The Effects of Education on Native Behaviour in the Urban Labour Market

by Stewart J. Clatworthy
1981

The Institute of Urban Studies

THE UNIVERSITY OF WINNIPEG

FOR INFORMATION:

The Institute of Urban Studies
The University of Winnipeg
599 Portage Avenue, Winnipeg
phone: 204.982.1140
fax: 204.943.4695
general email: ius@uwinnipeg.ca

Mailing Address:
The Institute of Urban Studies
The University of Winnipeg
515 Portage Avenue
Winnipeg, Manitoba, R3B 2E9

THE EFFECTS OF EDUCATION ON NATIVE BEHAVIOUR IN THE URBAN LABOUR MARKET
Published 1981 by the Institute of Urban Studies, University of Winnipeg

Note: The cover page and this information page are new replacements, 2016.

The Institute of Urban Studies is an independent research arm of the University of Winnipeg. Since 1969, the IUS has been both an academic and an applied research centre, committed to examining urban development issues in a broad, non-partisan manner. The Institute examines inner city, environmental, Aboriginal and community development issues. In addition to its ongoing involvement in research, IUS brings in visiting scholars, hosts workshops, seminars and conferences, and acts in partnership with other organizations in the community to effect positive change.

THE EFFECTS OF EDUCATION ON NATIVE BEHAVIOUR IN THE URBAN LABOUR MARKET

by

Stewart J. Clatworthy

March 25th, 1981

Prepared for the Labour Market Development Task Force
Research Contract C-513

1.0 INTRODUCTION

Research by this author (Clatworthy 1980, 1981) and others (Stanbury, 1975) has served to document the nature and severity of economic difficulties experienced by urban native populations, and the enormous challenge which confronts this minority group in terms of acquiring levels of economic or income self-sufficiency enjoyed by the general urban population. Achievement of this objective hinges to a large extent on the success of native people in the urban labour market; success in terms of obtaining stable employment and adequate wage or salary incomes.

Much contraversy exists with respect to how the objective of improving the employment situations of urban native people might be accomplished. Programming efforts to date have generally been founded on the rationale that education or skill training will translate into greater labour market success. Although education or skill development has been shown to positively effect labour market performance for the general population, there has been little systematic analysis of the issue among urban natives.

Stanbury's (1975) work on off-reserve natives in British Columbia suggests that improved labour market performance occurred only among native high school (or higher level program) graduates. More recent work by the author suggests that this may also be the case among Winnipeg's native population (see Clatworthy, 1981, p. 44). Neither of these existing analyses, however, placed adequate analytical controls on other characteristics of the individual which may effect labour market performance. Moreover, neither study considered explicitly the possibility that educational effects on labour market behaviour could be highly variable among sub-groups of the native population. The methodology employed in this study overcomes some of the

problems inherent in earlier work and considers explicitly the possibility of sub-group variations in the effects of education on labour market performance.

The study's scope is constrained to three dimensions of labour market behaviour including:

a) rates of labour force participation
b) rates of unemployment
and c) the nature of native occupations.

The statistical models are constructed in such a way that they measure the effects of education and several ethno-demographic control variables (e.g. age, sex, native sub-group and length of time in the city) on the above dimensions of labour market behavior as well as variations in the effects of education over select ethno-demographic sub-groups.

The remainder of the report is organized into four sections. Section 2 describes very briefly the data base and variables used in the study and the sizes of the samples available for the analyses. Section 3 describes the statistical procedures used to estimate the labour force participation and employment (unemployment) rate models, and presents the study's results as they relate to these dimensions of native labour market behavior. Analysis of the effects of education on native occupational levels is presented in a fourth section. A brief review of the study's results and discussion of the study's implications for labour market policy follow.

2.0 DATA

The study uses data drawn from the 1980 I.U.S. native data base. This data base includes socio-economic, demographic and housing consumption information for a sample of approximately 650 native households and 2600 native individuals residing in the Winnipeg CMA between June 1979 and October 1980.[1] Variables used in this study include:

1. Current Labour Force Participation Status
2. Current Employment Status
3. Age
4. Sex
5. Native Sub-group
6. Level of Education
7. Blishen/McRoberts occupational index of current (last) job if employed (if not employed)
8. Length of Time since last move to the city

The number of observations available for the analyses are summarized in Table 1.

