

The Effects of Length of Urban Residency on Native Labour Market Behaviour

Research and Working Paper No. 1

by Stewart J. Clatworthy
1982

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

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Stewart J. Clatworthy
Institute of Urban Studies
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Stewart J. Clatworthy

Stewart Clatworthy has been actively involved in socio-economic research and program evaluation for the past eight years. He was educated at the University of Western Ontario and Queen's University (Kingston) receiving bachelor and masters degrees in urban economic geography. Mr. Clatworthy joined the Institute of Urban Studies as senior research officer in 1978 and served as the Institute's assistant director during the 1980-82 period. While at the Institute he taught courses in urban studies and urban economics.

Mr. Clatworthy has extensive experience in the design of survey based research and statistical analysis projects. Of special note is his work related to labour market and employment issues involving native populations. He has also conducted several studies of urban housing markets and designed evaluations of Canada Mortgage and Housing Corporation programs.

Presently, Mr. Clatworthy is providing evaluation and management services to the Winnipeg Core Area Initiative, a \$96 million inner-city redevelopment program funded jointly by Canada, the Province of Manitoba and the City of Winnipeg.

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1.0 INTRODUCTION

Prior research by the author served to document several key dimensions of the relationship between Winnipeg's native population and the city's labour market (see Clatworthy 1980, 1981 a, b, c). In general, the results of this research support the conclusion that only a small segment of the city's native population is participating in and receiving benefits from the Winnipeg labour market. Moreover, a recently completed comparative study by Clatworthy and Gunn (1982) strongly suggests that the employment and labour market experiences of Winnipeg's native peoples are not unique; rather they are quite similar to the experiences of natives in other western Canadian metropolitan areas.

Although native leaders and government officials recognize the severity of urban native employment problems very little by way of special programming has been forthcoming. To this point in time most employment related programming developed for urban natives has been limited to life skills and job readiness courses and the provision of short-term employment/training experiences. On the surface these programs appear to be based in part on the assumptions that urban native people, because of their recent migration to the city, are unfamiliar with the demands of urban life, possess personal or cultural traits which conflict with mainstream value systems and lack sufficient knowledge of the expectations of employers and the requirements of the labour market. From this

perspective the difficulties native people experience in the labour market become one dimension of the more general problem of "adjusting" to an urban setting.

Nearly all of the available literature on the subject of native adjustment to city life draws heavily on the anthropological theory of acculturation. With reference to native employment experiences this theory of cultural and economic change postulates that through continued exposure to urban life (i.e. as length of time in the city increases) the minority cultural group will adopt the attributes and gain the skills necessary to succeed in the urban labour market. Thus, over time, native employment experiences and socio-economic conditions will improve and approach those experienced by general urban society. Temporary support services such as life skills and job readiness programs are believed to assist and hasten the process of native integration in urban society.

In spite of the centrality of the acculturation thesis to current explanations of native employment problems, the theory has not been subjected to thorough empirical examination in a Canadian context. This study attempts to provide a partial test of the theory by examining the effects of length of time in the city on native behavior in the urban labour market.

The remainder of the study is organized into four sections. Section 2, which follows, provides a brief review of existing

research concerning native adjustment to the city and urban native employment and labour market experiences. Section 3 describes the data employed in the study and provides a description of the length of residence characteristics of Winnipeg's native population. Section 4 presents the results of formal statistical analyses of the effects of length of residence on native behaviour in the urban labour market. The concluding section provides a summary of the study's findings and discusses some of the study's implications for employment policy and program development.

2.0 PREVIOUS RESEARCH

Little systematic analysis of native urbanization and urban life conditions has been undertaken in Canada. Moreover, most of the existing work in this general subject area has ignored the length of residence theme and, in fact, several studies have muddied the issue by lumping all urban natives under the label "migrant" regardless of the length of time the individual or population has resided in the city. Our discussion of the literature embraces those few studies which consider directly the effects of length of time in the city, as well as a much larger body of research (most of which derives from U.S. experiences) which considers the cultural and socio-economic factors affecting native adjustment to urban life.

2.1 Urban Native Employment Conditions

Although few systematic analyses of urban native employment experiences have been conducted in Canada previous research has produced quite consistent results. For example, Clatworthy (1981a), Stanbury (1975) and Nagler (1973) indicated that a disproportionate number of urban natives worked in 'low-skill', 'low-wage' jobs and experienced frequent, periodic unemployment. Mooney (1976) discovered that Victoria natives experience longer and more frequent periods of unemployment than non-natives in similar occupations. The F.S.I. survey (1978) of urban and rural status Indians in Saskatchewan indicated the urban group had a higher employment rate than the rural group but that, compared to other city workers, Regina Indians were the lowest paid and the most likely to be unemployed. DIAND's Indian Conditions report (1980) indicated national off-reserve status Indian unemployment to be in the 25-30 percent range. On the basis of non-survey research in Saskatoon, Dosman (1972) concluded that there is little occupational mobility within the urban native group. Finally, Clatworthy and Gunn's (1982) recently completed, largely non-quantitative overview of native economic circumstances in all the major urban centres of western Canada indicated that for the West in general, urban natives experience excessively high rates of unemployment; have labour force participation rates significantly lower than those of general urban populations; are disproportionately employed in low skill/low entry level occupations; and experience a pattern of

employment which is very unstable.

Although not stated explicitly, the findings from the studies discussed above appear to imply the existence of a dual labour market in which the great majority of urban natives can be found in the secondary level--i.e. low-wage, low-skill jobs which provide minimal opportunity for advancement. Moreover, existing research provides an indication that movement by urban natives into the primary labour market of higher skill, higher pay occupations with potential for mobility occurs very seldom (see Clatworthy 1981c).

In spite of the labour market difficulties experienced by the vast majority of urban natives, it deserves mention that most earlier studies have obscured the fact that a few natives have been 'successful urbanites' in terms of employment, as well as income. For example, Dosman (1972) referred to a group of 'native aristocracy', while Nagler (1973) also described a white collar group which exhibited occupational and income stability. It is also worthy of note that both Stanbury (1975) and Clatworthy (1981a) cited greater labour market success for urban natives who had completed high school than for less educated members of this group.

Looking to possible future developments in this area, Clatworthy and Gunn (1982) in their examination of economic conditions in the western cities, implied (on the basis of some rough projections) that growth among the labour force age group (15+ years) of urban natives will be especially pronounced in the 1980's. Clatworthy's

(1981a) earlier more systematic work in Winnipeg noted that during the 1981-86 period, natives are expected to account for one-quarter of the projected growth in that city's total labour force age group. This anticipated development in the West, particularly given the existing employment problems facing natives, would appear to be of great significance for labour market planners.

2.2 Native Adjustment To The City

Existing research concerning native adjustment to the city can be grouped into three broad categories including:

a) studies which assume adjustment, adaptation or acculturation to prevailing norms of urban living to be necessary for native success in the city and urban labour market;

b) studies which further assume that acculturation is inevitable (i.e. the notion of an acculturation continuum); and

c) studies which refute the concept of inevitable acculturation and which focus instead on the peripheral position of native peoples in the economic structure of western society.

Price's (1972) analysis of Indians in Los Angeles is typical of the first group of studies mentioned above. Price argued that one tribal group, the "Five Civilized Tribes", which had resided in Los Angeles longer than most of the city's Indian population, had adapted relatively successfully to urban life. On this basis Price concluded that as length of residence in the city increases, native behaviour patterns and economic conditions become increasingly similar to those exhibited by the general urban population.

Studies by Snyder (1971, 1973) and Weppner (1971) on Denver's

Navajo population emphasize the importance of premigration circumstances and early urban life experiences to the successful adaptation of natives to the city. Weppner (1971) for example, argued that successful adjustment depended on the individual's early economic experiences (i.e. employment, starting wages, etc.) in the city not being so disappointing as to destroy the desire to adjust. In a subsequent study Weppner (1972) concluded that it appeared that labour market discrimination and low starting wages severely retarded the process of native adjustment. Sorkin (1978) also noting the importance of initial urban experiences argued that the successful integration of natives to urban life may depend on the establishment of Indian centres which provide assistance in finding housing, jobs and social services.

