a reflection of ethnicity operating either through ethno-linguistic labour market enclaves or labour market discrimination against minorities.

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<sup>2</sup>. The opinions expressed in this report are those of the authors and do not necessarily reflect the views of the Department of Canadian Heritage or Statistics Canada.

# Speaking in Tongues: Language as Both Human Capital and Ethnicity

## 1 Introduction

Research on language use has greatly illuminated processes associated with language shift and transfer. Such studies have focussed on shifts in language use between majority languages and shifts from minority to majority languages (see for example: Dustmann 1994, 1996, 1997; Kanazawa and Loveday 1988; Kralt and Pendakur 1991; Lachapelle 1989; Lopez 1978; Timm 1980; Young 1988). The economic impact of language knowledge is less studied, and largely confined to explorations of the effects of majority language knowledge and acquisition (see for example: Chiswick 1991; Davila, Bohara and Saenz 1993; Kossoudji 1988; Stolzenberg and Tienda 1997; Tienda and Niedert 1984; Vaillancourt 1992). For example, Canadian papers which examine the confluence between labour and language have focussed on differences between the English- and French-speaking populations (see Fenwick 1982; Bloom and Grenier 1992; Shapiro and Stelcner 1996; Christofides and Swidinsky 1997). However, little is known about economic returns to minority language knowledge.

In this paper, we estimate earnings differentials for men and women associated with language knowledge in three separate markets: the Census Metropolitan Areas (CMAs) of Montreal, Toronto and Vancouver. We focus our investigation on two broad facets of language knowledge. First, we evaluate earnings differentials associated with language knowledge in light of the human capital facet of language, that is, the fact that language knowledge is economically functional. Second, we evaluate earnings differentials associated with language knowledge in light of the ethnic facet of language knowledge, that is, the fact that language knowledge is a dimension of ethnic identity and commitment. Here, language knowledge may also be economically functional, for example through ethnic enclaves, but only through ethnic ties.

The novelty of the empirical work in this paper lies in three crucial extensions to the literature on the labour market effects of language knowledge. All three of these extensions are made possible by our use of a very large micro-database consisting of every 1991 census long form filled out by residents of Montreal, Toronto and Vancouver – a sample constituting about 20% of these CMA residents. The first extension is that we treat each of these CMAs as a separate local labour market, with different returns to language knowledge. The second extension is our focus on the returns to thirteen minority languages. The third extension is that we relate the earnings effect of minority language knowledge directly to the linguistic and ethnic composition of local labour markets.

Our results are striking. We find that people who speak both a majority language and a minority language earn less than those who speak only a majority language. We argue that negative returns are connected to ethnicity. However, the return to minority language knowledge rises with the local linguistic population, suggesting a human capital effect.

## 2 The Literature

Although demographic processes and economic benefits of majority language knowledge are reasonably well understood, issues related to the economic impact of minority language knowledge are less studied. When minority languages have been studied, it is often within the context of not knowing a majority language. Research in Canada and the USA suggests there is a penalty for not knowing English. American research focuses primarily on the Spanish speaking population (see Davila, et al, 1993; Tienda and Neidert, 1984). For example, Kossoudji (1988) examines the incomes of Hispanic and Asian men in the USA and finds that the inability to speak English is costly, especially for Hispanic men.

In Canada, research has focused on knowledge of the official languages – English and French. Fenwick (1982) and Bloom and Grenier (1992) find that French speakers were at an economic disadvantage compared to English speakers in the 1970s and 1980s, but Shapiro and Stelncr (1987, 1996) find that this gap had substantially eroded by the early 1990s. Recent research in Canada has focused on the value of bilingualism, either in Quebec or in Canada as a whole. Shapiro and Stelncr (1996) and Chistophides and Swidinsky (1997) find that English-French bilinguals in Canada earn significantly more than unilinguals. Through previous research, then, we have a good grasp of the necessity of learning the majority language and the degree to which such language knowledge can affect earnings. However, the degree to which minority language speakers are able to benefit from minority language knowledge is understudied, and the root causes for differences in wage differentials between groups, for example between white and non-white Hispanics (Tienda and Niedert, 1984) has not been a focus of research.

### 2.1 Language as Human Capital

The economic impact of language knowledge is a growing area of theoretical interest. Lazear (1995, 1997) presents a formal model of language as human capital in which workers will acquire a language if the benefits outweigh the costs. Such benefits may include increased opportunities for both trade and consumption. Since trade between individuals is almost always mediated through some common language, increased language knowledge opens doors for individuals to trade with a wider range of people. Language knowledge may offer substantial consumption benefits as well. Individuals may see language knowledge as a direct consumption good, or may use language knowledge as a tool to expand their consumption set.

The costs of language acquisition are multi-faceted. Individuals may have to sacrifice time, money and effort to learn a language which may result in multilinguals have less labour market experience or education as compared to unilinguals.

The human capital theory of language has some testable implications for our investigation. Since the labour market benefits of language knowledge are assumed to be due to an increase in opportunities to gain from trade, the magnitude of such opportunities should be correlated with the number of people with whom the individual could speak. Thus, at the margin, additional language knowledge should be associated with higher returns. Polyglots should earn more than unilinguals. Further, different cities (with different populations of majority and minority language speakers) should have different patterns of returns to language knowledge. These returns should be correlated with the size of the linguistic communities.

One challenge in estimating the economic impact of knowing an additional language lies in distinguishing the benefit due to language knowledge from that due to other characteristics. People who have the ability to speak more than one language may also have other characteristics that allow them access to higher incomes, such as the ability to learn quickly and effectively. If true, then the estimated returns in our regression models are actually measuring the joint product of language knowledge and these individual

factors. A similar problem occurs in measuring economic returns to any form of human capital. For example, Lang and Kropp (1986) find that a substantial portion of the so-called “return to human capital” may not be the return to productive human capital, but rather may actually be attributed to the self-sorting of individuals across levels of human capital.

Our data allow us one potentially important instrument for identifying the productive return to language human capital: mother tongue (the first language learned). The key is that while language knowledge may often be a choice variable for individuals, mother tongue is not. We can distinguish languages that were learned by choice after childhood from those that were learned without an active choice in childhood. The return to the latter may be interpreted as the pure return to language.

Mother may also be associated with the quality of language knowledge. In particular, people may be more comfortable with, and therefore more fluent in, their mother tongue than languages learned later in life. If this is the case, then people who speak a majority language by mother tongue should perform better in labour markets than those who learn the language later in life. However, among people who speak a majority language by mother tongue, fluency differences should be small. In our empirical analysis below, we look at the return to language knowledge by mother tongue in order to examine these issues more closely.

## 2.2 Language as a Dimension of Ethnicity

In human capital theory, language knowledge is valuable because of its direct effect on productivity. However, language knowledge is an important dimension of ethnic identity and membership. As such, the connection between language and ethnicity has three important implications about the value of minority language knowledge.