TABLE 1
SAMPLE SIZES AVAILABLE FOR ANALYSIS

Model	Number of Observations
1. Labour Force Participation Rates	1,278
2. Employment (Unemployment) Rates	664
3. Occupational Levels	449

1. For a description of the I.U.S. data base see Clatworthy (1981 b).

3.0 THE MODELS

3.1 Labour Force Participation Rates[2]

Consider a 5-way (I x J x K x L x M) contingency table (i.e. cross-tabulation) in which the five dimensions pertain to current labour force status, education, age, sex, and native sub-group, respectively. Let f_{ijklm} and F_{ijklm} represent, respectively, the observed and expected number of individuals in all (i, j, k, l, m) of the table, with the subscripts referring to the following categories:

MODEL (1)	Current Labour Force Status *(I=2)*	$i = 1$, in labour force $i = 2$, not in labour force
	Education *(J=2)*	$j = 1$, less than 11 grades completed $j = 2$, 11 or more grades completed
	Age *(K=2)*	$k = 1$, 16-29 years of age $k = 2$, 30-64 years of age
	Sex *(L=2)*	$l = 1$ male $l = 2$ female
	Native Sub-Group *(M=2)*	$m = 1$ Status Indian $m = 2$ Métis/Non-Status Indian

Let N represent the total number of observations in the table, such that:

$$\Sigma f_{ijklm} = \Sigma F_{ijklm} = N \qquad (1)$$

---

2. The concepts of labour force participation and unemployment used in this study are those of the Labour Force Survey.

The logit, ψ, is defined as the natural logarithm of the ratio of labour force participants to non-participants in every 4-way combination of the levels of the other four variables. Thus:

$$\psi_{jklm} = \log (F_{1jklm}/F_{2jklm}) \qquad (2)$$

Goodman (1971) and others outline procedures for decomposing the logit into independent and additive components of the main effects and interactions related to the four explanatory (independent) variables. In this case the model of interest to us can be written as:

$$\psi_{jklm} = \mu + \beta^J_j + \beta^K_k + \beta^L_l + \beta^M_m + \beta^{JK}_{jk} + (\text{other two variable combinations}) + \beta^{JKL}_{jkl} + (\text{other three variable combinations}) + \beta^{JKLM}_{jklm} \qquad (3)$$

where μ is a constant representing the grand mean of the logits; β^J_j is the jth parameter pertaining to the education factor. (β^J_1 and β^J_2 denote the difference from the grand mean associated with an education level of less than eleven and eleven or more completed grades of schooling, respectively -- and similarly for the other three main effects.) β^{JK}_{jk} is the jkth parameter representing the education * age interaction; for example β^{JK}_{11} denotes the deviation from the sum of the grand mean (μ) and the main effects (β^J_1 and β^K_1) attributable to having less than 11 grades of formal education and being less than 30 years of age -- similarily for other parameters and for the other five two variable interactions.

β^{JKL}_{jkl} refers to the jklth parameter of the education * age * sex interaction (and similarly for the other three variable interactions).

β^{JKLM}_{jklm} is the $jklm$th parameter associated with the one four variable interaction.

The effects must satisfy the following conditions:

$$\Sigma_j \beta^J_j = 0 \qquad (4)$$

$$\Sigma_j \beta^{JK}_{jk} = \Sigma_k \beta^{JK}_{jk} = 0 \qquad (5)$$

$$\Sigma_j \beta^{JKL}_{jkl} = \Sigma_k \beta^{JKL}_{jkl} = \Sigma_l \beta^{JKL}_{jkl} = 0 \qquad (6)$$

$$\Sigma_j \beta^{JKLM}_{jklm} = \Sigma_k \beta^{JKLM}_{jklm} = \Sigma_i \beta^{JKLM}_{jklm} = \Sigma_m \beta^{JKLM}_{jklm} = 0 \qquad (7)$$

The model consists, therefore, of four main effects and eleven interactions, each associated with a set of parameters pertaining to the respective variables. In a fashion similar to the β's, the degrees of freedom associated with the parameters are also independent and additive (see Goodman 1970).

3.2 Employment (Unemployment) Rates

The second model is identical to the first model with the exception that the response variable(i.e. the I variable of the table) is changed from labour force participation status to current employment status. Subscripts of this variable refer to the following categories:

MODEL (2)	Employment Status *(I=2)*	$i = 1$ employed
		$i = 2$ unemployed

3.3 Estimating the Models

Since some of the main effects and interactions may not be statistically significant in the sense that they do not affect the logit values, our concern is to isolate a model containing selected effects in Equation (3) which are especially important in explaining the variations in the logit values. We employ a procedure commonly referred to as stepwise logit analysis (Goodman 1971) to identify the best fit models. Using a forward selection method one effect at a time is chosen for inclusion in the model starting with the lowest order (main) effects and proceeding to higher order interactions. At each step a significance test determines whether to retain or delete the added effect. The inclusion process continues until no further or additional effect satisfies the significance criterion.