Several American studies have focused on the importance of differing value systems in explaining urban native problems. Tax (1978), for example, argues that natives are among the few peoples who maintain kinship and sharing cultures which differ greatly from North America's individualized, economically oriented, urban society. Krutz (1974) has extended this line of argument to suggest that differing values between natives and white society adversely affect native employment opportunities in the city. Ablon (1972) based on a small sample of Indians in San Francisco contended that the Indians' lack of motivation for social mobility was related to culturally based inhibitions against future planning, wealth accumulation, and materialism. Work by Graves (1974), however, contradicts the

findings of Ablon's study. Graves measured the economic performance of Indian migrants to Denver with respect to three features of Navajo personality (i.e. time perspective, loss of control, and achievement motivation) believed to contrast with white middle class attributes. None of the personality measures tested by Graves were associated with economic performance in the city.

Canadian research on the theme of native adjustment to the city remains poorly developed. However, like the U.S. research reviewed above, most Canadian studies draw conceptual support from the theory of acculturation. Ryan's (1978) work on Calgary for example, suggests that native adjustment problems relate largely to initial contact with the city and that time and the provision of proper support services will allow adjustment to take place. Gurstein (1977) describes the native urbanization process as a series of temporal stages in which the native migrant increasingly transfers social and economic relationships from a reserve (or rural) setting to the city. In a similar vein, Nagler (1973) based on a small sample of Indians in Toronto concluded that after about two years in an urban setting natives who had a genuine commitment to live in the city had overcome their adjustment problems.

In contrast with the various studies mentioned above, which rely on the acculturation thesis, a few researchers have attempted to interpret the difficulties experienced by urban native peoples from a political economy perspective. This approach or style of

investigation has taken many forms, although it is distinguished by an explicit concern for the role of societal structures and institutions in shaping urban native economic conditions.

Perhaps the best example of work in this regard is Jorgenson's (1967) adaptation of Andre Gnder Frank's thesis on underdevelopment to the situation of native peoples in the northern U.S. Within a Canadian context, Mooney (1976) has attempted empirical examination of both the Frank model and the acculturation thesis using data on Victoria's Coastal Salish population, however, the results of the exercise are inconclusive.¹ Other investigators including Kerri (1976), Dosman (1972) and Brody (1971) have employed elements of a political economy approach in their analyses.

The preceding literature review, although brief, demonstrates the fundamental weakness of our knowledge of native adjustment to urban life. Adaptation oriented research from a variety of sources, on a diverse range of native groups, variously indicates that economic, social, cultural or institutional factors are most important in determining native life conditions in the city. Most of the researchers however, seem to argue that conditions are improving over time and will further improve should proper support services be implemented. Studies from a political economy perspective, although

1. Mooney's data and methodology appear to be inappropriate for examining directly the length of residence effect. In addition the findings of her study could be interpreted as support for either of the competing theoretical positions.

scarce, generally argue that urban native problems are the outcome of the prevailing economic system and that significant improvements to urban native life conditions are unlikely to occur under present institutional frameworks.

3.0 DATA AND LENGTH OF RESIDENCE CHARACTERISTICS OF THE SAMPLE

Data contained in the Institute of Urban Studies Native Data Base present the opportunity to formally estimate relationships between length of residence in the city and native labour market behaviour. Since the acculturation thesis posits a direct relationship between length of residence in the city and performance in the labour market the analysis provides a test of the explanatory power of the thesis as it relates to native employment experiences in an urban setting.

The data base contains a broad range of demographic, socio-economic and labour market activity information for a sample of 2453 native individuals living in 651 households. These data were obtained through a survey of approximately 20,000 households residing in the Winnipeg census metropolitan area during the June 1979 - September 1980 period. Approximately 10 percent of the city's household population were contacted during the course of the survey. Appendix A describes the range and nature of information contained in the data base. Variables used in this study include age, sex, household type, length of time since last move to the city, native sub-group, education level, employment status, present

and previous occupation, origin area of migrant, and number of weeks worked during the previous 12 month period.

3.1 Length of Residence Characteristics

Our survey of previous research noted that few existing studies of urban native peoples have analyzed directly length of residence patterns. Moreover, much of the literature reveals a tendency to consider all urban natives as recent migrants. Data available for Winnipeg indicate that although native migration to the city is a relatively recent phenomenon most native peoples have resided in the city for considerable periods of time and regard themselves not as migrants but rather permanent urban residents.

Table 1, which documents length of residence patterns for select ethno-demographic subgroups of Winnipeg's native population, reveals that approximately 56 percent of the native labour force age group has lived in the city for more than 10 years.² Among the population, average length of residency in the city approaches 15 years. Although length of residence patterns do not vary significantly among sex groups, quite marked differences exist between native groups. Average length of residency among the MNSI working age population is more than twice that of similarly aged status Indians. Recent migrants (i.e. individuals who moved to the city during the three years prior to the survey) only represent a significant component of the city's

2. The figures appearing in Tables 1 and 2 are population estimates generated from the sample data.

Table 1

Length of Residence in the City by Sex and Native Sub-Group
 Natives Aged 15+ Years, Winnipeg, 1980

| <u>Sub-Group</u> | <u>Length of Residence (months)</u> | | | | <u>Total</u> | <u>Average Length of Residence</u> | |
|---------------------------------|---|---------------|----------------|----------------|--------------|--|--------------|
| | <u><36</u> | <u>36-59</u> | <u>60-119</u> | <u>≥120</u> | | <u>Months</u> | <u>Years</u> |
| <u>Status Indians</u> | | | | | | | |
| Males | 452 (36.1) | 201 (16.0) | 128 (10.2) | 472 (37.7) | 1253 | 107.0 | 8.9 |
| Females | 793 (40.8) | 224 (11.5) | 363 (18.7) | 565 (29.0) | 1945 | 86.4 | 7.2 |
| Total | 1245 (38.9) | 425 (13.3) | 491 (11.4) | 1037 (32.4) | 3198 | 94.5 | 7.9 |
| ----- | | | | | | | |
| <u>Métis/Non Status Indians</u> | | | | | | | |
| Males | 366 (10.6) | 320 (9.3) | 578 (16.8) | 2179 (63.3) | 3443 | 228.0 | 19.0 |
| Females | 440 (10.2) | 277 (6.4) | 727 (16.8) | 2884 (66.6) | 4328 | 203.0 | 16.9 |
| Total | 806 (10.4) | 597 (7.7) | 1305 (16.8) | 5063 (65.2) | 7771 | 214.1 | 17.8 |
| ----- | | | | | | | |
| <u>Total Native</u> | | | | | | | |
| Males | 818 (17.4) | 521 (11.1) | 706 (15.0) | 2651 (56.5) | 4696 | 195.7 | 16.3 |
| Females | 1233 (19.6) | 501 (8.0) | 1090 (17.4) | 3449 (55.0) | 6273 | 166.8 | 13.9 |
| Total | 2051 (18.7) | 1022 (9.3) | 1796 (16.4) | 6100 (56.1) | 10969 | 179.2 | 14.9 |
| ----- | | | | | | | |

status Indian population. These results confirm the findings of earlier research which indicate that migration to the city has occurred more recently among status, as opposed to métis/non-status Indians (see for example Clatworthy 1981 a, b, c).

Although most of Winnipeg's adult native population are longer term urban residents relatively few native adults resided in the city during their childhood years. Table 2 indicates that roughly 62 percent of the working age population moved to the city after reaching 15 years of age. Only about one-quarter of the population (comprised largely of MNSI) has lived in Winnipeg since early childhood. Clearly, for most of the city's native labour force, early childhood and educational experiences occurred outside of Winnipeg, probably in a non-urban setting. Similarly, for many urban natives initial employment experiences are likely to have occurred outside of an urban labour market.

The population under investigation in this report is thus comprised largely of individuals who moved to the city as adults. For the vast majority of the population, however, considerable periods of time have passed since moving to the city. Approximately 72 percent of the adult native population has experienced at least 5 years of life in the city and more than 55 percent have lived in the city for at least 10 years.

