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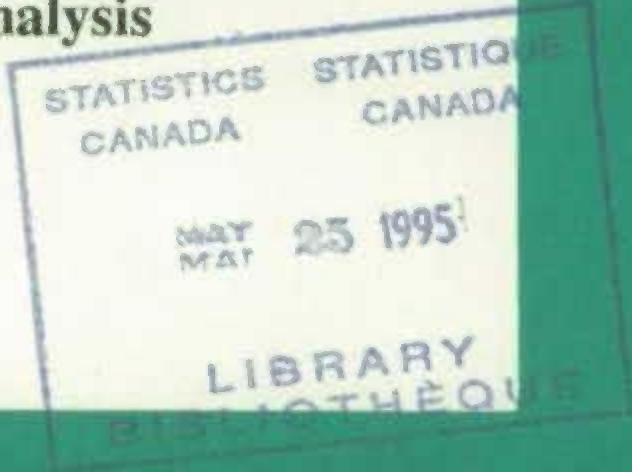
**Programme
statistique
sur l'équité en
matière d'emploi**



**Factors Influencing Socioeconomic Disadvantage
Among Selected Ethnic Groups, Canada, 1986:
A Multiple Regression Analysis**

(Working Paper)

(4.16)



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A report prepared for
the Employment Equity Data Program, Statistics Canada

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1. INTRODUCTION

This report is a sequel to our earlier report entitled "Patterns of Socioeconomic Disadvantage for Selected Ethnic Groups, Canada, 1986". The earlier report examined patterns of socioeconomic disadvantage for 46 ethnic groups selected by officials of Statistics Canada. The data used in the earlier report and in the present study are obtained from the 1986 Census of Canada and are based on the working age population (persons age 15 to 64). Exhibit 1.1 present a listing of the selected ethnic groups and their counts in the 1986 Census of Canada.

In the earlier report, the 46 ethnic groups selected for study were ranked relative to one another in terms of six socioeconomic measures. The measures (which are defined in detail in the earlier report) are:

- (1) Unemployment rate
- (2) Proportion employed
- (3) Proportion employed full-time, full-year
- (4) Labour force participation rate
- (5) Average employment income
- (6) Proportion below the low income cut-off.

In addition to being ranked relative to one another, the groups were also compared to the national average for each of the six socioeconomic measures. The national average was also computed from 1986 Census of Canada data and is based on all Canadians 15 years of age and over.

A number of measures were evaluated for possible inclusion as independent variables in the study, including: (1) marital status; (2) language; (3) sex; (4) years of schooling; (5) years in Canada; (6) age; (7) labour force status; (8) class of worker (full-time/part-time); (9) occupation.

Analysis of correlation matrix of the dependent and independent variables revealed that labour force status, class of worker and occupation are highly inter-correlated with one another and with the dependent variable. Age and years in Canada were also found to be highly inter-correlated. The independent variables ultimately selected for our analyses are as follows:

- (1) Marital Status
 - 1 = married
 - 0 = all others
- (2) Language
 - 1 = English, French, or both
 - 0 = all others
- (3) Sex
 - 1 = male
 - 0 = female

- (4) Years of Schooling
a continuous variable
- (5) Years in Canada
a continuous variable

The present study is concerned with an examination of the factors behind these rankings. An analysis of this kind requires the use of multivariate statistical techniques. In the present case, multiple regression represents the most appropriate and powerful procedure given the characteristics of the data with which we are working.

The first step in designing the multiple regression analysis was to identify a dependent variable that would capture the concept of socioeconomic disadvantage and be continuous in nature.

In addition to employment income, our earlier report revealed two other useful measures of socioeconomic disadvantage — unemployment and the low income cut-off measure developed by Statistics Canada. Neither of these variables are continuous. On the unemployment variable, for example, one is either "unemployed" or "not unemployed". Similarly, in the case of the low-income cut-off, one is either "above the low-income cut-off" or "below the low-income cut-off".

It might be argued that one could treat unemployment and the low-income cut-off as dummy variables, for example:

unemployed = 1
not unemployed = 0
above low-income cut-off = 1
below low-income cut-off = 0

However, it is prevailing statistical opinion that dummy variables should only be used as dependent variables in regression when the distribution on the variable approximates 50:50.

For this to work, we would need to have as many people unemployed as not unemployed, and about as many people below the low-income cut-off as above the low-income cut-off. This, however, is not the case.

In addition to being a continuous variable, employment income in our view is the best single measure of socioeconomic disadvantage given the enormous significance of income to other aspects of life circumstance. Accordingly, it is used as the dependent variable in this study.