First, one’s identification with a particular cultural community is not binary. Rather, the degree to which people identify themselves as members of a cultural community lies on a continuum, ranging from core membership to non-membership. The measurable attributes that place individuals on this continuum include, among other things, immigrant status, mother tongue, ethnic background, and language ability. Second, in the context of labour markets, cultural communities may be closely connected to labour market enclaves (see Bonacich and Modell, 1980; Light, 1984; Wilson and Portes, 1980). Labour market enclaves may offer a degree of social comfort through language and shared identity that is not available outside the enclave. Further, ethnically defined enclaves may buffer the effects of ethnically based discrimination on the part of mainstream society. Third, Breton (1974) introduces the concept of “institutional completeness,” which in part describes the variety of services available within an ethnic or cultural enclave. Enclaves that are institutionally complete offer a wide variety of services and employment opportunities to group members. Large enclaves are more likely to be institutionally complete than small enclaves. We may then expect workers in large enclaves to earn more than workers in small enclaves because of the greater degree of choice that exists.

These three observations suggest that language knowledge may offer employment opportunities through ethnic enclaves. In particular, language knowledge within one’s own ethnic background may open labour market opportunities in an ethnic enclave which would not be available to members of the mainstream society.

While members of an ethnic group can derive potential benefits from membership through interaction with other group members, it is also possible that minority membership has negative consequences through interaction with the mainstream community. Language knowledge can be deleterious

for two reasons: (1) Lang (1986) suggests that language differences impose transaction costs on work integration; and (2) language knowledge may act as a marker for economic discrimination. Lang (1986, 1993) states that language knowledge can operate as a means of identifying difference. He argues that those who speak minority languages could be paid less because majority language speakers, who are in a position to hire, use accent or language ability as a means of differentiating people. He further asserts that communication frequently carries a cost, which increases when dissimilar groups communicate with each other. Hiring minorities at a lower wage, or not hiring them at all, is a response to such 'transaction costs'. This can lead to segregation and wage differentials in a competitive market as people try to minimize intergroup communication.

Minority language knowledge may act as a lightning rod for discriminators because it can be associated with deeper affiliation with ethnic or cultural community and identity. While this could open opportunities in ethnic enclave labour markets, it may also mark an individual as a target for differential treatment. In the following sections, we attempt to clarify the way in which language knowledge affects earnings within the context of these preceding theoretical perspectives. Specifically, we look at the degree to which differences in earnings may be explained by viewing language as human capital and/or as a dimension of ethnicity.

### 3 Data

The Canadian Census asks a number of questions concerning language knowledge. A question concerning official language knowledge asks whether respondents feel they are able to conduct a conversation in one or both of Canada's official languages: English and French. A question on nonofficial language knowledge asks whether respondents feel they are able to conduct a conversation in up to three languages other than English or French. A question on mother tongue asks about respondents' first language(s) learned and still understood.<sup>3</sup> The mother tongue question is designed to elicit a single response, but it is possible for a respondent to provide up to four responses (English, French and up to two write-in responses).

Despite the breadth of information on language knowledge and use offered by the 1991 Census, an econometric study of the payoffs to nonofficial language knowledge is difficult both because the public databases suppress detail and because there are surprisingly few polyglots in Canada. For this reason we used a customized micro data file for individuals composed of selected variables from the 1991 Census of Canada 20% database.<sup>4</sup> The population examined consists of salaried non-farm permanent residents of Canada, age 20 to 64, who are not in school full-time and are living in the Census Metropolitan Areas (CMAs) of Montreal, Toronto and Vancouver. Immigrants who arrived in either 1990 or 1991 are dropped because of incomplete or missing income data. Sample sizes after imposing these restrictions are as follows: for males, 125,871, 153,361 and 64,599, respectively, in Montreal, Toronto and Vancouver; for females, 115,063, 148,123 and 59,957, respectively, in Montreal, Toronto and Vancouver.

We estimate linear regression models separately for men and women with the log of total annual

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<sup>3</sup>. There is also a question asked on which language is spoken most often at home. However, we did not use the results of this question in our analysis, in part because we wished to explore language knowledge rather than the more restrictive issue of languages spoken at home.

<sup>4</sup>. The database we use is roughly equivalent to 20% of the total population, but Statistics Canada confidentiality requirements demand that we not release the actual counts.

earnings from wages and salaries on the left hand side and language variables plus a variety of controls on the right hand side. Control variables include:

- S Place of birth (10 dummies: (1) USA, UK, Ireland, Australia, New Zealand; (2) Caribbean; (3) Latin America; (4) Northwest Europe; (5) East Europe; (6) Southern Europe; (7) Southeast & East Asia; (8) West & South Asia; (9) Africa; and (10) Other). Country of birth is interacted with visible minority status.<sup>5</sup>
- S Canadian-born ethnicity (31 dummies: 20 European, 10 visible minority and one Aboriginal).
- S Census family status (4 dummies).
- S Highest level of schooling achieved in Canada (21 dummies). Canadian-born residents and immigrants who arrived in Canada before finishing schooling are assigned Canadian schooling.
- S Highest level of schooling achieved outside Canada in four levels by ten foreign places of birth (40 dummies).
- S Full-time / Part-time status (2 dummy).
- S Weeks worked (11 dummies).
- S Occupations with high levels of unreported income – tips (7 dummies).
- S Potential labour market experience in Canada (and its square) is equal to imputed years since school completion for Canadian born individuals. For immigrants we use information on year of arrival and compute experience in Canada to be the smaller of years since school completion or years since arrival.
- S 10 continuous variables for potential labour market experience (and their squares) outside Canada in ten regions equal to zero for Canadian-born residents and equal to the larger of zero or years since school completion minus years since arrival for immigrants.
- S 10 interaction variables for labour market experience in Canada and outside Canada.

In the estimated regression models, one dummy from each group is dropped.

We use combinations of language responses to explore the returns to different types of language knowledge. First, we examine the returns to official language knowledge (English and French) by the number of nonofficial languages known. Second, we look at the returns to the 13 most frequently reported nonofficial languages. We then explore connections between earnings, ethnicity and language. We examine the difference between the returns to mother tongue language knowledge and language knowledge acquired later in life. Finally, we focus on the interaction of language knowledge and ethnicity in earnings determination.

Table 1 shows summary statistics for selected variables used in this analysis.<sup>6</sup> Looking at the first row, we see that approximately 90% of the population aged 20-64 is included in our restricted sample. Official language bilinguals are most common in Montreal, especially among men. In all three CMAs, the majority of the sample does not speak a nonofficial language, but depending on the CMA, 18-34% of the population speaks at least one nonofficial language. Finally, immigrants make up a large proportion of the sample, especially in Toronto.

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<sup>5</sup>. A visible minority person is someone who is non-aboriginal and has at least one non-European ethnic origin.

<sup>6</sup>. Because our data are proprietary and confidential, we show sample proportions computed from the public use sample (individual file) of the 1991 Census of Canada. The public use sample is approximately one-seventh the size of, and sampled from, our proprietary micro-data file. Thus, these proportions are indicative of the proportions in our sample.