Table 2

Length of Time in City Prior to Reaching Labour Force Age
By Sex and Native Sub-Group, Winnipeg, 1980

| <u>Sub-Group</u> | <u>Length of Residence Prior to Age 15 (months)</u> | | | | <u>Total</u> |
|--------------------------------|---|--------------|---------------|----------------|--------------|
| | <u>0</u> | <u>1-35</u> | <u>36-119</u> | <u>>120</u> | |
| <u>Status Indian</u> | | | | | |
| Males | 861 (68.7) | 80 (6.4) | 108 (8.6) | 204 (16.3) | 1253 |
| Females | 1674 (86.1) | 45 (2.3) | 137 (7.0) | 89 (4.6) | 1945 |
| Total | 2535 (79.3) | 125 (3.9) | 245 (7.7) | 293 (9.2) | 3198 |
| ----- | | | | | |
| <u>Métis/Non Status Indian</u> | | | | | |
| Males | 1955 (56.8) | 101 (2.9) | 397 (11.5) | 990 (28.8) | 3443 |
| Females | 2339 (54.0) | 175 (4.0) | 428 (9.9) | 1386 (32.0) | 4328 |
| Total | 4294 (55.3) | 276 (3.6) | 825 (10.6) | 2376 (30.6) | 7771 |
| ----- | | | | | |
| <u>Total Native</u> | | | | | |
| Males | 2816 (60.0) | 181 (3.9) | 505 (10.8) | 1194 (25.4) | 4696 |
| Females | 4013 (64.0) | 220 (3.5) | 565 (9.0) | 1475 (23.5) | 6273 |
| Total | 6829 (62.3) | 401 (3.7) | 1070 (9.8) | 2669 (24.3) | 10969 |
| ----- | | | | | |

4.0 THE EFFECTS OF LENGTH OF RESIDENCY ON NATIVE EMPLOYMENT

Previous attempts to measure the effects of length of residency on urban native employment patterns have been plagued by methodological problems. Mooney (1976) and Chadwick and White (1973) for example, failed to employ adequate analytical controls relating to several characteristics of the individual, including age and education level, which affect labour market performance. As such, the results of earlier studies as they pertain to length of residence effects may be spurious. In addition, prior studies have not explicitly recognized that the effects of length of residence on labour market behaviour could vary among sub-groups of the native population. Given the segmented character of the labour market and strong relationships between occupation, education and demographic characteristics, there is good reason to believe that labour market performance over time will differ among population sub-groups.

The statistical methods used in this study, logistic regression analysis and regression employing dummy variables, overcome some of the difficulties noted above. These procedures allow for the construction of models which include not only the main effects of independent variables but also interaction effects associated with specific combinations of independent variables. The analyses consider five dimensions of labour market behaviour including labour force participation and unemployment rates, employment stability, occupational levels and occupational mobility rates. Logistic regression analyses are used to estimate the models of labour force participation and unemployment rates. Models of employment

stability, occupation level and occupational mobility rates are estimated using dummy variable regression techniques. The numbers of observations available for the analyses are summarized in Table 3.

Table 3
Sample Sizes Available For Analyses

| <u>Model</u> | <u>Number of Observations</u> |
|----------------------------------|-------------------------------|
| Labour Force Participation Rates | 1324 |
| Unemployment Rates | 634 |
| Employment Stability Levels | 612 |
| Occupational Levels | 612 |
| Occupational Mobility Rates | 206 |

4.1 Labour Force Participation Rates³

Efforts to isolate length of residence effects on labour force participation involved the estimation of three separate models. These models, which are identical except for the specification of the length of residence variable, are outlined below.

Consider a 5-way ($I \times J \times K \times L \times M$) contingency table in which the five dimensions pertain to current labour force status, sex, native group (i.e. status Indian vs. MNSI), education level, and length of residency in the city, respectively. Let f_{ijklm} and F_{ijklm} represent respectively,

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

the observed and expected number of individuals in all (i, j, k, l, m) cells of the table, with the subscripts referring to the following categories:

Current Labour Force
Status ($I = 2$)

$i = 1$ in labour force
 $i = 2$ not in labour force

Sex ($J = 2$)

$j = 1$ male
 $j = 2$ female

Native Group ($K = 2$)

$k = 1$ status Indian
 $k = 2$ Métis/Non-Status Indian

Education ($L = 3$)

$l = 1$ less than 7 grades completed
 $l = 2$ 7-11 grades completed
 $l = 3$ 12 or more grades completed

in *Model (1)* Length of Residence
in City ($M = 2$)

$m = 1$ <3 years since last move to city
 $m = 2$ \geq 3 years since last move to city

in *Model (2)* Length of Residence
in City ($M = 2$)

$m = 1$ <5 years since last move to city
 $m = 2$ \geq 5 years since last move to city

in *Model (3)* Length of Residence
in City ($M = 2$)

$m = 1$ <10 years since last move to city
 $m = 2$ \geq 10 years since last move to city

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

$$\sum^f_{ijklm} = \sum^E_{ijklm} = N \quad (1)$$

We define the logit, ψ , 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:

$$\psi_{jklm} = \log (E_{1jklm} / E_{2jklm}) \quad (2)$$

Procedures developed by Goodman (1971) and others permit decomposition of 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:

$$\begin{aligned} \psi_{jklm} = & \mu + B_j^J + B_k^K + B_l^L + B_m^M \\ & + B_{jk}^{JK} + (\text{other two variable combinations}) \\ & + B_{jkl}^{JKL} + (\text{other three variable combinations}) \\ & + B_{jklm}^{JKLM} \end{aligned} \quad (3)$$

Where μ is a constant representing the grand mean of the logits, B_j^J is the j th parameter pertaining in our model to the sex factor. (B_1^J and B_2^J denote the difference from the grand mean associated with being male and female respectively. B_{jk}^{JK} is the jk th parameter representing the sex * native group interaction; for example B_{11}^{JK} denotes the deviation from the sum of the grand mean (μ) and the main effects (B_1^J and B_1^K) attributable to being male and being a status Indian (similarly for other parameters and for the other five two variable interactions).

B_{jkl}^{JKL} refers to the jkl th parameter of the sex * native group *

education interaction (and similarly for the other three variable interactions).

B_{jklm}^{JKLM} in the $jklm$ th parameter associated with the one four variable interaction.

The effects must satisfy the following conditions:

$$\sum_j B_j^J = 0 \quad (4)$$

$$\sum_j B_{jk}^{JK} = \sum_k B_{jk}^{JK} = 0 \quad (5)$$

$$\sum_j B_{jkl}^{JKL} = \sum_k B_{jkl}^{JKL} = \sum_l B_{jkl}^{JKL} = 0 \quad (6)$$

$$\sum_j B_{jklm}^{JKLM} = \sum_k B_{jklm}^{JKLM} = \sum_l B_{jklm}^{JKLM} = \sum_m B_{jklm}^{JKLM} = 0 \quad (7)$$

Each 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 B 's the degrees of freedom associated with the parameters are independent and additive (see Goodman 1970).

4.2 Unemployment Rates

Investigation of the effects of length of urban residency on unemployment rates involved the estimation of three 6-way (i.e. $I \times J \times K \times L \times M \times N$) contingency table models. These models, like those estimated for labour force participation rates, differ only with respect to specification of the length of residency variable. Subscripts of the variables included in the models refer to the following categories:

| | |
|---|---|
| Employment Status ($I = 2$) | $i = 1$ unemployed |
| | $i = 2$ employed |
| Age ($J = 2$) | $j = 1$ <25 years of age |
| | $j = 2$ \geq 25 years of age |
| Sex ($K = 2$) | $k = 1$ male |
| | $k = 2$ female |
| Native Group ($L = 2$) | $l = 1$ Status Indian |
| | $l = 2$ Métis/non-status Indian |
| Education ($M = 3$) | $m = 1$ less than 7 grades completed |
| | $m = 2$ 7-11 grades completed |
| | $m = 3$ 12 or more grades completed |
| in Model (4) Length of Residence in City ($N = 2$) | $n = 1$ <3 years since last move to city |
| | $n = 2$ \geq 3 years since last move to city |
| in Model (5) Length of Residence in City ($N = 2$) | $n = 1$ <5 years since last move to city |
| | $n = 2$ \geq 5 years since last move to city |
| in Model (6) Length of Residence in City ($N = 2$) | $n = 1$ <10 years since last move to city |
| | $n = 2$ \geq 10 years since last move to city |

4.3 Estimating the Models

Some of the main effects and interactions may not be statistically significant in the sense that they do not affect the logit values. As such, our concern is to isolate a model containing only those effects

which are especially important in explaining the variations in the logit values. We employ a procedure commonly referred to as stepwise logit analysis to identify the best fit models (Goodman 1971). 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 in the process a significance test determines whether to retain or delete the added effect. The process of adding effects to the model continues until no further effect satisfies the significance criterion (in our models, $\alpha = .05$).