Table 2 displays the sequence of steps leading to specification of the participation rate model. Parameters added at each step are identified in column 2. Columns 3 and 4 present values of the maximum liklihood (MLR) χ^2 ratio and the degrees of freedom associated with each step. Columns 5 and 6 present the changes in the MLR χ^2 and degrees of freedom resulting from the addition of the various effects. Listed in Column 7 is R, a ratio which measures the amount of total variance "explained" by the set of effects included in the model.[3] This ratio can be used as an index to determine the merit of the model.

---

3. The ratio R is somewhat analogous to the R^2 measure in regression analysis.

$$R = \frac{\chi^2 \text{ (total variation)} - \chi^2 \text{ (model at a given step)}}{\chi^2 \text{ (total variation)}} \qquad (8)$$

Column 8 presents the proportion of total variance "explained" by each of the significant effects added to the model. The best fit model of participation rates is:

$$\psi_{jklm} = \mu + \beta^J_j + \beta^L_l + \beta^M_m + \beta^{JL}_{jl} \qquad (9)$$

Table 3 presents similar information pertaining to the selection of the employment status model (i.e. Model 2). The best fit employment status model is:

$$\psi_{jklm} = \mu + \beta^J_j + \beta^K_k + \beta^L_l + \beta^M_m + \beta^{JL}_{jl} + \beta^{JM}_{jm} + \beta^{LM}_{lm} + \beta^{JLM}_{jlm} \qquad (10)$$

3.4 Differentials in Labour Force Participation and Unemployment Rates

Given the empirical estimates which follow from the step-wise logit analyses, labour force participation *(LFPR)* and unemployment *(UR)* rates can be obtained from:

$$LFPR_{jklm} = 1 \div (1 + e^{-\psi_{jklm}}) \text{ from } MODEL\ (1)$$

$$UR_{jklm} = 1 - [1 \div (1 + e^{-\psi_{jklm}})] \text{ from } MODEL\ (2)$$

These estimates also permit us to compare participation and unemployment rate differentials not only among individuals of different ethno-demographic characteristics but also between individuals with similar ethno-demographic characteristics but different levels of education or training. For purposes of discussion the ethno-demographic and educational effects of the two models are presented separately.

TABLE 2
STEPWISE LOGIT ANALYSIS OF LABOUR FORCE PARTICIPATION RATES

(1) Step	(2) β added	(3) χ^2	(4) *d.f.*	(5) change in χ^2	(6) change in *d.f.*	(7) *R*	(8) % of Variance
1	-	431.66	15	-	-	-	-
2	*L*	84.37	14	347.28*	1	.8046	80.46
3	*J*	43.49	13	40.87*	1	.8993	9.47
4	*M*	16.39	12	27.11*	1	.9621	6.28
5	*J* x *L*	12.39	11	4.00**	1	.9714	0.93

* significant at $\alpha = .01$

** significant at $\alpha = .05$

TABLE 3
STEPWISE LOGIT ANALYSIS OF EMPLOYMENT RATES

(1) Step	(2) β added	(3) χ^2	(4) *d.f.*	(5) change in χ^2	(6) change in *d.f.*	(7) *R*	(8) % of Variance
1	-	166.09	15	-	-	-	-
2	*M*	139.30	14	26.79*	1	.161	16.1
3	*J*	97.99	13	41.31*	1	.410	24.9
4	*K*	63.48	12	34.51*	1	.618	20.8
5	*L*	50.38	11	13.10*	1	.697	7.9
6	*J* x *M*	41.18	10	9.20*	1	.752	5.5
7	*J* x *L*	38.05	9	3.13**	1	.771	1.9
8	*L* x *M*	36.00	8	2.50**	1	.786	1.5
9	*J* x *L* x *M*	18.94	7	17.06*	1	.889	10.3

* significant at $\alpha = .01$

** significant at $\alpha = .12$

3.5 Ethno-demographic Effects

Main Effects:

MODEL (1)

The magnitudes and directions of the main effects of sex, and native sub-group illustrate general trends of the relationship between labour force participation and these characteristics of the individual. As indicated by the parameters in Table 4 labour force participation among the native population is:

(1) higher for Métis and Non-Status Indians (MNSI);
(2) substantially lower among females than males;
and (3) not affected significantly by age.