We have carried our multiple regression analysis with the data for each of the 46 ethnic groups selected for the study. This permits an examination within each ethnic group of how factors combine to produce socioeconomic disadvantage as measured by employment income. It also permits comparisons across ethnic groups. The results of these analyses are presented and discussed in the next section.

EXHIBIT 1.1: List of Ethnic Groups

1. Ecuadorian (N=2,815)
2. Cambodian (N=3,090)
3. Haitian (N=8,595)
4. Iranian (N=6,560)
5. North American Indian (N=85,700)
6. Métis (N=20,320)
7. Vietnamese (N=24,640)
8. Other Latin American (N=15,280)
9. Inuit (N=9,410)
10. Laotian (N=4,225)
11. Peruvian (N=2,910)
12. Chilean Ethnic or Birthplace (N=9,375)
13. Other West Asian (N=15,075)
14. Black or African Black (N=110,410)
15. Jamaican (N=23,945)
16. Other Pacific Islanders (N=3,700)
17. Korean (N=14,205)
18. Mexican (N=3,390)
19. Armenian (N=13,100)
20. Turkish (N=3,370)
21. Lebanese (N=20,495)
22. Greek (N=79,110)
23. Total Multiple Visible Minority (N=20,010)
24. Brazilian (N=1,755)
25. Romanian (N=10,355)
26. Other Caribbean (N=40,055)
27. Chinese (N=201,745)
28. Birthplace other Latin American (N=5,760)
29. Syrian (N=2,900)
30. Argentine Ethnic or Birthplace (N=5,425)
31. Spanish (N=10,830)
32. French Outside of Quebec (N=583,065)
33. South Asian (N=152,095)
34. Egyptian (N=7,600)
35. Thai (N=1,315)
36. Filipino (N=55,770)
37. Portuguese (N=109,555)
38. Indonesian (N=1,470)
39. Lithuanian (N=7,950)
40. Macedonian (N=6,685)
41. Latvian (N=6,615)
42. Serbian (N=5,270)
43. Estonian (N=7,030)
44. Croatian (N=19,555)
45. Maltese (N=9,450)
46. Japanese (N=29,390)

2. ANALYSIS

Ordinary Least Squares (OLS) regression analyses were performed on the average employment incomes of forty-six selected ethnic groups. Each regression summarizes the relationship between the dependent variable (employment income) and a set of independent variables (education, sex, marital status, years in Canada, and language). The purpose of this analysis is to identify the independent variables that are statistically significant predictors of employment income when we control for (or take into statistical account) other predictor variables.

Table 2.1 and Table 2.2 summarize the results of the regressions for each ethnic group. Table 2.1 displays the parameter estimates or unstandardized regression coefficients. The regression coefficients tell us how much increase or decrease there is in employment income when the independent variable is increased by one unit. For example, among Haitians, the regression coefficient for education is 773 (see Table 2.1). This means that for each year of education, the predicted income for the average Haitian increases by approximately 773 dollars. Similarly, among Romanians, the regression coefficient for number of years living in Canada is 148. Thus, for each year spent living in Canada, the predicted income of the average Romanian increases by approximately 148 dollars.

The regression coefficients can also have negative values. A negative coefficient indicates that as the independent variable increases, the dependent variable (income) decreases. For example, among Armenians, the regression coefficient for language is -3002. It is important to remember that language is a dummy variable (English, French = 1; Other Language = 0). Thus, after controlling for education, marital status, sex, and years in Canada, it is predicted that speaking English or French decreases the employment income of the average Armenian by approximately 713 dollars.

The regression coefficients allow us to compare the relative effects of the independent variables for the different ethnic groups. For example, among Egyptians, the regression coefficient for education is 1,892. In other words, each year of education is predicted to increase the income of Egyptians by approximately 1,892 dollars. By contrast, among Ecuadorians, the regression coefficient for education is only 146. Thus, each year of education is predicted to increase the income of the average Ecuadorian by approximately 146 dollars. This comparison tells us that Egyptians tend to get more out of their education than Ecuadorians (with respect to employment income).

Another purpose of this analysis is to estimate the relative importance of each independent variable. For example, we might want to know whether education is more important than marital status in predicting employment income. However, it is inappropriate to interpret the regression coefficients as indicators of the relative importance of the independent variables. The actual magnitude of these coefficients depends on the units in which the variables are measured. Only if all the independent variables are measured in the same units — years for example — are their regression coefficients directly comparable. One way to make regression coefficients somewhat more comparable is to calculate beta weights, which are the coefficients of the independent variables when all the variables are expressed in standardized form (a mean of 0

and a standard deviation of 1). Table 2.2 provides the Beta weights for each independent variable. Beta weights range between minus 1 and plus 1. Weights close to zero indicate that the variable in question has virtually no effect on the dependent variable. The closer the beta weight is to plus or minus 1, the stronger the relationship. Thus, a beta of .51 or -.51 is stronger than a beta of .05 or -.05.¹

In summary, Table 2.1 allows for comparisons between the different ethnic groups. Thus, the table should be read column by column, from top to bottom. By contrast, Table 2.2 allows us to estimate the relative importance of each independent variable in predicting income for each ethnic group. This table should be read row by row, from left to right.

