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Bilingualism and Earnings

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Bilingual Canadians who worked full-time throughout 1985 earned on average \$28,800, while their unilingual colleagues earned \$26,400. But it would be rash to attribute the difference simply to being bilingual rather than unilingual; differences in earnings arise from many factors. This study examines the importance of language - in particular the knowledge of French and English - in relation to these other factors.

Several studies have already demonstrated differences in economic status between the major linguistic groups in Canada. This study has three noteworthy features. First, it focuses on employees (paid workers) who work full-time, year-round rather than on all workers. This eliminates a major source of income differentials, namely the amount of work done during the year. Second, linguistic affiliation is determined by home language rather than mother tongue. ⁽¹⁾ Finally, the study draws on relatively recent data from the 1986 Census.

The focus is on three urban centres: Montreal, Toronto and Ottawa-Hull. The size of their bilingual population allows for a reasonably in-depth analysis. According to the 1986 Census, these three metropolitan areas were home to two million employees who worked full-time throughout 1985. Among employees who spoke English or French at home, 36% reported they were bilingual. The Montreal metropolitan area had by far the highest number of bilingual employees (422,000), followed by the Ottawa-Hull area (120,000) and the Toronto area (87,000).

Sources of earnings differences

Place of residence and home language

Earnings vary from one area to another. The average earnings of full-time employees who worked throughout 1985 was \$28,200 in Toronto. [\(2\)](#) The average was higher in Ottawa-Hull (\$29,600), but lower in Montreal (\$26,100). As [Table 1](#) illustrates, it would be unwise to compare the average earnings of bilingual and unilingual workers without taking place of residence into account.



Table 1 Average Earnings by Knowledge of Official Languages and Home Language, 1985

Average earnings also vary according to the language spoken at home. For example, francophone Montrealers earned on average \$25,800 in 1985, while their anglophone counterparts earned \$29,200. Table 1 shows further that the earnings gap between unilingual and bilingual workers in each urban centre varies by home language. The widest gap occurs among francophones in Toronto, the narrowest among anglophones in Montreal.

The earnings differences between the linguistic groups may be due to several factors. Among these are differences in the age and sex composition of these groups, in their educational attainment, occupational composition and even industrial sector. The impact of these different variables on earnings is examined below to demonstrate the need to take these factors into account in comparing the earnings of bilingual and unilingual workers.

Effect of age and sex on earnings

It would be noted at the outset that the average earnings of women in urban areas are approximately two-thirds those of men ([Table 2](#)). Of two groups of workers, the one containing the higher proportion of women will therefore tend to have lower average earnings.



Table 2 Average Earnings by Age and sex, 1985

The proportion of women among full-time, full-year employees varies somewhat by linguistic group. Among anglophones, the ratio is approximately 40%. This holds true for both bilingual and unilingual workers. On the other hand, the proportion of women is not the same among bilingual and unilingual

francophones. The difference is most noticeable in Ottawa-Hull, where women comprise 52% of unilingual employees and only 42% of bilingual employees. This difference could contribute to the earnings gap between unilingual and bilingual francophones.

The same is true for group's age composition: for example, [Table 2](#) shows that average earnings for employees under age 35 are much lower than the earnings of workers above this age. Thus, a group containing a high proportion of employees under age 35 will tend to have lower average earnings than a group of older employees.



Figure **Composition of the Linguistic Groups Used in This Study**

In Montreal, unilingual anglophones tend to be older than bilingual anglophones ([Table 3](#)). Only one in three unilingual employees is under 35, compared to almost one in two bilingual employees. This age difference is reflected in the higher earnings of unilingual anglophones relative to their bilingual counterparts.



Table 3 **Proportion of Employees under Age 35 by Linguistic Group, 1985**

In short, the age structure of bilingual and unilingual worker groups is not the same. A comparison of the average earnings of the two groups needs to take this difference into account.

Education

As might be expected, the earnings differential by level of education is very pronounced. Thus, university-educated employees earned on average \$9,000 over the average for all employees.

Judging from [Table 5](#), the proportion of university-educated workers varies by language group. Bilingual persons are more likely to hold a university degree and this is true for both anglophones and francophones.



Table 4 Average Earnings by Level of Schooling, 1985



Table 5 Proportion of University-educated Employees by Linguistic Group, 1985

Occupation

The distribution of employees by occupation explains a large part of the earnings differentials. The average earnings of the senior managers, the highest-paid group, are about three times the average recorded for unskilled workers [\(3\)](#) ([Table 6](#)).