TABLE 4
PARAMETER ESTIMATES OF THE LABOUR FORCE PARTICIPATION RATE MODEL

Grand Mean: $\mu = 0.294$

J	$j = 1$	-0.347	$j = 2$	0.347
L	$l = 1$	0.960	$l = 2$	-0.960
M	$m = 1$	-0.234	$m = 2$	0.234

		$k = 1$	$l = 2$
$J \times L$	$j = 1$	+0.117	-0.117
	$j = 2$	-0.117	+0.117

MODEL (2)

Similarly the main effects of the ethno-demographic variables on employment rates (Table 5) indicate that levels of employment are higher:

(1) for the 30 plus year age group,

(2) among males than females,

and (3) among MNSI as opposed to Status Indians.

Interaction Effects

MODEL (1)

No statistically significant interaction effects exist among the three ethno-demographic variables in the labour force participation rate model (i.e. *MODEL 1*).

MODEL (2)

An interaction effect involving sex and native sub-group was marginally significant in the employment rate model. This interaction indicates that in addition to the main effects of the ethno-demographic variables, employment levels tend to be increased for Status males and MNSI females and reduced for MNSI males and Status females. It should be noted however, that the size of the sex and native group interaction effect is quite small relative to the other effects identified by the model.

3.6 Education Effects

The main effect of the education variable in the labour force participation model indicates that higher educated natives are more likely to participate in the labour force than lower educated natives. Moreover, the participation rate of higher educated females is further increased by an education * sex interaction.

TABLE 5
PARAMETER ESTIMATES OF EMPLOYMENT RATE MODEL

Grand Mean: $\mu = 0.999$

J	$j = 1$	-0.495	$j = 2$	0.495
K	$k = 1$	-0.482	$k = 2$	0.482
L	$l = 1$	0.386	$l = 2$	-0.386
M	$m = 1$	-0.360	$m = 2$	0.360

		$l = 1$	$l = 2$
$J \times L$	$j = 1$	-0.347	0.347
	$j = 2$	0.347	-0.347

		$m = 1$	$m = 2$
$J \times M$	$j = 1$	-0.343	-0.343
	$j = 2$	-0.343	0.343

		$m = 1$	$m = 2$
$L \times M$	$l = 1$	0.039	-0.039
	$l = 2$	-0.039	0.039

		$l = 1$	$l = 2$	
$J \times L \times M$	$j = 1$	-0.426	0.426	$m = 1$
	$j = 2$	0.426	-0.426	
		$l = 1$	$l = 2$	
	$j = 1$	0.426	-0.426	$m = 2$
	$j = 2$	-0.426	0.426	

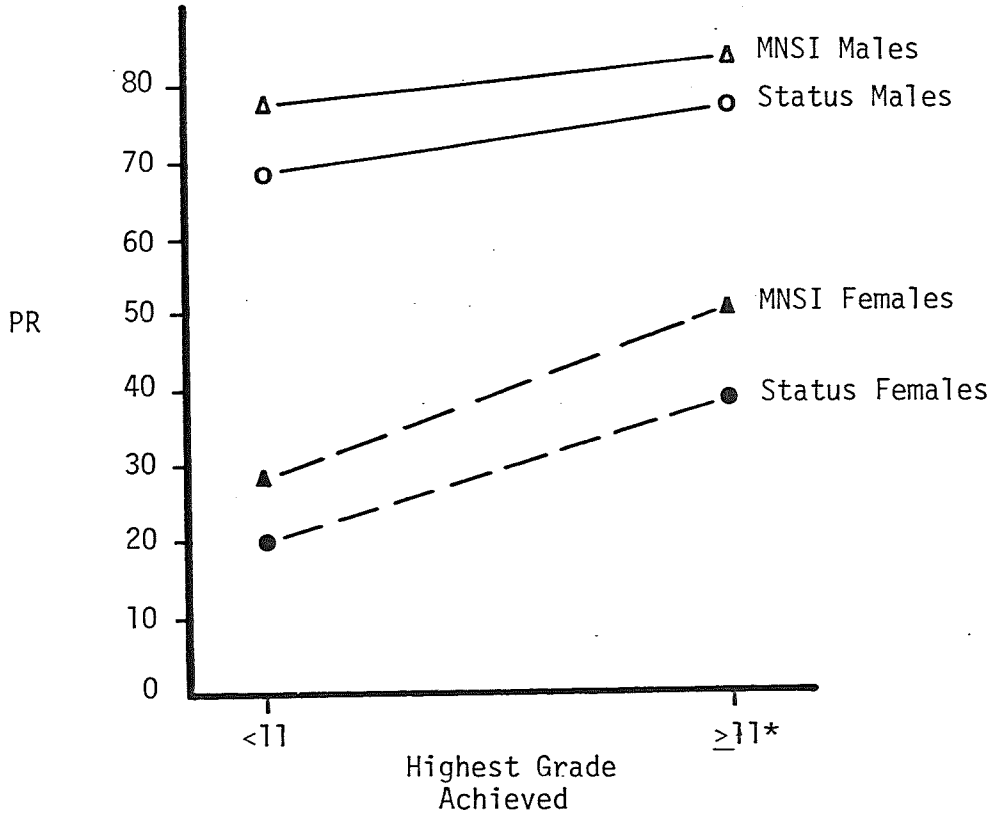
Briefly this interaction translates into a larger relative increase in participation among females than males such that the gap in participation rates between sex groups is smaller among the higher educated segment of the native population. Figure 1 illustrates the nature of these effects graphically.