**Table 1**  
**Returns to Official Language Knowledge, by Sex, 1991**

Official Language	Montreal		Toronto		Vancouver	
	Coef.	Sig	Coef.	Sig	Coef.	Sig
<b>Males</b>						
English	comparison		comparison		comparison	
French	-0.018		0.064	†	-0.021	†
Bilingual	0.049	***	0.037	***	-0.019	
Neither	-0.171	***	-0.129	***	-0.096	***
<b>Females</b>						
English	comparison		comparison		comparison	
French	-0.02	*	0.01	†	-0.22	†
Bilingual	0.06	***	0.03	***	-0.02	
Neither	-0.10	***	-0.18	***	-0.10	***

Source: Custom microdata file for individuals, 1991 Census of Canada, population age 20-64 not in school full time. Individuals whose primary source of income is wages and salaries

Note: †† : less than 200 weighted cases

Significance: \*: 0.1 level; \*\*: 0.05 level; \*\*\*: 0.01 level

Our results assess earnings differentials faced by immigrant and Canadian-born workers associated with different types of language knowledge. However, because 62% of people who speak nonofficial languages in Canada are immigrants we run the risk of interpreting regression coefficients on language knowledge as indicating earnings differentials due to language knowledge when in fact they are due to immigration effects.<sup>7</sup> We address this concern in two ways. First, as detailed above, we include a wide variety of data on immigrants in our regressions including place of birth, year of immigration and age. Further, we interact place of birth with education and visible minority status. Second, we ran all the regressions presented in this paper on a sample of Canadian-born workers. For the most part, estimates in these regressions suggest very similar patterns to those reported in the text.<sup>8</sup> Where they differ, we include footnotes describing the nature of the differences.

## 4 Results

### 4.1 Nonofficial Language Knowledge

Table 2 presents selected coefficients from log-earnings regressions on workers aged 20 to 64 not in school full time, whose primary source of income was wages and salaries in the CMAs of Montreal, Toronto and Vancouver. The table shows the differences in log-earnings due to knowledge of Canada's official languages, by the number of nonofficial languages known. The coefficients reported may be interpreted as percent differences in earnings between those workers who differ in their language knowledge, but not in other observable characteristics. We report results separately for men and women. In all cases, the comparison group is English unilinguals.

**Table 2**  
**Returns to Language Knowledge, Official and Non-Official by Sex**  
**Selected CMAs, 1991**

CMA	Official	Non-Official Language Knowledge
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<sup>7</sup>. In 1991, 4,956,480 million people spoke a nonofficial language. 3,094,880 were either landed immigrants or non-permanent residents (1991 Census of Canada).

<sup>8</sup>. Detailed results on all estimation are available on request from the authors.

	Language Knowledge	no NOLs Coef. Sig	One NOL Coef. Sig	Two NOLs Coef. Sig	Three Coef. Sig
<b>Males</b>					
Montreal	English	Comparison	-0.126 ***	-0.131 ***	-0.085
	French		-0.018	-0.043 **	-0.239 **
	Bilingual		0.049 ***	-0.035 **	-0.060 **
	Neither	Not		-0.171 ***	-0.090
Toronto	English	Comparison	-0.052 ***	-0.068 ***	-0.056 ***
	French		0.064 ††	0.130 ††	0.093 ††
	Bilingual		0.037 ***	-0.019	-0.036
	Neither	Not		-0.129 ***	-0.164 ***
Vancouver	English	Comparison	-0.033 ***	-0.034	-0.041 ††
	French		-0.021 ††	0.219 ††	Not Estimated
	Bilingual		-0.019	-0.086 ***	-0.095 **
	Neither	Not		-0.096 ***	0.035
<b>Females</b>					
Montreal	English	Comparison	-0.05 **	-0.09 **	0.08
	French		-0.02 *	-0.03	-0.13
	Bilingual		0.06 ***	0.03 **	0.05 **
	Neither	not applicable		-0.10 ***	-0.10
Toronto	English	Comparison	-0.04 ***	-0.05 ***	-0.03
	French		0.01 ††	0.26 * ††	0.14 ††
	Bilingual		0.03 ***	-0.01	0.01
	Neither	not applicable		-0.18 ***	-0.15 ***
Vancouver	English	Comparison	-0.02	0.00	-0.02
	French		-0.22 ††	-0.11 ††	-0.05 ††
	Bilingual		-0.02	-0.05 *	-0.02
	Neither	not applicable		-0.10 ***	-0.13 *

Source: Custom microdata file for individuals, 1991 Census of Canada, population age 20-64 not in school full time. Individuals whose primary source of income is wages and salaries

Controls: Place of birth (interacted with visible minority status), ethnicity, household type, education (in Canada and 10 foreign regions), potential experience (in Canada and ten foreign regions), full-

Note: †† : less than 200 weighted cases

Previous Canadian research confirms that there is an advantage to knowing an official language (see: Shapiro and Stelcner, 1987; Blais, et al., 1995; Fenwick, 1982; Gouveia and Rousseau, 1995; Nadeau and Fleury, 1995; Vaillancourt, 1992). Looking at the first column of Table 2 which shows earnings differentials for people who do not speak a nonofficial language we see that our results are consistent with previous research (for example Christophides and Swidinsky, 1997; Pendakur and Pendakur, 1998b) showing a premium associated with official language bilingualism. However, as shown in Pendakur and Pendakur (1998b) the return to official language bilingualism differs greatly across the three CMAs. For example, in Montreal, bilingual men earn 4.9 percent more than English unilingual men, and bilingual women earn 6.2 percent more than English unilingual women. However, in Vancouver, bilinguals earn about the same as English unilinguals (indeed the point estimates are negative). Given that Montreal has a large French speaking population and Vancouver has a very small one, this suggests that the positive returns to knowing both official languages may be related to local populations.

Turning to knowledge of nonofficial language, we find three dominant patterns in Table 2. First, nonofficial language knowledge is associated with lower earnings. Among men in Montreal, those who speak English and one nonofficial language earn 12.6 percent less than English unilinguals, and those who speak French and one nonofficial language earn 4.3 percent less than English unilinguals. Among men in Toronto and Vancouver, those who speak English and one nonofficial language earn 5.2 and 3.3 percent less, respectively, than English unilinguals. For men in all three CMAs who speak any number of nonofficial



languages, all of the statistically significant coefficients on nonofficial language knowledge are negative.

For women, the same pattern of negative earnings differentials associated with nonofficial language knowledge is evident with one exception. Women in Montreal who speak English and French and at least one nonofficial language earn more than English unilinguals.

The second pattern in Table 2 is that the marginal effects of nonofficial language knowledge seem to be negative. Given official language knowledge, men who know two nonofficial languages earn less than men who know just one nonofficial language (only some of these differences *between* coefficients are statistically significant). For women, the pattern is weaker. Women in Toronto who speak English and two nonofficial languages earn less than those able to speak only one nonofficial language. This is not the case in Vancouver.

The third pattern is that earnings gaps due to nonofficial language knowledge are smaller in Vancouver than in the other two CMAs. For example, in Vancouver, women who speak English and one nonofficial language do not earn significantly less than English unilinguals while in Montreal and Toronto they do earn less. In Vancouver, men who speak English and one nonofficial language earn 3.3 percent less than English unilinguals; in Montreal and Toronto the differentials are 12.6 and 5.2 percent less, respectively.<sup>9</sup>

#### 4.2 Returns to 13 Nonofficial Languages

The results shown in Table 2 are somewhat counterintuitive if one views language knowledge as human capital which should, at the very least, not hurt earnings<sup>10</sup>. However, it is possible that the negative differentials are a reflection of losses due to knowledge of specific languages rather than to all nonofficial languages. In order to explore this, we examined returns to knowledge of the 13 most frequently reported nonofficial languages. Table 3 shows selected coefficients from log earnings regressions run on a subsample of the sample frame in Table 2 consisting of workers who know either zero or one nonofficial languages. In order to facilitate comparison with Table 5 below, these regressions pool all three CMAs, interacting CMA with all control and language variables. In comparison with running separate regressions by CMA, these estimates are similarly consistent, but may be less efficient.