Table 6 Average Earnings by Occupational Group, 1985

In all three metropolitan areas, bilingual persons are over-represented in the most highly paid occupational groups ([Table 7](#)). In Montreal and Ottawa-Hull, the proportion of employees in highly qualified occupational groups is also higher among anglophones than among francophones. In Toronto, the opposite is true: the proportion of workers in the most highly qualified occupational groups is larger among francophones than among anglophones.



Table 7 Proportion of Employees in the Top Five Occupational Groups, 1985*

* Refers to the first five groups in [Table 6](#)

It should be noted that the occupational groupings used in this study are based largely on the average

level of education of the members of each occupation (see [note 3](#)).

Industry

Do earnings also vary by industry? To study this question, industries were clustered into three sectors: goods-producing, non-government services and government services [\(4\)](#) ([Table 8](#)).



Table 8 Average Earnings in Three Industrial Sectors, 1985

Employees in the government services sector earn higher salaries than their counterparts in the other two sectors. [Table 9](#) shows that, except in Toronto, bilingual employees are over represented among government workers.



Table 9 Proportion of Employees in the Government Services Sector by Linguistic Group, 1985

In summary, it may be stated that age, sex, education, occupation and industry all seem to have an impact on earnings. The composition of the bilingual and unilingual employee groups among both anglophones and francophones may vary considerably according to these characteristics.

Relationship between earnings and bilingualism

In this section, the differences between the salaries of bilingual and unilingual workers are examined, taking into account age, sex, linguistic group (anglophone or francophone), occupation, education and industry. Regression analysis is a technique that makes such an examination possible.

The results shown in [Table 10](#) indicate that, in general, the average earnings of bilingual workers are higher, taking into account the effect of these variables. [\(5\)](#) Yet bilingualism does not necessarily "explain" the observed earnings differences. Other variables could come into play, including work experience, union membership and field of study. In addition, the regression method used is only one of several possible approaches. Nonetheless, it is interesting to note that, even when the effect of the

variables listed above is held constant, there remains an appreciable difference between the earnings of unilingual and bilingual workers in Montreal and Ottawa-Hull.



Table 10 **Difference in Earnings between Bilingual and Unilingual Employees, Holding Constant Age, Sex, Education, Occupation and Industry**

Should we have expected similar results for the three cities? One might expect the demand for a knowledge of French to be more limited in Toronto than in the other two urban centres, since francophones (the smaller of the two linguistic groups) represent less than 2% of all Torontonians. In Montreal and Ottawa-Hull, the minority group constitutes a large proportion of the population.

Conclusion

The goal of this study was to examine the relationship between earnings and bilingualism (without, of course, presuming that the advantages of bilingualism are limited to financial gain). A regression technique often used to study income differences between linguistic groups was applied to the data. The analysis focused on bilingual and unilingual anglophones and francophones who worked full-time throughout 1985.

The findings indicate that bilingual workers in Montreal and Ottawa-Hull earned somewhat more than unilingual workers, after accounting for differences related to age, sex, education, occupation and industry. But it should be stressed that many other factors could have an impact on the earnings of workers. In other words, a study of this scope cannot reflect the complexity of real life.

1986 Census data

Respondents were classified as **bilingual** or **unilingual** according to their answer to the following question:

Can you speak English or French well enough to conduct a conversation?

This question distinguishes persons who know English and French (bilingual) from those who know only one of the two official languages (unilingual) and those who know neither.

The study also refers to **francophones** and **anglophones**. This information is obtained from the following Census question:

What language do you yourself speak at home how? (If more than one language, which language do you speak most often?)

In most cases, the data are collected by self-enumeration.

Regression analysis

Regression analysis was used to examine the earnings differences between bilingual employees and unilingual employees, by sex and region, holding constant the effect of age, education, occupation and industry. A "multiplicative" or "logarithmic" regression model was used, which is appropriate if the effect of these variables on earnings, measured in dollars, increases as earnings increase. In other words, the effect is assumed to be stable in relative terms. This model is usually used in the regression analysis of income data. It takes the following form:

$$\text{Log } Y_{ijkmn} = \text{Log } C + \text{Log } A_i + \text{Log } L_j + \text{Log } I_k + \text{Log } P_m + e_{ijkmn},$$

where

Y_{ijkmn} is the earnings of person n in age group i , linguistic group j , industry k , and occupation and education group m ;

C is a constant;

A_i is the effect of belonging to age group i ;

L_j is the effect of belonging to linguistic group j ;

I_k is the effect of belonging to industry group k ;

P_m is the effect of belonging to occupational and educational group m ;

e_{ijkmn} the effect of factors not included in the model on the earnings of person n (the expected value of this term is assumed to be 0).