The effect of education level on employment (unemployment) rates is more complex. The main effect indicates, as expected, that a higher level of education tends to increase employment rates. This effect, however, is modified by several significant interaction terms. The education * sex effect, for example, indicates that although being male or being better educated leads to higher levels of employment, employment levels are further increased if the individual is both male and better educated. Similarly levels of employment are enhanced further for better educated Métis/Non-Status Indians, better educated Status Indian Males, and better educated Métis/Non-Status Indian females.

The sum of these various effects on levels of employment (or conversely unemployment rates) is illustrated in Figure 2.

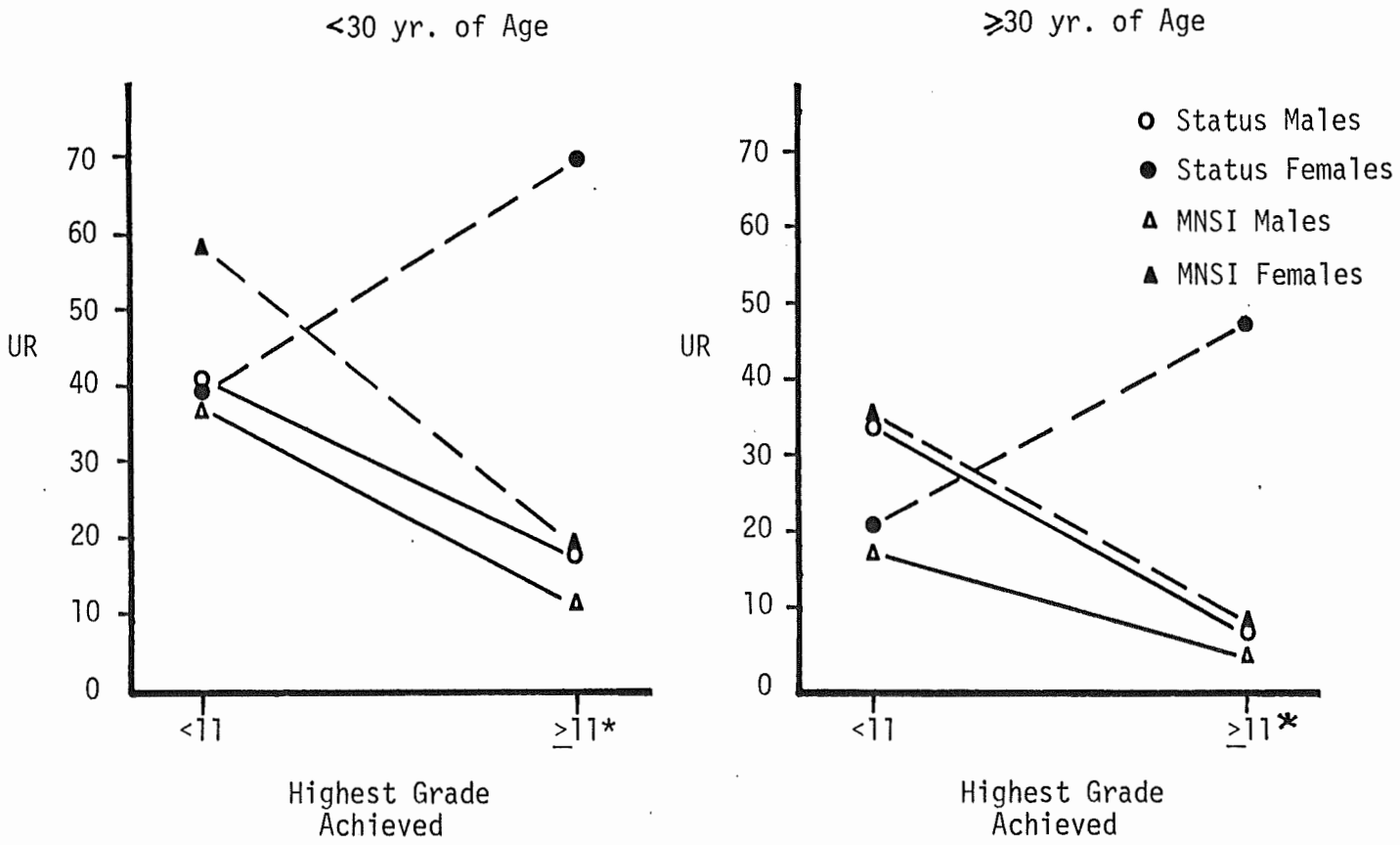
Among Status Indian and MNSI males the effects of education are generally similar leading to markedly reduced levels of unemployment among the higher educated group. This pattern of change in unemployment is also identified for MNSI females. The relationship between education and unemployment for Status Indian females however, contrasts sharply with that identified for the other sub-groups. Very simply the model implies that for Status Indian females higher levels of education or training reduce substantially the probability of employment. Since the model's estimates for this sub-group do not appear to be distorted