4.4 Analysis Results: Labour Force Participation Rates

Table 4 summarizes the results of efforts to estimate the three labour force participation rate models. Significant effects included in the models are listed in column 2 of the table. Listed in column 3 is a ratio R , which measures the amount of total X^2 variation accounted for by the set of effects included in the model. This ratio, which can be used as an index to determine the merit of the model, is calculated as follows:

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

The table reveals that the models are identical with respect to the effects or parameters included. Each of the models contains significant effects for sex, native group, and education level. Of particular interest with respect to the focus of this study is the absence of significant

Table 4
Estimation of Labour Force Participation Rate Models

| <u>Model</u> | <u>Significant Effects</u> | <u>R</u> |
|--------------|----------------------------|----------|
| (1) | <i>J, K, L</i> | .913 |
| (2) | same as Model (1) | .901 |
| (3) | same as Model (1) | .915 |

where *J* = sex, *K* = native group, *L* = education, and *M* = length of residence in the city.

length of residence effects in each of the models. Very simply, the models imply that native labour force participation rates are not patterned over (or affected by) length of urban residency.

Table 5 provides a more detailed summary of the sequence of steps leading to specification of Model (3)⁴. The effects or parameters added at each step are identified in column 2. Columns 3 and 4 present values of the maximum likelihood (MLR) χ^2 ratio and the degrees of freedom associated with each step. Columns 5 and 6 present changes in the MLR χ^2 and degrees of freedom resulting from the addition of each effect into the model. The ratio, R , identified earlier, is listed in column 7 of the table and column 8 presents the proportion of total χ^2 variation accounted for by each of the effects.

The table reveals, as expected, that sex (variable J) is the most powerful factor in differentiating rates of native labour force participation. Participation rates, however, are also strongly patterned over education level (variable L). Native group (variable K) although highly significant accounts for a comparatively small amount of variation in participation rates and is substantially less important than either sex or education in accounting for participation rate differentials.

4. We elect to present more detailed information on this model because it provides the best fit to the data and contains the fewest number of significant parameters. It should be noted that parameter estimates for this model vary only slightly from those of *Models (1)* and *(2)*.

Table 5

Summary of Stepwise Logit Analysis of Labour Force Participation Rates (Model (3))

| <u>Step</u> | <u>β added</u> | <u>χ^2</u> | <u>d.f.</u> | <u>change in χ^2</u> | <u>change in d.f.</u> | <u>R</u> | <u>% of total χ^2</u> |
|-------------|---------------------------------|----------------------------|-------------|--------------------------------------|-----------------------|----------|---------------------------------------|
| (1) | - | 287.019 | 24 | - | - | - | - |
| (2) | <i>J</i> | 89.695 | 23 | 197.325* | 1 | .687 | 68.7 |
| (3) | <i>L</i> | 35.483 | 21 | 54.211* | 2 | .876 | 18.9 |
| (4) | <i>K</i> | 24.258 | 20 | 11.226* | 1 | .915 | 3.9 |

* effect significant at $\alpha = .01$

Table 6, which presents the parameter estimates of Model (3), reveals the magnitudes and directions of the effects on participation rates. Given these parameters, estimates of the probability of participating in the labour force (i.e. labour force participation rates) can be obtained from equation (9) below:

$$LFPR_{jklm} = 1 \div (1 + e^{-\psi_{jklm}}) \quad (9)$$

These estimates are illustrated graphically in Figure 1. The figure reveals that labour force participation among the urban native population is:

- i) substantially lower among females than males,
 - ii) substantially higher among better educated individuals,
 - iii) moderately higher among métis/non-status, as opposed to, status Indians,
- and iv) not affected by length of residency in the city.

4.5 Analysis Results: Unemployment Rates

Results of the estimation of the three unemployment rate models (i.e. Models (4), (5) and (6)) are summarized in Table 7. The table indicates that although there exists some variability in goodness of fit (i.e. the ratio R), all models are identical with respect to the effects included. Significant effects on unemployment rates were identified for age, sex, native group and education level. In addition each of the models contain significant interaction effects associated with age * education and sex * native group. As in the case of labour

Table 6
Parameter Estimates of Labour Force
Participation Rate Model (3)

Grand Mean: $\mu = 0.500$

| | | | | | | |
|----------|--------------|--------|--------------|--------------|--------------|--------|
| <i>J</i> | <i>j</i> = 1 | 0.818 | | <i>j</i> = 2 | | -0.818 |
| <i>K</i> | <i>k</i> = 1 | -0.211 | | <i>k</i> = 2 | | 0.211 |
| <i>L</i> | <i>l</i> = 1 | -0.763 | <i>l</i> = 2 | 0.062 | <i>l</i> = 3 | 0.701 |

Figure 1

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

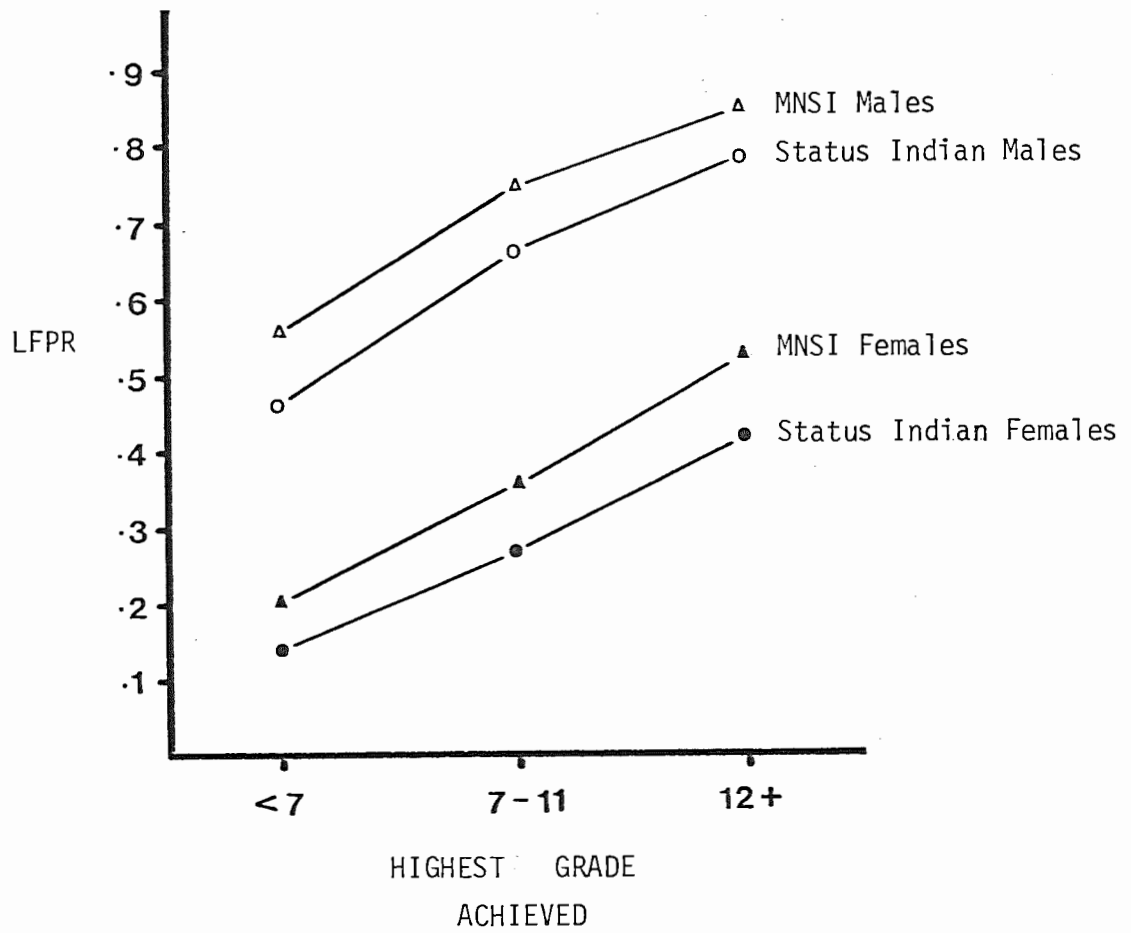


Table 7
Estimation of Unemployment Rate Models

| <u>Model</u> | <u>Significant Effects</u> | <u>R</u> |
|--------------|---|----------|
| (4) | $\mu, J, K, L, M, J \times M, K \times L$ | .790 |
| (5) | same as Model (4) | .794 |
| (6) | same as Model (4) | .819 |

where J = age, K = sex, L = native group, M = education and N = length of residence in the city.

force participation rates none of the unemployment rate models include effects pertaining to length of urban residency.