Finally, the far right column in both tables displays the R Squared statistic (the square multiple correlation of all predictor variables in the regression model). The R Squared statistic tells us what proportion of the variability in the dependent variable (income) is "explained" by the independent variables included in the regression. The R Squared statistic can range from 0.0 (none of the variability is explained) to 1.0 (all of the variability is explained). Therefore, a R Squared of .20 indicates that 20% of the variability in employment income is explained by the five independent variables (marital status, education, language, sex, years in Canada). It also tells us that 80% of the variability is not accounted for (i.e., it is explained by other variables that are not included in the analysis).

EDUCATION

The results of the multiple regressions indicate that there is a positive relationship between education and employment income for each of the ethnic groups in the analysis (Table 2.1). As education increases, so does employment income. The regression coefficients are statistically significant at the $p < .001$ level for 45 of the 46 groups. A significance level of .001 indicates that there is a very low probability that the observed relationship between education and income is due to chance or random error. In other words, these results should be found to be accurate 999 times out of 1,000. Among Ecuadorians, the relationship between education and income is significant at the $p < .05$ level. This indicates that this result should be found to be accurate about 95 times out of 100. In other words, among Ecuadorians, there is a slightly higher probability that the observed relationship between education and income is due to chance or random error. However, a significance level of .05 is still considered low enough to draw general conclusions.

¹ It should be noted that the values of the beta weights, like those of the regression coefficients, are contingent on the other independent variables in the equation. They are also affected by the correlations of the independent variables and do not in any absolute sense reflect the importance of the various independent variables. At best they give a rough estimate of which variables are the strongest predictors of the dependent variable.

**TABLE 2.1: OLS Regressions on Average Employment Incomes of Selected Ethnic Groups.
Unstandardized Regression Coefficients.**

ETHNIC GROUP	MARITAL STATUS	LANGUAGE	SEX	EDUCATION	YEARS IN CANADA	R SQUARE
Haitian	4667.3**	-3944.5*	2734.2**	772.6**	405.3**	.23
Jamaican	6238.1**	—	5510.9**	996.8**	333.7**	.21
Other Caribbean	5861.7**	-1155.9	6723.8**	1192.4**	303.2**	.23
Black or African	7007.3**	-2001.5	3681.6**	1196.9**	160.3**	.21
South Asian	9419.2**	-4475.4*	9129.5**	1235.5**	447.5**	.26
Chinese	8234.4**	-269.4	5476.3**	1006.5**	258.6**	.20
Korean	9673.5**	559.8	6733.9**	778.3**	486.3**	.20
Japanese	4983.8**	162.1	12701.6**	1984.9**	315.6**	.12
Vietnamese	5785.5**	441.9	4375.4**	778.7**	624.6**	.28
Cambodian	4655.4**	2947.6**	2512.7**	179.2**	694.1**	.25
Laotian	6422.8**	822.2	4891.1**	238.0**	364.7**	.23
Thai	7834.8**	-9245.0	16268.3**	2252.7**	245.7**	.22
Indonesian	6981.5**	-4466.5	10840.3**	1682.7**	870.8**	.25
Filipino	6419.4**	-3180.9*	3419.8**	1192.2**	556.1**	.29
Other Pacific Islanders	6516.4**	-1154.4	6364.6**	716.5**	159.2**	.17
Lebanese	8860.4**	-4089.9*	10534.9**	1352.7**	305.5**	.21
Egyptian	9729.4**	-8004.4	12049.5**	1892.3**	663.9**	.28
Syrian	4666.8**	-4884.5	11810.9**	1207.4**	263.7**	.16
Iranian	5609.3**	-2560.6	6679.5**	1117.5**	964.3**	.20
Turk	9865.3**	-3966.7	12525.5**	1717.2**	356.4**	.33
Armenian	7437.1**	-3002.*	9002.4**	977.8**	285.5**	.19
Other West Asian	7594.5**	-4030.1*	10004.2**	986.8**	409.6**	.19
Brazilian	5670.9**	-5575.9	9894.8**	1093.8**	318.8**	.23
Ecuadorian	3586.1**	1514.4*	3538.1**	145.6*	539.7**	.24
Mexican	6504.8**	1245.7	10523.8**	1248.7**	342.2**	.19
Peruvian	5095.8**	-2877.8	8502.6**	1047.5**	445.8**	.28
Other Latin American	4917.6**	841.1	6247.7**	532.9**	502.7**	.22
Argentine Ethnicity	6526.0**	-2335.6	11339.5**	1311.5**	277.2**	.28
Chilean	6570.2**	—	7698.2**	1029.6**	419.5**	.30
Other Latin Ethnicity	6154.7**	—	10853.4**	1899.7**	520.1**	.22
North American Indian	3460.8**	-973.9*	4646.1**	985.9**	212.4**	.12
Inuit	4674.9**	1529.5*	5027.9**	766.6**	238.7**	.21
Metis	4249.6**	-151.2	5381.9**	943.5**	195.3**	.20
French Canadian	5130.7**	—	11243.9**	1579.1**	174.2**	.25
Acadian	6522.2**	—	13399.0**	2143.7**	268.6**	.42
Croatian	11439.3**	-867.3	11295.4**	743.4**	140.1**	.29
Serbian	9681.2**	-713.1	9987.6**	983.5**	217.4**	.14
Greek	9366.7**	-599.4	8156.8**	737.9**	266.2**	.19
Macedonian	10345.7**	-4156.2*	8506.9**	1089.7**	244.7**	.23
Maltese	7719.9**	-2996.8	12409.0**	868.9**	201.1**	.28
Portuguese	8679.9**	1381.2*	9803.9**	351.7**	170.1**	.25
Spanish	6905.5**	-719.0	11059.2**	1059.3**	153.2**	.20
Estonian	3691.7**	-2528.5	11506.9**	1583.3**	295.4**	.20
Latvian	3978.8**	-2526.0	11158.0**	1548.7**	249.7**	.20
Lithuanian	3109.6**	-2295.6	9055.5**	1366.2**	185.3**	.17
Romanian	4153.7**	4199.5	9527.3**	1296.4**	148.1**	.18