FIGURE 1
ESTIMATED LABOUR FORCE PARTICIPATION RATES BY
SEX, NATIVE GROUP, AND EDUCATION LEVEL
WINNIPEG, 1980



* Includes graduates of Trade or Technical Schools and high school, university and skill upgrading programs.

FIGURE 2
ESTIMATED RATES OF UNEMPLOYMENT, BY AGE, SEX, NATIVE AND EDUCATION GROUP, WINNIPEG, 1980



* Includes graduates of Trade or Technical School, and high school, university or skill upgrading programs.

by "small sample sizes" we are faced with addressing the general question as to why education should impact differently on Status Indian females and the more specific question as to why better education or training among this group should lead to higher levels of unemployment[4]. Data available in the I.U.S. data base present few opportunities to address the above questions. At best we can provide some preliminary evaluation of several plausible hypotheses.

One possibility is the presence of some form of overt or institutionally based discrimination within the urban labour market which is impacting greatest on Indian women.[5] In this regard some evidence of discrimination against Status Indians in the work place has been put forth (MIB, 1971). Moreover, available data are also consistent with the notion of labour market discrimination on the basis of sex and education (e.g. the 1976 census data reveal that city wide unemployment among better educated women was substantially higher than unemployment among similarly educated men and more poorly educated women).

---

4. In addressing this issue we assume that the respondents have interpreted and answered correctly the set of questions pertaining to current labour force participation and employment status. These questions were patterned after the 1981 Census questions and use Labour Force Survey concepts. Although inaccurate responses no doubt are present in these, as in most other survey based data, we are at a loss to explain how such inaccuracies could be so markedly patterned over ethno-demographic variables as to produce the results identified in the analysis.

5. We use the term discrimination in the very general sense of restricted access to employment opportunities. The sources of these restrictions can be quite varied and not necessarily intentional. Statistics can rarely be used to provide conclusive evidence that discrimination exists.

If we accept the argument of racial discrimination in the labour market (affecting predominantly Status Indians) then we are still left without an explanation for the unequal impact over sex groups within the Status Indian population which our analysis identifies. Secondly, if we accept the argument of discrimination on the basis of sex and education then we must still explain why only Status Indian women and not MNSI women appear to be severely affected.

A second hypothesis is that the occupations of better educated Status Indian women are concentrated in a very specific sector of the labour market which is subject to periodic or chronic levels of high unemployment. I.U.S. data on present and previous occupations indicates that a large number of more highly educated Status Indian females are (or were) employed in occupations which service(d) the city's native community (e.g. councillors, social workers, health and educational support staff). Since many of these services are delivered through government programs which operate on fixed (and often short) term funding it is possible that unemployment among this sub-group could fluctuate substantially as programs are phased in and out.

One final hypothesis is that the level of skills present in the higher educated sub-group of Status Indian females is quantitatively or qualitatively different from those present in the other sub-groups under investigation. Support for this hypothesis is also available.