The variables were categorized as follows:

Age: 17 age groups (15-17, two-year sub-groups in the 18-39 age range, 40-44, 45-49, 50-54, 55-59 and 60 and over);

Linguistic group: four groups (bilingual and unilingual francophones and anglophones);

Industry: three groups (goods-producing, non-government services and government services);

Occupation and education: 16 groups (the eight occupational groups broken down by two educational levels, the "higher" and "lower" level, where the "higher" level comprises persons who have attained or exceeded the median educational level for employees of the occupational group in question).

Technical details on this analysis are available from the author.

Notes

Note 1

Recent studies include [Vaillancourt](#) (1988) and [Boulet and Lavallée](#) (1983). Most studies define linguistic groups on the basis of mother tongue, which is the first language learned and still understood. In selecting home language instead, the following line of reasoning was adopted: when mother tongue and home language differ, the latter is more likely to be the one used in the workplace, the area of interest here. The validity of this hypothesis is not tested in this study.

Note 2

Since the study compares the earnings of bilingual and unilingual persons, the target population includes only employees who worked full-time throughout the year preceding the 1986 Census. This population excludes self-employed workers and unpaid family workers. An additional 3.2% of all employees in the target population were excluded owing to problem in the coding of industry, occupation or language.

Note 3

Occupations were grouped into eight categories. These categories are determined by (1) the average weighted level of education of workers in each occupational group, based on the 1981 Census; and (2) a score related to the general training and professional requirements of each occupation (according to the Canadian Classification and Dictionary of Occupations). Readers interested in the detailed composition of each group should contact the author.

Note 4

The goods-producing sector includes primary industries, manufacturing and construction. The non-government services sector refers to transportation and storage, communications and other utilities, trade, finance, insurance, real estate, business services, teaching, health care, social services, accommodation, food and beverage industries and other services. Lastly, the government services sector includes public administration and defence.

Note 5

The definition of linguistic groups used in this analysis includes among francophones and anglophones persons who speak one of the two official languages at home. Persons who also speak a non-official language at home are include, as are persons whose mother tongue is neither French nor English. This definition may be considered too "broad" by some analysts of language issues. Accordingly, we redid the regression using a much narrower definition of the francophones and anglophone groups. Persons whose mother tongue did not correspond to their home language were excluded, as were all persons with multiple responses to either the mother tongue or the home language question. The regression results were comparable, with the exception of anglophone employees in Montreal. For this group, no significant difference between the earnings of bilingual and unilingual workers was observed. Another point concerning the definition of linguistic groups should be noted; the group "Both languages spoken at home" was not included in the regressions since this group includes only bilingual persons.

References

- Boulet, J.-A. and L. Lavallée. *L'évolution des disparités linguistiques des revenus de travail au Canada de 1970 à 1981*. Economic Council of Canada, document no. 245, October, 1983.
- Vaillancourt, F. *Langues et disparités du statut économique au Québec, 1970 et 1980*, Conseil de la langue française, Québec, 1988.

Author

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 HIGHLIGHTS

 TABLE OF CONTENTS

 SUBJECT INDEX

 AUTHOR INDEX

 FRANÇAIS

 HELP

 HOME



Table 1

Average Earnings by Knowledge of Official Languages and Home Language, 1985

	Montreal	Toronto	Ottawa-Hull
All employees*	\$26,100	\$28,200	\$29,600
Anglophones	\$29,200	\$29,000	\$31,100
Bilingual	\$29,600	\$34,700	\$34,300
Unilingual	\$28,200	\$28,500	\$29,600
Francophones	\$25,800	\$31,200	\$26,900
Bilingual	\$28,200	\$31,600	\$27,800
Unilingual	\$22,000	\$20,800	\$21,000
Both languages spoken at home	\$25,000	\$27,200	\$26,200
Others	\$19,900	\$22,400	\$25,800