** Significant at $p < .001$

* Significant at $p < .05$

TABLE 2.2: OLS Regressions on the Average Employment Incomes of Selected Ethnic Groups. Beta Weights.

ETHNIC GROUP	MARITAL STATUS	LANGUAGE	SEX	EDUCATION	YEARS IN CANADA	R SQUARE
Haitian	.18**	-.04*	.10**	.28**	.22**	.23
Jamaican	.21**	—	.19**	.22**	.21**	.21
Other Caribbean	.19**	-.00	.21**	.26**	.19**	.23
Black or African	.24**	-.01	.13**	.30**	.15**	.21
South Asian	.23**	-.06*	.24**	.30**	.17**	.26
Chinese	.22**	-.01	.15**	.27**	.17**	.20
Korean	.26**	.01	.19**	.16**	.15**	.20
Japanese	.08**	.00	.20**	.22**	.19**	.12
Vietnamese	.22**	.01	.17**	.27**	.27**	.28
Cambodian	.24**	.13**	.13**	.10**	.33**	.25
Laotian	.35**	.03	.27**	.12**	.12**	.23
Thai	.13**	-.01	.28**	.30**	.16**	.22
Indonesian	.18**	-.03	.29**	.30**	.16**	.25
Filipino	.22**	-.03*	.12**	.33**	.23**	.29
Other Pacific Islanders	.24**	-.01	.24**	.19**	.11**	.17
Lebanese	.19**	-.03*	.23**	.26**	.24**	.21
Egyptian	.18**	-.03	.24**	.30**	.20**	.28
Syrian	.10**	-.03	.25**	.21**	.22**	.16
Iranian	.13**	-.03	.16**	.22**	.29**	.20
Turk	.22**	-.05	.30**	.37**	.18**	.33
Armenian	.18**	-.04*	.23**	.23**	.18**	.19
Other West Asian	.17**	-.03*	.23**	.21**	.21**	.19
Brazilian	.17**	-.07	.29**	.28**	.19**	.23
Ecuadorian	.21**	.07*	.21**	.07*	.34**	.24
Mexican	.16**	.01	.26**	.24**	.18**	.19
Peruvian	.14**	-.04	.24**	.23**	.35**	.28
Other Latin American	.19**	.02	.24**	.17**	.26**	.22
Argentine Ethnicity	.17**	-.03	.32**	.30**	.18**	.28
Chilean	.23**	—	.28**	.27**	.19**	.30
Other Latin Ethnicity	.14**	—	.24**	.28**	.21**	.22
North American Indian	.12**	-.01*	.17**	.26**	.24**	.12
Inuit	.21**	.06*	.23**	.29**	.33**	.21
Metis	.19**	-.00	.24**	.28**	.28**	.20
French Canadian	.15**	—	.35**	.35**	.19**	.25
Acadian	.19**	—	.41**	.49**	.24**	.42
Croatian	.34**	-.01	.35**	.19**	.10**	.29
Serbian	.19**	-.00	.21**	.18**	.12**	.14
Greek	.27**	-.00	.25**	.19**	.15**	.19
Macedonian	.27**	-.06*	.23**	.27**	.19**	.23
Maltese	.23**	-.02	.39**	.21**	.14**	.28
Portuguese	.30**	.04*	.36**	.12**	.09**	.25
Spanish	.18**	-.00	.29**	.24**	.09**	.20
Estonian	.09**	-.02	.28**	.31**	.12**	.20
Latvian	.09**	-.01	.28**	.30**	.11**	.20
Lithuanian	.08**	-.01	.23**	.33**	.12**	.17
Romanian	.11**	.04*	.27**	.31**	.19**	.18