A detailed summary of the sequence of steps involved in estimating Model (6) is provided in Table 8. The table indicates that differentials in unemployment rates are most pronounced over age and education groups, however, significant differences occur between sex and native groups. The contribution of the two interaction terms, although significant, tends to be small in comparison with the main effects.

Using the parameter estimates of Model (6) (see Table 9) estimates of the probability of incurring unemployment have been calculated. These estimates which are illustrated in Figure 2 indicate that rates of unemployment among the city's native population are:

- i) lower among MNSI than status Indians;
- ii) substantially lower for males than females among the MNSI population;
- iii) roughly equivalent for males and females among the status Indian population;
- iv) markedly higher among younger natives, especially those with lower levels of education;
- v) substantially lower among better educated natives, particularly those with 12 or more grades completed and those aged <25 years;
- and vi) not affected by length of residency in the city.

Table 8

Summary of Stepwise Logit Analysis of Unemployment Rates (Model (6))

| <u>Step</u> | <u>β added</u> | <u>χ^2</u> | <u>d.f.</u> | <u>change in χ^2</u> | <u>change in d.f.</u> | <u>R</u> | <u>% of total χ^2</u> |
|-------------|---------------------------------|----------------------------|-------------|--------------------------------------|-----------------------|----------|---------------------------------------|
| (1) | - | 83.275 | 23 | - | - | - | - |
| (2) | <i>J</i> | 60.780 | 22 | 22.494* | 1 | .270 | 27.0 |
| (3) | <i>M</i> | 44.012 | 20 | 16.769* | 2 | .471 | 20.1 |
| (4) | <i>L</i> | 33.458 | 19 | 10.554* | 1 | .598 | 12.7 |
| (5) | <i>K</i> | 26.482 | 18 | 6.976* | 1 | .682 | 8.4 |
| (6) | <i>K X L</i> | 21.764 | 17 | 4.718* | 1 | .739 | 5.7 |
| (7) | <i>J X M</i> | 15.096 | 15 | 6.667** | 2 | .819 | 8.0 |

* effect significant at $\alpha = .01$ ** effect significant at $\alpha = .05$

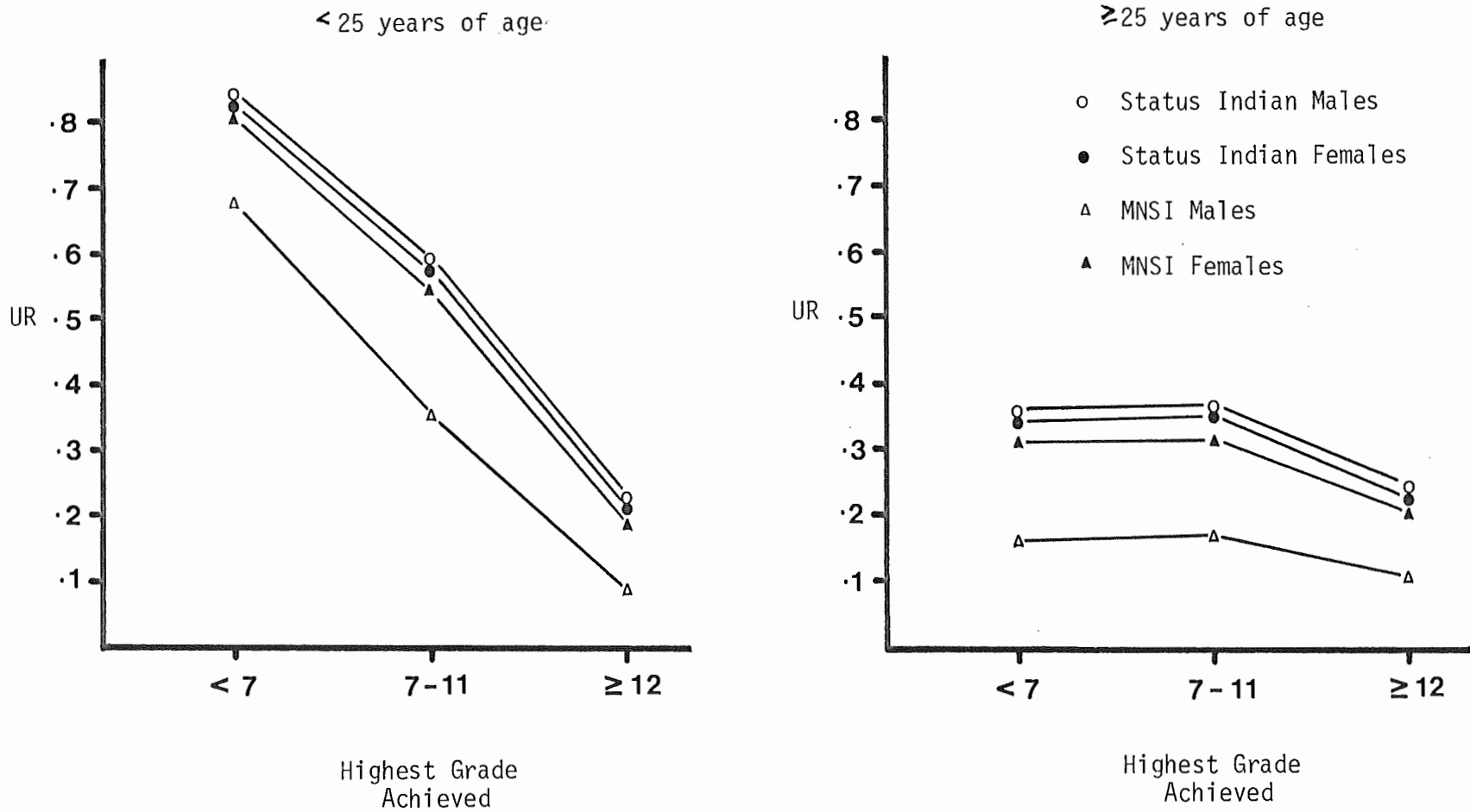
Table 9
Parameter Estimates of Unemployment Rate Model (6)

Grand Mean: $\mu = -0.557$

| | | | | |
|--------------|--------------|--------------|--------------|--------------|
| <i>J</i> | <i>j</i> = 1 | 0.527 | <i>j</i> = 2 | -0.527 |
| <i>K</i> | <i>k</i> = 1 | -0.179 | <i>k</i> = 2 | 0.179 |
| <i>L</i> | <i>l</i> = 1 | 0.275 | <i>l</i> = 2 | -0.275 |
| <i>M</i> | <i>m</i> = 1 | 0.768 | <i>m</i> = 2 | -0.148 |
| | | | <i>m</i> = 3 | -0.916 |
| | | <i>m</i> = 1 | <i>m</i> = 2 | <i>m</i> = 3 |
| <i>J * M</i> | <i>j</i> = 1 | 0.637 | -0.40 | -0.597 |
| | <i>j</i> = 2 | -0.637 | 0.040 | 0.597 |
| | | <i>l</i> = 1 | <i>l</i> = 2 | |
| <i>K * L</i> | <i>h</i> = 1 | 0.208 | -0.208 | |
| | <i>h</i> = 2 | -0.208 | 0.208 | |

Figure 2

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



4.6 Analysis of Employment Stability, Occupational Levels and Occupational Mobility

The preceding analyses have attempted to identify the effects of several socio-demographic variables including length of urban residency on native labour force participation and employment patterns. The analyses have found that participation and unemployment rates are not patterned over length of residency in the city. These results, which are in conflict with those postulated by the acculturation thesis, raise doubts about the applicability of the theory in terms of explaining urban native labour market behaviour. The possibility remains, however, that length of urban residency affects other facets of native employment behaviour. This section of the study extends the scope of our investigation of length of residence effects to include employment stability, occupation levels, and occupational mobility rates.