The first pattern that is readily apparent is that almost all of the significant coefficients are negative. This implies that the negative differentials associated with knowing one nonofficial language described in Table 2 are not due to pooling languages with some positive but mostly negative returns. With one exception, knowing one of the largest 13 nonofficial languages is not associated with higher earnings, and indeed is often associated with lower earnings. Men who speak Greek in Montreal and Toronto earn 30.3 percent and 15.2 percent less than English unilinguals. Men who speak Tagalog in all three CMAs earn 10.7

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<sup>9</sup>. Regressions run on a sub-sample of Canadian-born residents show similar results to those shown in Table 2. Among men, all of coefficients for language groups with at least 40 observations have the same sign and significance as those displayed in Table 2 with the following exception: men who speak English and one or two nonofficial languages in Montreal do not earn less than significantly less than English unilinguals. Among women, there are two exceptions: (1) women who speak English and one nonofficial language in Montreal have earnings insignificantly different from English unilingual women; and (2) women who speak French and one nonofficial language in Montreal earn significantly less than English unilingual women.

<sup>10</sup>. If increased language knowledge is associated with decreased average language quality, perhaps because language knowledge “crowds”, then increased language knowledge could be associated with lower earnings.

to 21.6 percent less than English unilinguals. Women who speak Arabic in Montreal and Toronto earn 8.7 percent and 19.3 percent less, respectively, than English unilinguals.

Second, some languages appear to have significant negative earnings differentials for both men and women. Among men and women in Montreal, workers who know Greek, Italian or Arabic earn significantly less than unilingual English workers. For both men and women in Toronto workers who know Spanish, Arabic, Punjabi, Tagalog and Vietnamese earn significantly less than unilingual English workers. For men and women in Vancouver, workers who know Hindi and Tagalog earn much less than unilingual English workers.

Third, men who know Spanish, Arabic and Tagalog earn less than English unilinguals in all three CMAs. In contrast, no languages demonstrate significant earnings differentials among women in all three CMAs<sup>11</sup>.

The results shown in Table 3 may be illuminating in the context of Canadian research dealing with labour market discrimination. Previous research has suggested that members of non-European ethnic groups earn significantly less than white workers (Baker and Benjamin, 1997; Pendakur and Pendakur, 1998a). We find that even after controlling for ethnic background, speakers of non-European languages often face negative earnings differentials, whereas this is not as often the case for speakers of European languages. These differentials are on top of the differentials faced for ethnic membership.

Table 3:  
Returns to Non-Official Language Knowledge, 3 CMAs, 1991, Showing number of Speakers

		Men			Women			Number of Speakers
		Coef	sig	Std. Err	Coef	sig	Std. Err	
Montreal	German	-0.02		(.02)	-0.01		(.03)	39,545
	Greek	-0.30	***	(.03)	-0.14	***	(.03)	53,000
	Italian	-0.07	***	(.02)	-0.07	***	(.02)	180,380
	Polish	-0.07		(.05)	-0.11	**	(.06)	22,970
	Portuguese	-0.02		(.03)	-0.08	**	(.03)	36,935
	Spanish	-0.07	***	(.02)	0.00		(.01)	111,445
	Ukrainian	-0.16	**	(.07)	-0.06		(.07)	8,405
	Arabic	-0.14	***	(.04)	-0.09	**	(.04)	68,835
	Hindi	0.06		(.10)	-0.12		(.11)	6,530
	Punjabi	-0.18	*	(.09)	-0.16		(.11)	4,640
	Chinese	-0.07		(.07)	-0.04		(.07)	34,135
	Tagalog (Pilipino)	-0.22	**	(.09)	0.10		(.09)	8,450
	Vietnamese	0.07		(.08)	-0.03		(.08)	21,635
Toronto	German	0.00		(.02)	-0.02		(.02)	100,090
	Greek	-0.15	***	(.02)	-0.01		(.02)	66,745
	Italian	-0.02		(.02)	-0.01		(.02)	289,520
	Polish	0.00		(.03)	-0.02		(.03)	79,105
	Portuguese	0.00		(.02)	-0.03		(.02)	125,480
	Spanish	-0.10	***	(.02)	-0.07	***	(.02)	104,455
	Ukrainian	-0.03		(.03)	0.00		(.03)	34,145
	Arabic	-0.07	**	(.03)	-0.19	***	(.04)	34,810

<sup>11</sup>. Regressions run on a sub-sample of Canadian-born residents show similar results to those shown in Table 3. The basic result, that nonofficial language knowledge is associated with lower earnings, holds up in the Canadian-born subsample. However, because most speakers of nonofficial languages are immigrants, the estimates in the Canadian-born subsample are less precise.

	Hindi	-0.05	(.04)	-0.15	***	(.04)	42,915
	Punjabi	-0.14	*** (.03)	-0.18	***	(.04)	52,395
	Chinese	-0.03	(.03)	0.04		(.03)	220,530
	Tagalog (Pilipino)	-0.14	*** (.03)	-0.10	***	(.03)	58,150
	Vietnamese	-0.18	*** (.04)	-0.25	***	(.05)	31,715
Vancouver	German	-0.02	(.02)	0.00		(.02)	56,480
	Greek	-0.08	(.06)	0.07		(.07)	6,975
	Italian	-0.01	(.04)	0.01		(.04)	27,790
	Polish	-0.02	(.06)	0.03		(.07)	11,675
	Portuguese	0.07	(.05)	-0.05		(.06)	9,900
	Spanish	-0.07	** (.03)	-0.04		(.03)	31,410
	Ukrainian	-0.02	(.05)	0.11	**	(.05)	9,375
	Arabic	-0.21	** (.09)	0.06		(.11)	4,065
	Hindi	-0.23	*** (.06)	-0.16	**	(.07)	27,815
	Punjabi	-0.08	(.05)	-0.09		(.05)	51,675
	Chinese	0.05	(.03)	0.00		(.03)	158,345
	Tagalog (Pilipino)	-0.11	** (.04)	-0.08	*	(.04)	22,925
	Vietnamese	0.00	(.05)	-0.12	*	(.06)	12,715

Source: Custom microdata file for individuals, 1991 Census of Canada, population age 20-64 not in school full time. Individuals whose primary source of income is wages and salaries

Controls: Place of birth (interacted with visible minority status), ethnicity, household type, education (in Canada and 10 foreign regions), potential experience (in Canada and ten foreign regions), full-time / part-time status and weeks worked.

Note: †† : less than 200 weighted cases

Significance: \*: 0.1 level; \*\*: 0.05 level; \*\*\*: 0.01 level

Table 3 shows that there is substantial heterogeneity in the returns to language knowledge across language and CMA. This is consistent with the view that language markets are local and specific to local populations. The last column of Table 3 shows the number of speakers of each language in each CMA. The data from Table 3 is presented graphically in Charts 1 and 2.