* *Employees who worked full-time throughout 1985.*

Table 2

Average Earnings by Age and sex, 1985

	Montreal	Toronto	Ottawa-Hull
Men	\$29,900	\$33,100	\$33,900
15-24	\$16,100	\$17,600	\$16,800
25-34	\$26,500	\$28,600	\$28,400
35-44	\$34,100	\$37,600	\$38,500
45 and over	\$33,500	\$37,700	\$39,600
Women	\$20,000	\$21,300	\$23,200
15-24	\$13,900	\$15,000	\$15,500
25-34	\$19,900	\$21,500	\$22,800
35-44	\$22,600	\$23,600	\$26,400
45 and over	\$20,800	\$21,700	\$24,500

Composition of the Linguistic Groups Used in This Study

Languages spoken at home	Knowledge of official languages	Linguistic group	Employees* (in thousands)		
			Montreal	Toronto	Ottawa-Hull
English only (or English and a non-official language)	English only	Unilingual anglophone	47	804	108
	English and French	Bilingual anglophone	95	76	52
French only (or French and a non-official language)	French only	Unilingual francophone	185	—	9
	English and French	Bilingual francophone	299	6	59
English and French		Both languages spoken at home	28	6	9
Neither English nor French		Others	48	130	6
		Total	702	1,020	244

* Employees who worked full-time throughout 1985

Table 3

Proportion of Employees under Age 35 by Linguistic Group, 1985

	Montreal	Toronto	Ottawa-Hull
	%		
Anglophones			
Bilingual	47	48	43
Unilingual	30	44	42
Francophones			
Bilingual	45	44	47
Unilingual	48	42	49
Both languages spoken at home	37	39	41
Others	32	30	31

Table 4

Average Earnings by Level of Schooling, 1985

	Montreal	Toronto	Ottawa-Hull
Elementary and secondary	\$21,900	\$23,600	\$23,300
Other non-university education	\$24,700	\$26,500	\$26,200
University	\$34,400	\$37,000	\$38,200
Without degree	\$29,400	\$31,100	\$30,700
With degree	\$38,100	\$40,400	\$41,700

Table 5

Proportion of University-educated Employees by Linguistic Group, 1985

	Montreal	Toronto	Ottawa-Hull
	%		
All employees	28	29	37
Anglophones	41	30	41
Bilingual	45	61	55
Unilingual	32	27	35
Francophones	25	42	29
Bilingual	32	43	31
Unilingual	13	15	17
Both languages spoken at home	28	33	26
Others	20	22	39

Table 6

Average Earnings by Occupational Group, 1985

	Montreal	Toronto	Ottawa-Hull
Professionals	\$34,000	\$36,900	\$38,000
Senior managers	\$49,300	\$61,400	\$48,600
Semi-professionals and technicians	\$26,900	\$29,000	\$29,900
Middle managers	\$33,900	\$36,700	\$35,600
Supervisors	\$28,900	\$28,900	\$28,600
Skilled workers	\$23,800	\$25,200	\$25,500
Semi-skilled workers	\$20,200	\$21,300	\$20,900
Unskilled workers	\$18,900	\$20,100	\$19,000

Table 7

Proportion of Employees in the Top Five Occupational Groups, 1985*

	Montreal	Toronto	Ottawa-Hull
	%		
All employees	39	40	49
Anglophones	48	42	52
Bilingual	50	61	60
Unilingual	44	41	49
Francophones	38	52	43
Bilingual	45	53	44
Unilingual	27	23	32
Both languages spoken at home	36	41	39
Others	23	23	41

* Refers to the first five groups in Table 6.

Table 8

Average Earnings in Three Industrial Sectors, 1985

	Montreal	Toronto	Ottawa-Hull
Goods-producing	\$25,900	\$28,100	\$28,900
Non-government services	\$25,600	\$27,900	\$26,700
Government services	\$30,600	\$31,200	\$33,900

Table 9

Proportion of Employees in the Government Services Sector by Linguistic Group, 1985

	Montreal	Toronto	Ottawa-Hull
	%		
All employees	9	7	41
Anglophones			
Bilingual	4	8	54
Unilingual	1	8	36
Francophones			
Bilingual	12	8	43
Unilingual	9	8	16
Both languages spoken at home	7	6	39
Others	2	4	26

Table 10

Difference in Earnings between Bilingual and Unilingual Employees, Holding Constant Age, Sex, Education, Occupation and Industry

	Montreal	Toronto	Ottawa-Hull
Men			
Anglophones	2%-6%	-0.4%-2%	3%-6%
Francophones	5%-7%	*	7%-15%
Women			
Anglophones	5%-10%	3%-5%	3%-7%
Francophones	8%-10%	*	9%-17%

** Results are not shown because the unilingual groups in question were judged to be too small*