Employment stability is measured as the ratio of length of time employed to length of time in the labour force during the previous 12 month period. In the case of individuals who moved to the city (or reached labour force age) during the previous 12 months the denominator used in the construction of the ratio measures the length of time during which the individual could have participated in the urban labour market. The analysis includes only those individuals who held a job during some portion of the 12 month period prior to the survey.

Occupation levels are measured according to the Blishen/McRoberts index of occupations (see Appendix B). For individuals employed at the

time of the survey the index refers to present occupation. For individuals not working at the time of the survey the index refers to the individual's most recent prior employment experience. As in the case of the employment stability analysis, only those individuals who worked some portion of the 12 month period prior to the survey are included in the study.

Occupational mobility rates were constructed by dividing the difference of the Blishen/McRoberts index for present and previous occupations by the length of time (in years) since starting the previous occupation. In the case of individuals for whom full employment histories were available the variable measures change between the present occupation level and the level associated with their first job in the city. For all other individuals the variable measures change between present occupation and the least recent previous occupation in the city for which information was provided.

The analyses employ a form of multiple regression in which the individual's socio-demographic and length of residency characteristics (i.e. the independent variables) are specified as dummy variables. The models to be estimated have the form:

$$Y = B_0 + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + B_5X_5 + B_6X_6 + B_7X_7 + \xi \quad (10)$$

where Y = employment stability index (Model (7))

= occupation level (Model (8))

= annual rate of occupational mobility (Model (9))

$X_1 = 1$ if ≥ 25 years of age

$X_1 = 0$ if < 25 years of age

$X_2 = 1$ if female

$X_2 = 0$ if male

$X_3 = 1$ if MNSI

$X_3 = 0$ if status Indian

$X_4 = 1$ if education level is 7-11 years of schooling

$X_4 = 0$ if otherwise

$X_5 = 1$ if education level is 12 or more years of schooling

$X_5 = 0$ if otherwise

$X_6 = 1$ if length of urban residency 3-10 years

$X_6 = 0$ if otherwise

$X_7 = 1$ if length of urban residency > 10 years

$X_7 = 0$ if otherwise

The B 's refer (as in our earlier analyses) to the parameters of the model and are interpreted as the effects of the independent variables on employment stability, occupation level and occupational mobility rates. ξ is the normal (random) error term. The dummy variables are specified such that the B_0 (the constant) reflects the score on the dependent variable (e.g. employment stability) of a baseline or reference group (i.e. where $X_1 = X_2 = X_3 = X_4 = X_5 = X_6 = X_7 = 0$). $B_1 \dots B_7$ measure the effect on the dependent variable attributable to a change in the

level of the associated independent variable. B_1 , for example, measures the effect of being 25 or more years of age as opposed to being less than 25 years of age. Similarly B_2 - B_7 measure respectively, the effects of being female, a metis/non-status Indian, of having 7-11 years of schooling, of having 12 or more years of schooling, of residing in the city for 3-10 years, and of residing in the city for more than 10 years.

4.7 Results: Employment Stability

Table 10 provides a summary of the results of the employment stability regression analysis. The table reveals that although several of the independent variables are statistically significant, the model fails to account for a substantial portion of the total variance ($R^2 = .159$). The parameters (B 's) suggest that employment stability is higher among older natives, MNSI, and individuals possessing 12 or more grades of schooling. Employment stability tends to be lower among native females. Of special interest are the results concerning length of urban residency. Although statistically significant only for individuals with 3-10 years of residency in the city, both parameters (B_6 and B_7) associated with length of residency are negative. These results imply that employment stability does not improve with longer residency in the city; on the contrary, natives who lived in the city for more than three years tended to be employed for a fewer number of weeks (during the previous 12 month period) than those who recently moved to the city.

4.8 Results: Occupation Levels

The regression analysis of occupation levels (see Table 11) also

Table 10
Results of Employment Stability Regression Analysis

| <u>Variable</u> | <u>B</u> | <u>Standard Error of B</u> | <u>Significance</u> |
|---|----------|--------------------------------|---------------------|
| Constant (B_0) | 0.579 | - | - |
| Age = ≥ 25 years (B_1) | 0.148 | 0.039 | $\alpha = .001$ |
| Sex = Female (B_2) | -0.205 | 0.036 | $\alpha = .001$ |
| Native Group = MNSI (B_3) | 0.091 | 0.040 | $\alpha = .023$ |
| Education 7-11 years (B_4) | 0.033 | 0.058 | NS |
| Education ≥ 12 years (B_5) | 0.129 | 0.063 | $\alpha = .042$ |
| Length of Residence 3-10 years (B_6) | -0.115 | 0.051 | $\alpha = .025$ |
| Length of Residence ≥ 10 years (B_7) | -0.020 | 0.047 | NS |

$$R^2 = .159$$

$$N = 612$$

Table 11
Results of Occupation Level Regression Analysis

| <u>Variable</u> | <u>B</u> | <u>Standard Error of B</u> | <u>Significance</u> |
|--|----------|--------------------------------|---------------------|
| Constant (B_0) | 29.460 | - | - |
| Age = > 25 years (B_1) | 1.209 | 0.897 | NS |
| Sex = Female (B_2) | -1.964 | 0.761 | $\alpha = .01$ |
| Native Group = MNSI (B_3) | 0.158 | 0.844 | NS |
| Education 7-11 years (B_4) | 2.142 | 1.041 | $\alpha = .04$ |
| Education 12+ years (B_5) | 10.519 | 1.219 | $\alpha = .001$ |
| Length of Residence 3-10 years (B_6) | -1.370 | 1.093 | NS |
| Length of Residence 10+ years (B_7) | 0.148 | 0.992 | NS |

$$R^2 = .159$$

$$N = 612$$

failed to account for a large portion of the total variance ($R^2 = .159$). Moreover, only three of the seven independent variables included in the model proved significant at the $\alpha = .05$ confidence level. Occupation levels are higher among native individuals with higher levels of education, especially those who have completed 12 or more years schooling. The coefficient for sex (X_2) was also significant implying that native females exhibit marginally lower scores on the occupation level index. The coefficients for both length of urban residency variables (X_6 and X_7) were not statistically different from zero, implying that length of residency has little or no effect on native occupation levels.

4.9 Results: Occupational Mobility Rates

Table 12 provides a summary of the results of our analyses of rates of occupational mobility. Although only three of the coefficients are statistically significant the model fits the data reasonably well ($R^2 = .482$). Occupational mobility rates are unaffected by sex, native group and level of education. The effect of age (X_1) is negative although quite small implying that rates of mobility are marginally lower among older native individuals. The coefficients associated with the two length of urban residency variables (X_6 and X_7) are highly significant and negative. These coefficients imply that occupational mobility among the population is substantially lower among longer term urban residents. Moreover, among those individuals who have resided in the city for more than 10 years, mobility is generally downward.

Table 12
Results of Occupational Mobility Rate Regression Analysis

| <u>Variable</u> | <u>B</u> | <u>Standard Error of B</u> | <u>Significance</u> |
|---|----------|----------------------------|---------------------|
| Constant (B_0) | 1.198 | - | - |
| Age = ≥ 25 years (B_1) | -0.130 | .060 | $\alpha = .026$ |
| Sex = Female (B_2) | -0.059 | .048 | NS |
| Native Group = MNSI (B_3) | -0.077 | .060 | NS |
| Education 7-11 years (B_4) | 0.117 | .084 | NS |
| Education 12+ years (B_5) | 0.078 | .096 | NS |
| Length of Residence 3-10 years (B_6) | -0.842 | .084 | $\alpha = .001$ |
| Length of Residence ≥ 10 years (B_7) | -0.907 | .072 | $\alpha = .001$ |

$$R^2 = .482$$

$$N = 206$$

5.0 SUMMARY AND CONCLUSIONS

The study has attempted to identify and measure the effects of length of urban residency on several dimensions of native labour market behaviour in Winnipeg. In comparison with previous research, the methodologies employed in this study control more fully for variations in the individual's ethno-demographic characteristics and thus allow more accurate estimation of length of residence differentials. The major findings of the study are summarized below:

i) The majority of the city's native population of labour force age (i.e. 15 or more years) migrated to the city as adults. As such it seems highly likely that the educational and early employment experiences of most Winnipeg natives occurred outside of an urban context.

ii) For most native people however, considerable periods of time have passed since moving to the city. More than three quarters of the population have lived continuously in the city for five or more years and approximately 55 percent have been residents of the city for more than 10 years.

iii) Differentials in rates of labour force participation among Winnipeg's native population are largely attributable to sex and education differences. Participation rates are unaffected by length of residency in the city.

iv) Native unemployment rates are strongly patterned over (or affected by) education level, native group, sex, and age. Unemployment rates do not vary over length of residence in the city.

v) Longer residence in the city does not lead to higher levels of employment stability among Winnipeg's natives. Employment stability is, however, greater among better educated members of the labour force.

vi) Present occupation levels appear to be unaffected by length of residency and occupational mobility rates are sharply lower among longer term residents.