The points represent data pairs from Table 3 with the horizontal axis mapping the number of language speakers in the CMA of residence and the vertical axis mapping the estimated earnings differential in the CMA of residence. For example, in Chart 1, the rightmost data point represents the data point for Italian speakers in Toronto with 289,520 Italian speakers and an estimated earnings differential from Table 4 of -1.6 percent. The line is derived from a regression equation in which all of the nonofficial language variables are dropped and replaced with a dummy on nonofficial language knowledge, the number of local speakers of the language that the worker speaks, and the square of this number (coefficients are presented in Table 5).<sup>12</sup> As can be seen for both men and women, the larger the language group, the higher are earnings. For both sexes the estimated earnings differentials conditional on the size of the language speaking population are large and negative for small groups and approach zero for large linguistic groups.<sup>13</sup>

<sup>12</sup>. Estimated standard errors derived from regressions with population-level data may be biased downwards in the presence of measurement error. Consistent estimators of standard errors may be obtained by regressing coefficients from Table 3 against linguistic population size and its square, weighting by the estimated coefficient covariance matrix. Estimates from such a regression yield regression lines very similar to those in Charts 1 and 2, and, as noted in Section 4.4, confidence bands are much wider using this approach.

<sup>13</sup>. Results from regressions run for a subsample of Canadian-born males shows a quadratic curve which is similar to that in Chart 1. For men who speak languages with 50,000, 100,000 and 300,000 speakers, the estimated earnings differentials are -5.5%, -6.6% and +1.7%, respectively. For a subsample of Canadian-born women the results are somewhat different. For women who speak languages with 50,000, 100,000 and

The fact that the presence of additional speakers is correlated with higher earnings is consistent with the human capital view of language. However, the fact that estimated differentials are on the whole negative is somewhat puzzling. It is more puzzling when we recall that the estimated coefficients for language knowledge may be pooling the pure human capital return with the return to other valuable characteristics that are correlated with the desire to learn languages.

In the next section we explore this dimension of language human capital by estimating the returns to languages learned in childhood, mother tongue, separately from those learned later in life.

#### 4.3 Language Human Capital and Mother Tongue

The previous sections ignored the way in which language knowledge is acquired. This may be problematic because language can be acquired either in childhood by mother tongue, or later in life. It is possible that these two ‘paths’ to language knowledge result in different earnings outcomes for at least two reasons. First, language knowledge acquired later in life may be the result of an active individual choice, whereas language acquired as mother tongue is chosen externally. Second, a person’s language fluency may be higher for their mother tongue than for languages learned later in life.

To assess the returns to mother tongue language knowledge versus the return to languages gained later in life, we estimate a model with mutually exclusive dummy variables for mother tongue language knowledge and non-mother tongue language knowledge. Since everyone has at least one mother tongue, this distinction is only relevant for people who know at least two languages; we can ask whether the second language is a mother tongue language or not. Table 4 shows selected coefficients from log-earnings regressions with the same sample frame and controls as in Table 2. In Table 4, the first column shows earnings differentials for unilinguals. The second and third columns show the returns to official language bilingualism by the way it was acquired. The fourth and fifth columns show the returns to a nonofficial language by the way in which it was acquired.

**Table 4: Selected Coefficients from Log-Earnings Regressions: Paths to Language Knowledge  
Selected CMAs, 1991**

Panel A											
CMA	Mother Tongue	Additional Language									
		None		Other Official		Nonofficial					
		Coef	Sig.	Coef	Sig.	Coef	Sig.	Coef	Sig.		
<b>Males</b>											
Montreal	English	Comparison		-0.065	**	0.049	***	0.000		-0.056	
	French			-0.012		0.057	***	-0.202	***	-0.115	***
Toronto	English	Comparison		-0.074		0.037	***	-0.120	***	-0.043	***
	French		†	0.064		0.045	**	0.226	†	-0.485	†
Vancouver	English	Comparison		-0.240	**	-0.016		-0.055		-0.013	
	French		†	-0.024		-0.018		No Estimates	†	No Estimates	†
<b>Females</b>											
Montreal	English	Comparison		0.030		0.053	***	-0.153	**	-0.070	
	French			-0.001		0.087	***	0.042		-0.011	
Toronto	English	Comparison		-0.064		0.038	***	-0.027		0.017	
	French		†	-0.001		0.012		0.336	†	No Estimates	
Vancouver	English	Comparison		-0.235	***	-0.008		-0.054		-0.014	
	French		†	-0.235		-0.046		No Estimates	†	-0.099	

300,000 speakers, the estimated earnings differentials are -0.5%, -2.0% and -1.7%, respectively.

<b>Panel B</b>		Additional Language Knowledge							
CMA	Mother Tongue	None	English Mother	Learned	French Mother	Learned			
<b>Males</b>									
Montreal	Nonofficial	-0.173 ***	0.000	-0.142 ***	-0.202 ***	-0.028			
Toronto	Nonofficial	-0.127 ***	-0.120 ***	-0.049 ***	0.226	†	0.176	†	
Vancouver	Nonofficial	-0.101 ***	-0.055	-0.041 ***	No Estimates	†	0.213	†	
<b>Females</b>									
Montreal	Nonofficial	-0.115 ***	-0.153 **	-0.054 **	0.042	-0.038	*		
Toronto	Nonofficial	-0.192 ***	-0.027	-0.048 ***	0.336	†	0.255		
Vancouver	Nonofficial	-0.105 ***	-0.054	-0.026 *	No Estimates	†	-0.122	†	
Source:	Custom microdata file for individuals, 1991 Census of Canada, population age 20-64 not in school full time. Individuals whose primary source of income is wages and salaries								
Controls:	Place of birth (interacted with visible minority status), ethnicity, household type, education (in Canada and 10 foreign regions), potential experience (in Canada and ten foreign regions), full-time / part-time status and weeks worked.								
Note:	†† : less than 200 weighted cases								
Significance:	*: 0.1 level; **: 0.05 level; ***: 0.01 level								

Looking first at official language bilingualism, we see that in all three CMAs, men with English as mother tongue who learned French earn more than English unilinguals. In contrast, men who claim both official languages as mother tongues earn less than English unilinguals. In Montreal, where there is a large English-French mother tongue population, this group earns 6.5 percent less than English unilinguals. In Montreal and Toronto, men whose mother tongue is French and have learned English earn 5.7 percent and 4.5 percent more, respectively, than English unilinguals. In Montreal and Toronto, the earnings differential between men whose mother tongue is English and French, and men who have knowledge of both official languages where one language is learned later in life, is in excess of 11 percent ( $4.9\%+6.5\%=11.4\%$ ;  $5.7\%+6.5\%=12.2\%$ ). This is the case even though these two groups know the same languages.

If mother tongues are spoken more fluently than languages learned later in life, then comparison of people with identical language knowledge but different mother tongues should reveal this. In Table 4, we may compare people who have French as a mother tongue and learned English to people who have English as a mother tongue and learned French. Among men in Toronto and Vancouver, where English is the majority language, there is no indication that official language bilinguals who are French mother tongue earn less than those who are English mother tongue.

The results for women are similar. Women in Montreal with either English or French as mother tongue, and who have learned the other official language, earn 5.3 and 8.7 percent more, respectively, than unilingual English women. In Toronto, women with English as mother tongue who learn French earn more than English unilinguals. However, this is not the case for women with French as mother tongue who learn English. In Vancouver, none of the paths to official language bilingualism leads to positive earnings differentials.