** Significant at $p < .001$

* Significant at $p < .05$

Table 2.2 reveals that out of the five independent variables, education is the strongest predictor (i.e., it has the largest beta weight) for 25 of the 46 ethnic groups (Haitian, Jamaican, Other Caribbean, Black or African Black, South Asian, Chinese, Japanese, Vietnamese, Thai, Indonesian, Filipino, Lebanese, Egyptian, Turk, Armenian, Other Latin American Ethnicity, North American Indian, Métis, French Canadian, Acadian, Macedonian, Estonian, Latvian, Lithuanian, and Romanian). Education is the second strongest predictor for 8 ethnic groups, and the third strongest predictor for an additional 10 groups. Education is the fourth strongest predictor for only two ethnic groups (Ecuadorian and Other Latin American). Cambodians are the only group where the beta weights for education are smaller than the beta weights for the other four independent variables. It must be stressed that in many cases there are only small differences between the beta weights for education and the beta weights for other independent variables. Thus, the absolute importance of education compared to other predictor variables must be interpreted with caution. It is perhaps best to note that regardless of ethnic group, education is a statistically significant predictor of employment income.

Fourteen of the 46 ethnic groups have beta weights for education that are above .30 (Black or African, South Asian, Thai, Indonesian, Filipino, Egyptian, Turk, Argentinean, French Canadian, Acadian, Estonian, Latvian, Lithuanian, and Romanian). Only eight ethnic groups (Korean, Croatian, Serbian, Greek, Portuguese, Other Latin American, Cambodian, Laotian, and Ecuadorian) have beta weights that are less than .20. Ecuadorians are the only group with a beta for education that is less than .10.

Although there is a positive relationship between education and income for each ethnic group, the size of the regression coefficients vary (Table 2.1). Thai ($b = 2,253$) and Acadian ($b = 2,144$) are the only groups where the regression coefficients are greater than 2,000. This indicates that for each year of education, the employment incomes of the members of these two ethnic groups can be predicted to increase by approximately 2,000 dollars. The Japanese ($b = 1,985$) have the next highest regression coefficient for education, followed by those of Other Latin Ethnicity ($b = 1,900$) and Egyptians ($b = 1,892$). Turks ($b = 1,717$), Indonesians ($b = 1,683$), Estonians ($b = 1,583$), French Canadians ($b = 1,579$), and Latvians ($b = 1,549$) are the only other ethnic groups with regression coefficients for education that are above 1,500 dollars.

Ecuadorians, by contrast, have the lowest regression coefficient for education ($b = 146$). The analysis indicates that for each year of education, the predicted employment income of Ecuadorians increases by only 146 dollars. Thus, the rate of return for education among Ecuadorians is approximately 15 times less than the rate of return for Thais and Acadian. Cambodians have the next lowest regression coefficient for education ($b = 179$), followed by Laotians ($b = 238$), Portuguese ($b = 352$), and Other Latin Americans ($b = 533$). All other groups have a regression coefficient of at least 700 dollars.

There are many possible explanations for why a year of education seems to increase the employment income of some ethnic groups more than others. For example, the size of the coefficient may reflect the type of education that members of a particular ethnic group tend to receive. For example, ten years of business or medical training may increase employment

income to a greater degree than ten years of general studies. Thus, type of education may be a better predictor of employment income than education per se. Where people receive their education may also be important. For example, individuals who have received their education in an underdeveloped country may not receive the same treatment in the job market as those who have been educated in Canada or another developed nation.

It is also possible that some groups have a lower return on their education because of discrimination. In other words, regardless of their level of educational attainment, some groups are denied jobs or promotions that would substantially increase their employment income. Discrimination would certainly lower the regression coefficients for education among affected groups.