In general the study has found that no substantial differences exist between longer term native residents and recent native migrants with

respect to several dimensions of labour market behaviour. The severe employment difficulties experienced by native newcomers to the city have been found to occur to the same degree amongst native individuals who have resided continuously in the city for more than ten years. The absence of length of residence effects on native employment patterns clearly raises questions about the utility of the acculturation thesis in terms of explaining native adaptation to urban life and the urban labour market.

In light of the study's findings concerning the pervasiveness and temporal stability of native employment difficulties, the present role of native peoples in the urban labour market appears to be firmly established. This condition is consistent with the postulates of the political economy theories of Mooney (1976) and Jorgenson (1967) and suggests the need to examine more fully native employment and labour market issues from this theoretical and analytical perspective.

The study's results are also consistent with the arguments of the dual or segmented labour market theory. Within the context of this theory the lack of improvement in native employment conditions over time results from the inability of the population to gain access to primary market occupations through direct entry. Earlier research by the author strongly suggests that the native labour force is employed for the most part in very low level "secondary" market occupations [see Clatworthy 1981a]. The present study reveals that the movement of natives out of these occupations into higher level

occupations which characterize the primary labour market is not occurring.

With respect to policy and program development our results suggest that rudimentary job and life skills development and short term work experience programs which attempt simply to "familiarize and acclimatize" native people to urban life and the urban labour market are unlikely to have much effect in terms of improving the employability or employment opportunities of urban native peoples. When delivered in isolation, such programs appear for the most part capable only of preparing native workers for 'low level' employment in the secondary labour market, thus perpetuating the patterns of employment and labour market behaviour identified in this study.

The study's results pertaining to the effects of education on native employment patterns strongly suggest the need to redirect and strengthen education and occupational training programs. Substantial improvements in employment patterns have been clearly identified among high school and technical vocation school graduates, especially among young native adults. Based on earlier research (e.g. Deprez (1973)) skill development and education programs are likely to be most successful if tied closely to affirmative action and job creation programs which create primary labour market job opportunities for native peoples.

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APPENDIX A

Data Bases Employed
in the Study

I.U.S. Native Housing Data Base

1.1 Individual Sub-File

| <u>INFORMATION BIT</u> | <u>DESCRIPTION</u> | <u>FORMAT</u> |
|----------------------------|--|---------------|
| 1 | census tract I.D. | I3 |
| 2 | age | I2 |
| 3 | sex | I1 |
| 4 | education level | I2 |
| 5 | current employment status | I1 |
| 6 | indian group | I1 |
| 7 | weeks worked last year | I2 |
| 8 | length of time in city | I3 |
| 9 | present job S.E.S. | I4 |
| 10 | present job rank of S.E.S. | I3 |
| 11 | present job occupation I.D. # | I4 |
| 12 | present job length of employment | I3 |
| 13 | present job hours per week | I2 |
| 14 | time unemployed between current and previous job | I3 |
| 15 | previous job S.E.S. | I4 |
| 16 | previous job rank of S.E.S. | I3 |
| 17 | previous job occupation I.D. # | I4 |
| 18 | previous job length of employment | I3 |
| 19 | previous job hours per week | I2 |
| 20 | time unemployed between previous and 2nd previous job | I3 |
| 21 | 2nd previous job S.E.S. | I4 |
| 22 | 2nd previous job rank of S.E.S. | I3 |
| 23 | 2nd previous job occupation I.D. # | I4 |
| 24 | 2nd previous job length of employment | I3 |
| 25 | 2nd previous job hours per week | I2 |
| 26 | time unemployed between 2nd and 3rd previous jobs | I3 |
| 27 | 3rd previous job S.E.S. | I4 |
| 28 | 3rd previous job rank of S.E.S. | I3 |
| 29 | 3rd previous job occupation I.D. # | I4 |
| 30 | 3rd previous job length of employment | I3 |
| 31 | 3rd previous job hours per week | I2 |
| 32 | 1st job in city S.E.S. | I4 |
| 33 | 1st job in city rank of S.E.S. | I3 |
| 34 | 1st job in city occupation I.D. # | I4 |
| 35 | 1st job in city length of employment | I3 |
| 36 | 1st job in city hours per week | I2 |
| 37 | buffer | I10 |
| | TOTAL length | I114 |

I.U.S. Native Housing Data Base

1.2 Household Sub-File

| <u>VARIABLE</u> | <u>DESCRIPTION</u> | <u>DATA FORMAT</u> |
|-----------------|--|------------------------|
| 1 | Sampling Area | I2 |
| 2 | Sex of Household Head (H.H.) | I1 |
| 3 | Age of Household Head (H.H.) | I2 |
| 4 | Education Level of H.H. | I2 |
| 5 | Employment Status of H.H. | I1 |
| 6 | Native Group of H.H. | I1 |
| 7 | Household Type | I2 |
| 8 | Household Size | I2 |
| 9 | # of Children aged < 5 years | I1 |
| 10 | # of Children aged 5-16 years | I1 |
| 11 | # of Children aged ≥ 17 years | I1 |
| 12 | # of Household members employed | I1 |
| 13 | Total Household Income | I5 |
| 14 | Transfer Income | I5 |
| 15 | Recipient of Social Assistance | I1 |
| 16 | U.I. recipient | I1 |
| 17 | Pension recipient | I1 |
| 18 | Ed/Training Allowance recipient | I1 |
| 19 | Other transfer recipient | I1 |
| 20 | Months since moving to city | I3 |
| 21 | # of times a resident of Winnipeg | I1 |
| | Reasons for Moving to Winnipeg: | |
| 22 | Employment | I1 |
| 23 | Education | I1 |
| 24 | Medical | I1 |
| 25 | Housing | I1 |
| 26 | Family in city | I1 |
| 27 | Problems on reserve | I1 |
| 28 | Other | I1 |
| 29 | Community of Origin (or reserve) | I1 |
| 30 | Migration Intentions | I1 |
| 31 | # of Household members in labour force | I1 |
| 32 | # of Major housing unit defects | I1 |
| 33 | C.M.H.C. housing condition code | I1 |
| 34 | Structure type | I1 |
| 35 | # of rooms | I2 |
| 36 | # of rooms used as bedrooms | I2 |
| 37 | Tenure | I1 |
| 38 | Value of owner occupied units | I6 |
| 39 | Annual shelter cost | I4 |
| 40 | Buffer | <u>I11</u> |
| | TOTAL Length | I75 |

APPENDIX B

The Blishen/McRobert
Occupation Index

Construction of the Blishen/McRoberts Scale

The Blishen/McRoberts (B/M) socio-economic index of occupations is based upon the results of a regression analysis employing occupational prestige as the dependent variable and education level and income as independent variables.

The relationship may be expressed as follows:

$$\text{Status (Y)} = B_1 \text{ Income (X}_1\text{)} + B_2 \text{ Education (X}_2\text{)} + C$$

The scaled occupations are taken from those listed in the 1971 Canadian occupational manual (Department of Manpower and Immigration, 1974). The scale is a revision of the same type of analysis employed by Blishen's (1967) original index.

The data for the scale are taken from the 1971 Canadian census and "are based on those persons in the male labour force who worked in 1970 and for whom occupation refers to the job held in the week preceding the 1971 census enumeration or the job of longest duration since 1 January, 1970 if they were not employed that week" (Blishen and McRoberts, 1976: 71).

The income variable was defined as follows: "the income level ... is expressed as the percentage of males who worked in an occupation in 1970 and whose 1970 employment income was \$6500 or over" (p. 71). Income data were obtained from a total enumeration of the labour force collected through the 1971 census.