The earnings differentials associated with nonofficial mother tongues and nonofficial languages learned later in life are shown on the right-hand side of Table 4. Among men who speak an official language in combination with a nonofficial language, we see that those who have nonofficial language by mother tongue earn less or the same as those who gain a nonofficial language later in life. For example, looking at men in Montreal, we see that the earnings differentials are insignificant for English mother tongue men regardless of whether their nonofficial language is their mother tongue or was learned later in life. However, men with French and a nonofficial language as mother tongue earn 20.2 percent less than English unilinguals whereas men with French as mother tongue who learned a nonofficial language later in life earn only 11.5

percent less than English unilinguals.

For women with nonofficial language knowledge, the pattern is somewhat different. First, as opposed to the case for men where four of the coefficients are negative and significant, for women, only one coefficient is significant – women in Montreal with both English and a nonofficial language as mother tongues earn 15.3 percent less than English unilinguals.

Three conclusions can be drawn from Table 4. First, there is a weak pattern suggesting that mother tongue language knowledge is associated with lower earnings than language knowledge that is gained later in life. However, all nonofficial language knowledge regardless of the path is associated with lower earnings. Second, the patterns for women seem to be starkly different from those of men. Third, the differentials in Vancouver tend to be smaller or insignificant.<sup>14</sup>

Earnings differentials associated with different paths to the same language knowledge vary by mother tongue. If language human capital that is learned is associated with personal characteristics (such as ability) that are valuable in the labour market, then mother tongue language knowledge might reveal the pure return to language human capital. In this case, the return to learned language knowledge might reveal the combined return of the language human capital and associated personal characteristics. In this case, the pure return to language human capital as revealed by the return to mother tongue, and is found to be large and negative. We find no support in the data for the hypothesis that mother tongue knowledge is of higher quality than languages learned later in life. Thus, human capital-based theories of language knowledge seem lacking. In the next section, we explore the fact that nonofficial language by mother tongue is correlated with membership in an ethnic minority group, and this membership has labour market implications.

#### 4.4 Language and Ethnicity

Table 4 suggests that people who know a minority language by mother tongue earn less than people who do not know a minority language or who learn a minority language later in life. To what degree are these differentials a product of ethnic background? Given that learning a minority language in childhood is a parental decision, it often reflects ethnic ties. Lang (1986) has suggested that such language knowledge and ties can impose a transaction cost on communication with actors in the mainstream labour market resulting in worse labour market outcomes for ethnolinguistic minorities. This suggests an alternative interpretation to the results presented in Table 4. In particular, when mother tongue knowledge of a minority language reflects closeness to the core of that minority group, the speakers may be enclave workers, and/or may be subject to labour market discrimination on the basis their linguistic or cultural difference.

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<sup>14</sup>. Regressions run on a sub-sample of Canadian-born residents show broadly similar results to those shown in Table 4. For official language knowledge, all the coefficients have the same sign and significance as those reported in Table 4. However, for nonofficial language knowledge there are some differences. Among men, all of the coefficients for language groups with at least 40 observations have the same sign and significance as those displayed in Table 4 with the following exceptions: (1) among French mother tongue men in Montreal, those who learned one nonofficial language earn significantly less than those who have one nonofficial mother tongue; and (2) among English mother tongue men in Toronto, those who learned one nonofficial language earn significantly less than those who have one nonofficial mother tongue. Among women, all of the coefficients for language groups with at least 40 observations have the same sign and significance as those displayed in Table 4 with the following exception: among English mother tongue women in Montreal, those who have a nonofficial mother tongue have earnings insignificantly different from English unilingual women.

Past research has suggested that some ethnic minorities can face negative earnings differentials in Canadian labour markets. In particular, among Canadian-born men, members of non-white ethnic groups face large and significant earnings gaps in comparison with white workers (Pendakur and Pendakur 1998a; see also Baker and Benjamin 1997). Further, members of some white ethnic groups also face earnings differentials, in particular, Greek and Italian men earn less than British origin men (Pendakur & Pendakur 1998a). The results shown in Table 3 may also be interpreted in this light. Comparing earnings differentials associated with European-origin people (German, Greek, Italian, Polish, Portuguese and Ukrainian) to those associated with non-European origin people (Spanish<sup>15</sup>, Arab, South Asian, Chinese, Filipino, and Vietnamese), a strong pattern emerges in Table 3, especially in Toronto and Vancouver. Among both men and women, languages associated with non-European origin people predominate among languages with negative estimated earnings differentials.

We see two interpretations. First, this pattern in the earnings differentials may be due to linguistic distance between the majority language and the minority language. If mainstream employers respond negatively to foreign accents and our controls for immigration effects are imperfect, then such a pattern might emerge in the regressions. Second, even in the absence of accent effects, language knowledge may function as a marker of difference in a discriminatory labour market. Table 3 suggests that some ethnic groups, notably non-Europeans and Greeks, face earnings differentials for their language knowledge in addition to established earnings differentials for their ethnic background.

This organizing principle for the results in Table 3 is different from the human capital interpretation. The pattern of earnings differentials associated with language knowledge may not so much be due to the human capital embodied in language knowledge, but rather may be a product of the cultural attributes associated with language knowledge. In particular, language knowledge may allow participation in an ethnic labour market enclave. Here, we might expect to see a link between the return to language knowledge and the number of speakers in a city, as we see in Charts 1 and 2. However, ethnic labour market enclaves are not simply defined by language—they may be more properly thought of as ethno-linguistic enclaves. In this case, we need to refine our regressions to capture the effects of ethnic language knowledge in the context of ethno-linguistic populations.

**Table 5**  
**Returns to Ethnic, Linguistic and Ethno-linguistic Group Membership, by Sex and CMA**

Sex	category	A		B		C		D	
		Coef.	Sig	Coef.	Sig	Coef.	Sig	Coef.	Sig
males N=311,284	Member of Selected Ethnic Groups	-0.126	***						
	Size of Ethnic Enclave	0.080	***					0.205	***
	Squared Size of Ethnic Enclave	-0.013	***					-0.051	***
	Member of Selected Linguistic Group			-0.118	***			-0.098	***
	Size of Linguistic Enclave			0.093	***			0.062	
	Squared Size of Linguistic Enclave			-0.019	***			-0.016	
	Member of Selected Ethnolinguistic Group					-0.099	***	-0.014	
	Size of Ethnolinguistic Group					0.108	***	-0.314	***
	Squared Size of Ethnolinguistic Group					-0.025	***	0.121	***
females N=293,846	Member of Selected Ethnic Groups	-0.131	***						
	Size of Ethnic Enclave	0.097	***					0.264	***

<sup>15</sup>. About half (53 percent) of Spanish speakers in Canada report Latin American as ethnic origin. We therefore associate Spanish with non-European origin people.

	Squared Size of Ethnic Enclave	-0.016 ***	-0.076 ***
	Member of Selected Linguistic Group	-0.093 ***	-0.032
	Size of Linguistic Enclave	0.086 ***	0.044
	Squared Size of Linguistic Enclave	-0.018 ***	-0.024 *
	Member of Selected Ethnolinguistic Group	-0.089 ***	-0.056 **
	Size of Ethnolinguistic Group	0.095 ***	-0.405 ***
	Squared Size of Ethnolinguistic Group	-0.019 ***	0.192 ***
Source:	Custom microdata file for individuals, 1991 Census of Canada, population age 20-64 not in school full time. Individuals whose primary source of income is wages and salaries		
Note:	†† : less than approximately 40 observations (200 weighted cases)		
Significance:	*: 0.1 level; **: 0.05 level; ***: 0.01 level		

In the absence of data constraints, an appropriate way to pursue the link between earnings, language knowledge and ethnic origin would be to run regressions interacting language knowledge with mother tongue and ethnic origin. However, because there are comparatively few respondents with two mother tongues, we are only able to interact language knowledge with ethnic origin.