Finally, it is possible that those ethnic groups with small regression coefficients simply have low levels of education to begin with. Perhaps the earning potential of someone with a Grade 3 education is not that much greater than someone with a Grade 4 education. However, there may be a large difference in the earning potential of someone who has a few years of university education and someone who has actually completed their degree. In other words, increasing one's level of education from 15 to 16 years might have a greater impact on employment income than increasing one's level of education from 3 to 4 years. Thus, the return for one year of education might be greater at higher levels of schooling (college, university) than it is at lower levels of schooling (primary school). Such a finding would indicate that the positive relationship between education and income is not entirely linear.

SEX

Table 2.1 reveals that there is a positive relationship between sex and employment income for each ethnic group. This finding strongly suggests that, even after controlling for such factors as education and marital status, men tend to have higher incomes than women. For each ethnic group, the regression coefficients are significant at the $p < .001$ level. A significance level of .001 indicates that there is a very low probability that the observed relationship between sex and income is due to chance or random error.

Table 2.2 reveals that sex is the strongest predictor of employment income for 14 of the 46 ethnic groups. Of the five independent variables, sex has the highest beta weights among Other Pacific Islanders, Syrians, Armenians, Other West Asians, Brazilians, Mexicans, Argentineans, Chileans, French Canadians, Croatians, Serbians, the Maltese, the Portuguese, and the Spanish.² The data suggest that sex is the second strongest predictor for an additional 20 ethnic groups.

² Among Other Pacific Islanders, the beta weights for sex and marital status are identical (beta = .24). Among French Canadians (beta = .35) and Armenians (beta = .23), the beta weights for sex and education are the same.

The beta weight for sex is .30 or higher for seven of the 46 ethnic groups (Portuguese, Maltese, French Canadian, Acadian, Croatian, Turk, Argentinean). The beta is between .25 and .29 for an additional twelve groups. There is no case where the beta weight for sex drops below .10 (Table 2.2).

Although there is a positive relationship between sex and income for each ethnic group, the size of the regression coefficients vary (Table 2.1). Among the Thai, being male is predicted to increase employment income by approximately 16,268 dollars. Acadians have the next highest regression coefficient ($b = 13,399$), followed by the Japanese ($b = 12,702$), the Turks ($b = 12,525$), the Maltese ($b = 12,409$), and the Egyptians ($b = 12,049$). Being male also increases employment income by more than 10,000 dollars among the Lebanese, Indonesians, Syrians, Other West Asians, Mexicans, Argentineans, those of Other Latin American Ethnicity, French Canadians, Croatians, Spaniards, Estonians, and Latvians. All other regression coefficients for sex fall below 10,000 dollars.

Cambodians have the lowest regression coefficient for sex ($b = 2,513$). Among Cambodians, being male is predicted to increase employment income by approximately 2,513 dollars. Haitians have the next lowest regression coefficient ($b = 2,734$), followed by Filipinos ($b = 3,420$), Ecuadorians ($b = 3,538$), Black or Africans ($b = 3,682$), Vietnamese ($b = 4,375$), North American Indians ($b = 4,646$), and Laotians ($b = 4,891$). All other regression coefficients are above 5,000 dollars. In general, the regression coefficients for sex are smaller among those groups with low average employment incomes.

MARITAL STATUS

Table 2.1 reveals that, for each ethnic group, there is a positive relationship between marital status and employment income. In other words, those who are married tend to have higher incomes than those who are not married. For each ethnic group, the regression coefficients for marital status are significant at the $p < .001$ level. A significance level of .001 indicates that there is a very low probability that the observed relationship between sex and income is due to chance or random error.

According to the beta weights (Table 2.2) marital status is the strongest predictor of employment income for five of the 46 ethnic groups. Of the five independent variables, marital status has the highest beta weights among Other Pacific Islanders, Laotians, Other Pacific Islanders, Greeks, and Macedonians.³ The data suggest that marital status is the second strongest predictor of income for an additional 11 ethnic groups, the third strongest for 12, and the fourth strongest for 18 ethnic groups.

³ Among Other Pacific Islanders the beta weight for marital status and sex is the same ($\beta = .24$). Among Macedonians, the beta weight for marital status and education is the same ($\beta = .27$).

Only three ethnic groups (Laotians, Croatians, and the Portuguese) have beta weights for marital status that are greater than .30 (Table 2.2). An additional three groups (Korean, Greeks, and Macedonians) have a beta that falls between .25 and .29. The Japanese, Estonians, Latvians, and Lithuanians are the only groups with betas below the .10 mark.