The upper education category used in this study includes a fairly broad range of educational levels which could not be disaggregated further without incurring small sample problems. I.U.S. data, which are consistent with program uptake data

maintained by Indian Affairs and the continuing education section of the Manitoba Department of Education, indicate that Indian females represent the largest ethno-demographic sub-group participating in high school or university upgrading programs.[6] Since individuals completing these programs were classified into the higher education category in this study, it is probable that a large proportion of better educated Status Indian females. are upgrading program graduates. This being the case, then, with respect to Indian females, our model could be reflecting the performance of upgrading program graduates in the labour market. The implications of the analysis results under this latter hypothesis are important: upgrading programs are either not successful in transferring marketable skills or are being viewed or used by many participants not as a means of acquiring skills but as a means of income support.[7] This latter explanation could be viewed as a logical response of the individual to provincial social assistance regulations which prohibit support for an "employable" individual unless that individual is a single mother, attending school, or participating in a training program (see Province of Manitoba, 1969, 1977).[8]

4.0 Model of Occupational Levels

Results of the preceding analysis confirm the positive effects of education on native labour force participation and, with the exception of Status Indian women, on native employment.

---

6. I.U.S. data indicate that the composition of the group which has completed or is currently enrolled in upgrading or training programs is as follows: 49.2% Status females, 21.3% Status males, 19.7% MNSI females and 9.8% MNSI males.

7. Several respondents to the I.U.S. survey listed participation in high school and community college upgrading programs as an employment experience.

8. This hypothesis is also supported by the findings of other recent work. See for example, E. Baril, 1981.

We now turn our attention to estimation of the effects of education on occupational levels, as measured by the Blishen/ McRoberts occupational index of socio-economic status.

The method employed is a form of multiple regression analysis in which the individual's ethno-demographic and educational characteristics (i.e. the independent variables) are specified as dummy variables. Since this is a rather commonly used statistical procedure we refer the unfamiliar reader to Mendenhall, 1979, for description of the procedure.

The model to be estimated has the form:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \xi \quad (11)$$

where Y = the score of the individual's present (or past if currently unemployed) job on the Blishen/McRoberts occupational index

X_1= age dummy such that $X_1 = 1$ if < 30 years of age
$X_1 = 0$ if $\geq$ 30 years of age

X_2= sex dummy such that $X_2 = 1$ if female
$X_2 = 0$ if male

X_3= migration status dummy such that:
$X_3 = 1$ if a resident of the city for $\leq$36 months
$X_3 = 0$ if a resident of the city for >36 months

X_4= native sub-group dummy variable such that:
$X_4 = 1$ if MNSI
$X_4 = 0$ if Status Indian

X_5= education (8-10 years) dummy variable such that:

$X_5 = 1$ if education level of 8-10 years of schooling

$X_5 = 0$ otherwise

X_6= higher education dummy variable such that:

$X_6 = 1$ if 11 or more years of schooling

$X_6 = 0$ otherwise

The β's refer (as in the case of our earlier analysis) to the parameters of the model and are interpreted as the effects of the independent variables on the occupational index. ξ is the normal (random) error term. The dummy variables are specified such that β_0 reflects the score on the dependent variable (i.e. occupational index) of a baseline or reference group. (i.e. where $X_1 = X_2 = X_3 = X_4 = X_5 = X_6 = 0$). The remaining β's measure the effect on the dependent variable attributable to a change in the level of the corresponding independent variable. For example, β_1 measures the effect of being less than 30 years of age as opposed to 30 or more years of age (i.e. the age class of the reference group). Similarly β_2 ... β_6 measure, respectively, the effects of being female, a recent migrant to the city, a Métis/Non-Status Indian, of having 8-10 years of schooling and of having 11 or more years of schooling.

Results of the analysis which are summarized in Table 6 indicate that although the model fitted is statistically significant, the independent variables included in the model fail to account for a large proportion of the total variance (R^2= .236). Moreover, only two (four) of the independent variables are significant at the α = .05 (α = .10) confidence level.

TABLE 5
RESULTS OF REGRESSION ANALYSIS

Variable	β	Standard Error of β	Significance
Constants (β_0)	29.41	-	-
Age <30 years (β_1)	-2.415	(.750)	α = .001
Sex = Female (β_2)	-0.501	(.720)	NS
Recent Migrant (β_3)	1.666	(.875)	α = .057
MNSI (β_4)	-0.090	(.882)	NS
Education 8-10 (β_5)	1.621	(.978)	α = .098
Education 11+ (β_6)	11.038	(1.000)	α = .001

R^2 = .236 N = 449

The analysis, however, does confirm the importance of higher levels of education on native occupational levels. The coefficient associated with 11 or more years of schooling (i.e. β_6) is highly significant and implies that individuals with this level of schooling had on average occupation scores which were 11.038 units (37.5 percent) higher than the reference group (i.e. individuals with <8 years of schooling).