Table 5 shows selected coefficients from four separate log-earnings regression models using the same sample frame as that of Table 3. In Column A of Table 5, we report results from a regression that includes all of the controls in Table 3 *except* the 31 ethnic origin dummies and the 13 nonofficial language knowledge dummies. We replace these with a dummy indicating membership in a minority ethnic group, a continuous variable for the size of the ethnic community and its square. In Column B, we report results from a regression that includes all of the controls in Table 3 *except* the 13 nonofficial language knowledge dummies. We replace these with a dummy indicating that the worker speaks a nonofficial language, a continuous variable for the size of the language community and its square. In Column C, we report results from a regression that includes all of the controls in Table 3 *except* the 13 nonofficial language knowledge dummies. We replace these with a dummy indicating that the worker speaks a nonofficial language in his or her ethnic background, a continuous variable for the size of the ethnolinguistic community and its square<sup>16</sup>. Finally, in Column D, we report results from a regression that includes all of the controls in Table 3 *except* the 31 ethnic origin dummies and the 13 nonofficial language knowledge dummies. We replace these with the three previous dummies, and the six previous continuous variables. The results from Columns A, B and C are presented graphically in Charts 3 and 4<sup>17</sup>.

Charts 3 and 4 show the returns to ethnic enclave membership with three definitions of the enclave. The basic form of the relationship holds for both men and women and for all three definitions of the

<sup>16</sup>. As noted above, estimated standard errors derived from regressions with population-level data may be biased downwards in the presence of measurement error. Correcting for this does not change the basic result of earnings increasing with population size, but does increase the estimated standard errors. Consistent estimates for men from a regression of coefficients from Table 3 against linguistic population size and its square, weighting by the estimated coefficient covariance matrix are as follows:

	Ethnic Population	Linguistic Population	Ethno-linguistic Population
Constant	-0.102 (0.041)	0.099 (0.027)	-0.051 (0.048)
Population	0.268 (0.037)	0.054 (0.021)	0.312 (0.197)
Population Squared	-0.111 (0.062)	-0.008 (0.059)	-0.118 (0.095)

<sup>17</sup>. Because the ethnic, linguistic and ethnolinguistic populations are different in size in each CMA, the predicted values in Charts 3 and 4 are evaluated over different ranges of population size. We evaluate over the actual population sizes in our data.



enclave. For small enclaves, earnings are much lower for members than for non-members, with a negative earnings differential ranging from 8 percent to 12 percent. For larger communities, the earnings differential gets smaller. Among men, as the ethnic or linguistic population increases to the largest in the sample, the earnings differential goes to zero. If we use an ethnolinguistic enclave definition, the earnings differential actually becomes slightly positive for larger ethnolinguistic enclaves. Turning to women, we see a similar pattern, but with all three enclave definitions, the largest enclaves have positive earnings differentials<sup>18</sup>.

Column D presents a model that assesses the relative strength of these three enclave definitions in explaining earnings. Here, we see that when ethnic, linguistic and ethnolinguistic enclave information is included simultaneously, most of the variation in earnings is captured with the ethnic and ethnolinguistic enclave information. For men, the coefficient on speaking a nonofficial language is significant at -9.8 percent, but the coefficients on the size of the linguistic enclave are insignificant. All other coefficients shown are statistically significant. For women, the pattern is similar. Among the linguistic enclave coefficients, the dummy for nonofficial language knowledge and the coefficient on linguistic enclave size are both insignificant and the coefficient on the squared term is marginally significant. The coefficients on the ethnic and ethnolinguistic enclave variables are all statistically significant. These results suggest that for both men and women the relationship between earnings and enclave size is best captured with the ethnic and ethno-linguistic enclave definitions. The size of the linguistic enclave is of little importance in explaining earnings variation. Thus, the pattern of earnings rising with the number language speakers seems to apply mainly to speakers in one's ethnic and ethno-linguistic groups rather than the gross number of speakers.

## 5. Discussion

We find that knowledge of minority languages is correlated with lower earnings for men and women in Canada's three largest cities. That is, controlling for knowledge of the majority language and other human capital characteristics, we find that many estimated regression coefficients on minority language knowledge in log-earnings regressions are negative and statistically significant. Earnings differentials for workers who know both a majority and a minority language relative to workers who know only a majority language range from 3.3% to 12.6% for men and from 3.7% to 4.9% for women.

Not all minority language knowledge is the same—knowledge of some minority languages is correlated with lower earnings than knowledge of other minority languages. For example, knowledge of Southern European and Asian languages such as Greek, Spanish, Arabic, Hindi, Punjabi, Tagalog and Vietnamese is associated with larger negative earnings differentials than knowledge of Northern and Eastern European languages such as German, Polish and Ukrainian. We believe that the preponderance of non-European languages with negative earnings differentials and the fact that these differentials are in addition to earnings differentials associated with ethnicity suggests a link with discrimination in labour markets. In particular, this work suggests that labour market discrimination may be more layered than commonly assumed, that it may be a matter of culture in addition to colour. If true, this suggests that anti-

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<sup>18</sup>. Regressions run on a sub-sample of Canadian-born residents show broadly similar results to those shown in Charts 3 and 4. For men who are members of ethnic groups with 50,000, 100,000 and 300,000 members, the estimated earnings differentials are -6.6%, -6.4% and -1.7%, respectively. For women who are members of ethnic groups with 50,000, 100,000 and 300,000 members, the estimated earnings differentials are -5.3%, -4.2% and +0.5%, respectively. For men who speak languages in their ethnic background with 50,000, 100,000 and 300,000 ethno-linguistic group members, the estimated earnings differentials are -5.0%, -6.4% and -0.6%, respectively. For women who speak languages in their ethnic background with 50,000, 100,000 and 300,000 ethno-linguistic group members, the estimated earnings differentials are -2.3%, -5.4% and +0.5%, respectively.

discrimination policy must be similarly complex because broadly targeted equity policy may not help those most disadvantaged if cultural differences are imperfectly correlated with racial/ethnic differences.

The European/Non-European distinction is not the only order we see in the earnings differentials associated with minority language knowledge. In particular, although all the statistically significant earnings differentials are negative, the human capital view of language knowledge is at least partially vindicated by our finding that those who speak languages with many local speakers earn more than those who speak languages with few local speakers. That these differentials are on the whole negative may simply reflect that the human capital effect is swamped by other factors.

Although we find that the number of local speakers affects the return to minority language knowledge, not all local speakers affect it equally. In particular, the number of minority language speakers in one's own ethnic group affects earnings but the number of minority language speakers outside the ethnic group does not. This suggests that ethno-linguistic, or cultural, enclaves may have an important role to play in labour markets. Large enclaves may serve to minimize the effects of labour market discrimination, or may provide economic opportunity within the enclave. In countries with high levels of immigration, this may have at least two important policy implications. First, there may be numbers externalities that affect the opportunities of immigrants and their children that governments need to assess in defining intake policy. Second, part of the "catch-up" of immigrant wages to native-born wages may be wrapped up in the dynamics of enclave growth and decline. Thus, policies designed to change the country of origin or education level of immigrants may run into problems by isolating new arrivals.