Although being married seems to increase employment income for all ethnic groups, the size of the regression coefficients vary (Table 2.2). The regression coefficient for marital status is highest among Croatians ($b = 11,439$) and Macedonians ($b = 10,346$). In other words, it is estimated that being married increases the employment incomes of Croatians and Macedonians by approximately 10,000 dollars. South Asians, Koreans, Egyptians, Turks, Serbians, and Greeks all have regression coefficients for marital status that are greater than 9,000 dollars. By contrast, the regression coefficients for Lithuanians ($b = 3,110$), Ecuadorians ($b = 3,586$), Estonians ($b = 3,692$), and Latvians ($b = 3,979$), all have regression coefficients that fall below 4,000 dollars. Clearly, marriage effects the employment incomes of some ethnic groups more than others.

YEARS IN CANADA

The number of years living in Canada is another independent variable that was entered into the regression equations. It must be remembered that there is a strong correlation between number of years in Canada and age. In fact, if a person is born in Canada (like French Canadians, Métis, etc.), age and number of years living in Canada are the same figure. Table 2.1 reveals that there is a positive relationship between the number of years living in Canada (or age) and employment income. In general, as time spent in Canada increases, so does employment income. For each ethnic group, the regression coefficients for years in Canada are significant at the $p < .001$ level. A significance level of .001 indicates that there is a very low probability that the observed relationship between years in Canada and income is due to chance or random error.

According to the beta weights (Table 2.2), years in Canada is the strongest predictor of employment income for eight of the 46 ethnic groups (Vietnamese, Cambodian, Iranian, Ecuadorian, Peruvian, Other Latin American, Inuit, and Métis).⁴ Considering the fact that the majority of Inuit and Métis were probably born in Canada, it is perhaps more appropriate to say that age is the strongest predictor of employment income for these two groups. Years in Canada is the second strongest predictor of employment income for an additional nine ethnic groups (Haitians, Jamaicans, Filipinos, Lebanese, Syrians, Armenians, Other West Asians, North American Indians, and French Canadians).

⁴ For both the Vietnamese (beta=.27) and Métis (beta=.28), the beta weights for education and years in Canada are identical. It is thus more appropriate to state that both these variables are equally strong predictors of employment income.

The beta weights for years in Canada are .30 or higher for Cambodians, Ecuadorians, Peruvians, and Inuit (Table 2.2). The beta weights fall between .25 and .29 for the Vietnamese, Iranians, Other Latin Americans, and the Métis. The Portuguese and Spanish are the only cases where the beta weights for years in Canada drop below .10 (Table 2.2).

Although there is a positive relationship between the number of years spent living in Canada and the employment incomes of each ethnic group, the magnitude of the regression coefficients vary (Table 2.1). The regression coefficient for years in Canada is highest among Iranians ($b = 964$). For each year spent in Canada, it is estimated that the employment incomes of Iranians will increase by approximately 964 dollars. The next highest regression coefficient is found among Indonesians ($b = 871$), followed by Cambodians ($b = 694$), Egyptians ($b = 664$), and the Vietnamese ($b = 625$). By contrast, the regression coefficients for Blacks, Métis, French Canadians, Portuguese, Spaniards, Lithuanians, and Romanians, all fall below the 200 dollar level. In other words, for each year spend in Canada, the employment incomes of these ethnic groups are predicted to increase by less than 200 dollars.

LANGUAGE

The results of the regressions indicate that language is a significant predictor of employment income for only 13 of the 46 ethnic groups (Table 2.1). Among Ecuadorians, Cambodians, Inuit and the Portuguese, speaking English or French is positively related to employment income. By contrast, speaking English or French is negatively related to employment income among Haitians, South Asians, Filipinos, Lebanese, Armenians, Other West Asians, North American Indians, Macedonians, and Romanians. The relationship between language and income does not reach statistical significance for any of the other ethnic groups.⁵

Table 2.2 suggests that language is not a powerful predictor of employment income — even among those groups where a statistically significant relationship is observed. Most of the beta weights fall between .00 and .05 — indicating only small associations. Cambodians are the only group where the beta weight is greater than .10. The negative relationships between language and employment income found among several ethnic groups are difficult to interpret. It is hard to imagine how speaking English or French could be an economic disadvantage in this country.

It is possible that controlling for education eliminates or reduces any effect language has on employment income. It is more than likely that people with high levels of educational attainment speak at least one of Canada's two official languages.

⁵ A regression coefficient for language could not be calculated for Jamaicans, Chileans, French Canadians, Acadian, and those of Other Latin Ethnicity. Among these groups, there was not enough variance in the language variable to enable comparisons.

VARIANCE EXPLAINED

As discussed above, the far right column in both tables displays the R Squared statistic (the squared multiple correlation of all predictor variables in the regression model). The R Squared statistic tells us what proportion of the variability in employment income is "explained" by the five independent variables included in this analysis (education, language, marital status, sex, and years in Canada). The R Squared statistics presented in this report range from a low of .12 (Japanese, North American Indian) to a high of .42 (Acadian).