The other highly significant effect identified by the model is that of age (χ_1). The age coefficient (β_1) implies that occupational scores for individuals comprising the younger age cohort were 2.415 units or (8.2 percent) lower than the baseline age cohort (i.e. $\geq$30 years of age). The effects of migration status (χ_3) and 8-10 years of schooling (χ_5) were marginally significant. Coefficients associated with these variables indicate that occupational scores for recent migrants and for individuals with 8-10 years of schooling were marginally higher than those of the corresponding reference group. The coefficients for sex (β_2) and native sub-group (β_4) were not significantly different from zero implying that these attributes of the individual have little or no effect on occupational levels.

5.0 SUMMARY AND CONCLUSIONS

The study represents one of the few attempts to estimate differentials in the performance of native people in the urban labour market and the effects of education levels on performance patterns. Using micro-level data, multi-dimensional contingency table techniques and a specific form of regression analysis, models of labour force participation rates, employment rates and occupational levels have been developed. The models control for variations in the individual's ethno-demographic characteristics and permit more accurate measurement of the effects of education

characteristics on performance in the labour market. Major findings of the analyses are as follows:

i) The effect of education on native labour force participation rates is positive (i.e. leads to higher rates of participation) although variable over population sub-groups. Education related improvements to participation are greatest for native women.

ii) The effects of education on employment rates are highly variable over ethno-demographic sub-groups. Among Status Indian men and MNSI men and women higher levels of education translate into markedly lower unemployment rates. Among Status Indian women however, the probability of unemployment is sharply higher for the higher educated sub-group. This finding may reflect the effects of labour market segmentation, discrimination, or the ineffectiveness of training or educational upgrading programs.

iii) Higher levels of education also impact positively on native occupational levels (as measured by the Blishen/McRoberts occupational index), however, the effect is large only for individuals completing eleven or more grades of schooling.[9]

---

9. Since scores on this index are highly correlated with wage or salary levels our results also suggest that higher education leads to higher wage levels.

In terms of policy development, the study's findings suggest the need for a renewed and expanded emphasis on education and skill development among the urban native population. In this regard, efforts should be directed toward encouraging and facilitating (at the minimum) high school completion or the acquisition of trade or technical school certificates, for our analyses suggest that significant improvements in labour force performance occur at or above these training levels. It should also be emphasized that better education (or training) alone is not likely to be a sufficient prerequisite for labour market success among urban natives. Unemployment among better educated native peoples remains substantially higher than that experienced by general urban society. Improvements to education do, however, appear to have the effect of reducing levels of employment disparity between the native and general population.

Although far from conclusive the study's results also raise questions about the effectiveness of educational upgrading programs on the labour market performance of Status Indian women. Results of this study are not inconsistent with the hypothesis that such programs are either not transferring skills or not leading to the development of the individual's motivation to apply learned skills in the labour market. Moreover, in light of current qualification criteria for social allowance supports, there may be cause for concern that upgrading programs are being used as a means of income support rather than as a means of developing skills. The study's results suggest the need for a thorough evaluation of existing educational upgrading and skill development programs, particularly as they relate to Indian women.

REFERENCES

REFERENCES

Baril, Evelyn. Native Households in Winnipeg: Strategies of Co-residence and Financial Support. Unpublished MA Thesis, Department of Geography, Queen's University, Kingston, Ontario, 1981.

Clatworthy, S.J. The Demographic Composition and Economic Circumstances of Winnipeg's Native Population. I.U.S., 1980.

Clatworthy, S.J. Patterns of Native Employment in the Winnipeg Labour Market. Report to the Federal Task Force on Labour Market Development, January 1981.

Clatworthy, S.J. The I.U.S. Native Data Base: Design and Contents. I.U.S. (forthcoming May 1981).

Goodman, L.A. The multivariate analysis of qualitative data: interactions among multiple classifications. Journal of the American Statistical Association, Vol. 65, pp. 226-256.

Goodman, L.A. The analysis of multidimensional contingency tables: stepwise procedures and direct estimation methods for building models of multiple classifications. Technometrics, Vol. 13, pp. 33-61.

M.I.B. Urban Housing Survey. Manitoba Indian Brotherhood, Winnipeg, 1971.

Mendenhall, W. Introduction to Probability and Statistics. Duxbury, North Scituate, Mass., 1979.

Province of Manitoba. Legislative Assembly, The Social Allowances Act, S.M. 1959, 2nd Session, c.57, s.1.

Province of Manitoba. Manitoba Regulation 202/77, The Manitoba Gazette, Vol. 106, October 15, 1977.

Stanbury, W. Success and Failure: Indians in Urban Society. Vancouver, U.B.C. Press, 1975.