#### 6. Bibliography

- Baker, M. and D. Benjamin. 1997. "Ethnicity, Foreign Birth and Earnings: A Canada/U.S. Comparison," in M. Abbott, C. Beach and R. Chaykowski (eds.) *Transition and Structural Change in the North American Labour Market*, Kingston Ontario: Industrial Relations Centre and John Deutsch Institute, 281-313.
- Blais, Andre, Pierre Martin and Richard Nadeau. 1995. 'Attentes économiques et linguistiques et appui à la souveraineté du Québec: une analyse prospective et comparative'. *Canadian Journal of Political Science* 28 pp 637-57 December 1995.
- Bloom, D.E. and G.Grenier. 1992. "Earnings of the French Minority in Canada and the Spanish Minority in the United States," In *Immigration, Language, and Ethnicity: Canada and the United States*, B. R. Chiswick, ed. Washington, D.C.: The AEI Press.
- Bonacich, E. and J. Modell. 1980. *The economic basis of ethnic solidarity*. Berkeley: University of California Press.
- Breton, Raymond. 1974. 'Ethnic Stratification Viewed from Three Theoretical Perspectives,' in J.E. Curtis and W. Scott (ed.) *Social Stratification: Canada*, 2nd ed. Toronto: Prentice Hall.
- Chiswick, Barry R. 1991. 'Speaking, reading, and earnings among low-skilled immigrants'. *Journal of Labor Economics* 9 pp 149-70, April 1991.
- Christofides, L and R. Swidinsky. 1997. 'Bilingualism and earnings: a study based on 1971, 1981 and 1991 census data.' Ottawa: Official Languages Branch, Dept of Canadian Heritage.
- Davila, Alberto, Alok K. Bohara, and Rogelio Saenz. 1993. 'Accent penalties and the earnings of Mexican Americans.' *Social Science Quarterly* 74 pp 902-16, December 1993.
- Dustmann, Christian. 1997. "The Effects of Education, Parental Background and Ethnic Concentration on Language" *Quarterly Review of Economics and Finance* 37(0) Special Issue pp 245-262.
- Dustmann, Christian. 1996. "Temporary Migration, Human Capital and Language Fluency of Migrants" *University College London Working Paper* 96-21.
- Dustmann, Christian. 1994. "Speaking Fluency, Writing Fluency and Earnings of Migrants" *Journal of Population Economics* 7(2), pp 133-156.

- Fenwick, Rudy. 1982. "Ethnic Culture and Economic Structure: Determinants of French-English Earnings Inequality in Quebec". *Social Forces* 61(1) pp 1-23, September 1982. .
- Gouveia, Lourdes and Mark O. Rousseau. 1995. "Talk is cheap: the value of language in the world economy--illustrations from the United States and Quebec". *Sociological Inquiry* 65 pp 156-80, Spring 1995.
- Grin, François. 1994. "The economics of language: match or mismatch?". *International Political Science Review* 15, pp 25-42, January '94
- Kanazawa, H. and L. Loveday. 1988. "The Japanese immigrant community in Brazil: language contact and shift", *Journal of Multilingual and Multicultural Development* 9(5), pp 423-435.
- Kossoudji, Sherrie A. 1988. "English language ability and the labor market opportunities of Hispanic and East Asian immigrant men." *Journal of Labor Economics* 6 pp 205-28, April 1988.
- Kralt, John and Ravi Pendakur. 1991. "Ethnicity, Immigration and Language Shift." Ottawa: Policy and Research, Multiculturalism Sector.
- Lachapelle, 1989. "Evolution of language groups and the official languages situation in Canada," paper presented at the Annual Meeting of the American Sociological Association.
- Lang, Kevin and David Kropp. 1986. "Human Capital versus Sorting: The Effects of Compulsory Attendance Laws" *Quarterly Journal of Economics* 101, August 1986, pp 609-624.
- Lang, Kevin. 1986. "A language theory of discrimination." *Quarterly Journal of Economics* 101 pp 363-82, May 1986.
- Lang, Kevin. 1993. "Language and Economists' Theories of Discrimination." *International Journal of the Sociology of Language* 103, pp. 165-183.
- Lazear, Edward P. 1995. *Culture and Language*. NBER Working Paper No. 5249. Cambridge Mass: National Bureau of Economic Research.
- Lazear, Edward P. 1997. *Culture and Language*. Unpublished working paper, Stanford University.
- Light, I. 1984. "Immigrant and ethnic enterprise in North America," *Ethnic and Racial Studies* 7, pp 195-216.
- Lopez, David E. 1978. "Chicano Language Loyalty in an Urban Setting", *Sociology and Social Research* 62(2) pp. 267-278, January 1978.
- Nadeau, Richard; Fleury, Christopher J. 1995. "Gains linguistiques anticipés et appui à la souveraineté du Québec". *Canadian Journal of Political Science* v 28 p 35-50 March '95.
- Pendakur, Krishna and Ravi Pendakur. 1998a. "The colour of money: Income differentials across ethnic groups," *Canadian Journal of Economics* 31(3), pp 518-548, August 1998.
- Pendakur, Krishna and Ravi Pendakur. 1998b "Speak and ye shall receive: language knowledge as human capital," in *Economic Approaches to Languages and Bilingualism*. A. Breton (editor). Ottawa: Official Languages Promotion and Education. Dept of Canadian Heritage.
- Stolzenberg, Ross M. and Marta Tienda. 1997. "English proficiency, education, and the conditional economic assimilation of Hispanic and Asian origin men." *Social Science Research* 26 pp 25-51, March 1997.
- Shapiro, D. and M. Stelcner. 1987. "The Persistence of the Male-Female Earnings Gap in Canada, 1970-1980: The Impact of Equal Pay Laws and Language Policies," *Canadian Public Policy*, 13 ( 4) pp: 462-476.
- Shapiro D. and M. Stelcner. 1996. "Language and Earnings in Quebec: Trends over Twenty Years, 1970-1990". RIIM Working Paper 96-05. Burnaby Canada: Research on Immigrants and Integration in the Metropolis, Simon Fraser University.
- Tienda, Marta and Lisa Neidert. 1984. "Language, education, and the socioeconomic achievement of Hispanic origin men". *Social Science Quarterly* 65 pp 519-36, June 84.
- Timm, L. 1980. "Bilingualism, diglossia and language shift in Brittany," *International Journal of the Sociology of Language* 25 pp 29-42.
- Vaillancourt, Francois. 1992. "An Economic Perspective on Language and Public Policy in Canada and the United States," In *Immigration, Language, and Ethnicity: Canada and the United States*, B. R.

- Chiswick, (ed). Washington, D. C.:The American Enterprise Institute Press.
- Wilson, K and A. Portes. 1980. 'Immigrant enclaves: an analysis of the labour market experiences of Cubans in Miami,' *American Journal of Sociology*, 86 pp 295-319.
- Young, R. 1988. "Language maintenance and language shift in Taiwan," *Journal of Multilingual and Multicultural Development* 9(4) pp 323-338.