The R Squared statistic is .30 or greater among Acadians (.42), Turks (.33), and Chileans (.30). For all other ethnic groups, the independent variables account for less than 30% of the variance in income. Nevertheless, the variance explained is at least 25% among Filipinos (.29), Croatians (.28), the Maltese (.28), Argentineans (.28), Peruvians (.28), Egyptians (.28), Vietnamese (.28), South Asians (.26), Cambodians (.25), Indonesians (.25), French Canadians (.25), and the Portuguese (.25).

There are only ten groups in which the independent variables explain less than 20% of the variance in employment income. The groups are: Macedonians (.19), Mexicans (.19), Other West Asians (.19), Armenians (.19), Romanians (.19), Lithuanians (.17), Other Pacific Islanders (.17), Syrians (.16), Serbians (.14), North American Indians (.12), and the Japanese (.12).

It is clear that the regression model developed in this report does not completely account for the variability in employment income. Anywhere from 60% to 88% of the variance is not explained by the combined effects of education, language, sex, years in Canada, and marital status. This indicates that there are other factors, besides the five independent variables discussed in this report, that need to be examined when trying to predict employment income. Other important variables might include type of education, work experience, and place of residence. Future research should also gauge to what extent discrimination plays a part in increasing or decreasing the incomes of particular ethnic groups.

3. CONCLUSIONS

The previous section provides a detailed discussion of the results of a series of multiple regressions on employment income. The independent variables included in the analysis are education, language, sex, marital status, and number of years in Canada. Separate regressions were conducted on the incomes of 46 selected ethnic groups. Below is a summary of the major findings.

- There is a positive relationship between education and employment income for each of the ethnic groups in the analysis (Table 2.1). As education increases, so does employment income.
- In 25 of the 46 cases (54%), education emerged as the strongest predictor of employment income. Education emerged as the second or third strongest predictor in an additional 18 cases (39%).
- Although each group exhibits a positive relationship between education and income, the absolute impact of education varies from case to case. For example, each year of education increases Japanese and Thai incomes by approximately 2,000 dollars. By contrast each year of education increases Ecuadorian and Cambodian incomes by less than 200 dollars.
- For each ethnic group, there is a statistically significant relationship between sex and employment income. Even after controlling for such factors as education and marital status, men tend to have higher incomes than women.
- In 14 of the 46 cases (30%), sex emerged as the strongest predictor of employment income. Sex is the second strongest predictor of employment income for an additional 20 ethnic groups (43%).
- Although each ethnic group exhibits a significant relationship between sex and income, the absolute impact of sex varies from case to case. For example, being male increases Maltese and Turkish incomes by more than 12,000 dollars, compared to less than 3,000 dollars for Cambodians and Haitians.
- Regardless of ethnic group, there is a significant relationship between marital status and employment income. Those who are married tend to have higher incomes than those who are not married.
- In five of the 46 cases (11%), marital status emerged as the strongest predictor of employment income. Marital status is the second strongest predictor of income for an additional 11 ethnic groups (24%), the third strongest for 12 (26%), and the fourth strongest for 18 (39%).

- Although each ethnic group exhibits a significant relationship between marital status and income, the absolute impact of marital status varies from case to case. For example, being married increases the employment incomes of Croatians and Macedonians by approximately 10,000 dollars, compared to less than 4,000 dollars for Latvians and Lithuanians.
- There is a positive relationship between the number of years living in Canada (or age) and employment income. In general, as time spent in Canada increases, so does employment income.
- In eight of the 46 cases (17%), years in Canada emerged as the strongest predictor of employment income. Years in Canada is the second strongest predictor of employment income for an additional nine ethnic groups (19%).
- Although each ethnic group exhibits a significant relationship between the number of years in Canada and employment income, the absolute impact of years in Canada varies from case to case. For example, each year spent living in Canada increases Iranian and Indonesian incomes by approximately 900 dollars. By contrast each year spent living in Canada increases Romanian and Black incomes by less than 200 dollars.
- The relationship between language and employment income does not reach statistical significance in 33 of the 46 cases (72%). In four cases (9%), speaking English or French is positively related to employment income. By contrast in nine cases (19%), speaking French or English is negatively related to employment income. However, in all cases, language is not as important a predictor of employment income as the other independent variables.
- The proportion of variability in employment income explained by the five independent variables included in these regressions ranges from 12% to 42%. In most cases, the independent variables account for between one fifth and one quarter of the variance. A number of other factors, including type of education, work experience, and discrimination, might increase our ability to explain income variability.