The education variable "is expressed as the percentage of males who worked in an occupation in 1970 and who had attended at least grade 12 if the province of schooling was Prince Edward Island, New Brunswick, Ontario, British Columbia, Yukon, or outside Canada, or who had attended at least Grade 11 if their

schooling had been undertaken in Newfoundland, Nova Scotia, Quebec, Manitoba, Saskatchewan, or Alberta" (p. 72). Again, data were obtained from a total enumeration of the labour force collected through the 1971 census.

The dependent variable, occupational prestige, was defined as the Pineo-Porter (1966) prestige score for occupations. Prestige scores for 102 occupations which corresponded to the 1971 census occupational classification were utilized. "The unstandardized regression weights resulting from the regression analysis were .2640 for income and .3619 for education. The intercept was 13.985" (p. 72). Occupations were ranked according to a 10-digit socio-economic index score produced in the regression analysis.

Table B-1 provides an alphabetical listing of CCDO occupations by socio-economic index and the rank of the index.

Table B-1

ALPHABETICAL LISTING OF OCCUPATIONS BY SOCIOECONOMIC INDEX AND RANK ORDER,
CANADA, 1971

| <i>Occupational classification number</i> | <i>Occupational classification</i> | <i>Socio- economic index</i> | <i>Rank</i> |
|---|---|--------------------------------------|-------------|
| 8373 | abrading & polishing occs: clay, glass & stone, n.e.c. | 30.3649 | 388 |
| 1171 | accountants, auditors & financial officers | 67.4100 | 37 |
| 3335 | actors | 49.4299 | 176 |
| 3314 | ad. & illustrating artists | 46.6593 | 185 |
| 4192 | adjusters, claim | 53.1130 | 140 |
| 1134 | administrators, medicine & health | 70.4313 | 20 |
| 1133 | administrators, teaching & rel. fields | 75.2846 | 1 |
| 5174 | advertising salesmen | 57.2838 | 105 |
| 2155 | aeronautical engineers | 66.9202 | 42 |
| 2131 | agriculturists & rel. scientists | 61.1907 | 78 |
| 9119 | air transport operating occs. n.e.c. | 41.2020 | 260 |
| 9113 | air transport operating support occs. | 59.1959 | 91 |
| 8515 | aircraft fabricat. & assembl. occs. n.e.c. | 41.7126 | 253 |
| 8582 | aircraft mechanics & repairmen | 51.5605 | 153 |
| 6169 | apparel & furnishings, service occs. n.e.c. | 26.7076 | 443 |
| 2165 | architec. & engineering technologists & technicians | 62.5002 | 66 |
| 2141 | architects | 71.9520 | 13 |
| 2159 | architects & engineers n.e.c. | 68.9527 | 26 |
| 3373 | athletes | 49.2975 | 177 |
| 3375 | attendants, sport & recreation | 29.9834 | 394 |
| 6147 | babysitters | 24.5828 | 466 |
| 8213 | baking, confectionery making & rel. occs. | 28.4424 | 420 |
| 6143 | barbers, hairdressers & rel. occs. | 25.0670 | 460 |
| 6123 | bartenders | 26.4920 | 449 |
| 8227 | beverage process. occs. | 40.7490 | 268 |
| 2133 | biologists & rel. scientists | 65.7778 | 50 |
| 7715 | blasting occs. | 33.3923 | 349 |
| 8337 | boilermakers, platers & structural metal workers | 41.0745 | 264 |
| 8571 | bonding & cementing occs: rubb. plast. & rel. prod. | 33.7494 | 347 |
| 9517 | bookbinders & rel. occs. | 38.8055 | 291 |
| 4131 | bookkeepers & acct'ing clerks | 50.7098 | 160 |
| 4139 | bookkeeping, account-recording & rel. occs. n.e.c. | 50.9450 | 159 |
| 8782 | brick & stone masons & tile setters | 29.4705 | 405 |
| 9171 | bus drivers | 32.2318 | 368 |
| 8585 | bus. & commerc. machine mechanics & repairmen | 50.1433 | 166 |
| 8525 | bus. & commerc. machines fabricat. & assembl. occs. n.e.c. | 50.2132 | 165 |
| 5177 | business services salesmen | 60.8690 | 81 |
| 5191 | buyers, wholesale & retail trade | 55.4303 | 124 |
| 8541 | cabinet & wood furniture makers | 27.0457 | 436 |
| 7311 | captains & oth. officers, fishing vessels | 29.7920 | 398 |
| 8781 | carpenters & rel. occs. | 28.0382 | 422 |
| 8251 | cellulose pulp preparing occs. | 44.2194 | 233 |
| 6133 | chambermaids & housemen | 27.1178 | 435 |
| 6121 | chefs & cooks | 26.8068 | 441 |
| 8179 | chem. petrol, rubb. plast. & rel. mater. process. occs. n.e.c. | 45.6396 | 214 |
| 2142 | chemical engineers | 70.8910 | 18 |
| 2111 | chemists | 66.4193 | 45 |
| 2143 | civil engineers | 69.2593 | 23 |
| 8379 | clay, glass & stone & rel. mat. machin. occs. n.e.c. | 32.1559 | 370 |
| 8159 | clay, glass & stone process. forming & rel. occs. n.e.c. | 32.1517 | 371 |
| 3370 | coaches, trainers, instructors & mgrs: sport & rec. | 46.8675 | 203 |
| 8173 | coating & calendering occs: chem. & rel. mat. | 33.0795 | 353 |
| 4191 | collectors | 49.7978 | 171 |
| 5133 | commercial travellers | 57.4109 | 104 |
| 6116 | commissioned officers, armed forces | 68.1072 | 34 |
| 2791 | commun. college & vocational school teachers | 66.1264 | 48 |
| 8783 | concrete finishing & rel. occs. | 29.0537 | 408 |
| 9133 | conductors & brakemen, railway | 47.8677 | 194 |
| 8733 | construction electric. & repairmen | 46.8823 | 202 |
| 8171 | crushing & grinding occs: chem. & rel. materials | 31.4274 | 378 |
| 8111 | crushing & grinding occs: mineral ores | 37.9576 | 305 |
| 8575 | cutting & finishing occs: rubb. plast. & rel. prod. | 31.8769 | 374 |
| 8371 | cutting & shaping occs: clay, glass & stone | 28.6463 | 418 |
| 3333 | dancers & choreographers | 38.2202 | 302 |
| 9155 | deck crew, ship | 26.9568 | 411 |
| 9151 | deck officers | 44.8931 | 222 |
| 3157 | dental hygienists, assist. & technic. | 48.2832 | 189 |
| 3113 | dentists | 74.6984 | 3 |
| 3152 | dieticians & nutritionists | 64.4183 | 59 |
| 3154 | dispensing opticians | 49.7960 | 172 |
| 8165 | distill., sublim. & carboniz. occs. chemicals & rel. materials | 57.4990 | 103 |
| 2163 | draughtsmen | 62.0921 | 69 |
| 5193 | driver-salesmen | 32.8339 | 357 |
| 4143 | e.d.p. equip. operators | 55.8252 | 119 |
| 2311 | economists | 69.6355 | 22 |
| 2391 | educational & vocational counsellors | 71.9267 | 14 |
| 8739 | el. pow. light. & wire commun. equip. erc. i. & r. occs. n.e.c. | 48.2167 | 190 |
| 8533 | elec. & rel. equip.-i. & r. occs. n.e.c. | 43.7960 | 238 |
| 2144 | electrical engineers | 70.7401 | 19 |
| 8531 | electrical equip. fabricat. & assembl. occs. | 35.4749 | 326 |
| 8731 | electrical power lineman & rel. occs. | 48.5124 | 186 |
| 9559 | electron. & rel. commun. equip. operating occs. n.e.c. | 54.0143 | 135 |
| 8535 | electronic & rel. equip. install. & repair. occs. n.e.c. | 59.7432 | 87 |
| 8534 | electronic equip. fabricat. & assembl. occs. | 38.5749 | 294 |
| 2731 | elem. & kindergarten teachers | 65.8531 | 49 |
| 2739 | element. & sec. school teaching & rel. occs. n.e.c. | 55.5801 | 120 |

| <i>Occupational classification number</i> | <i>Occupational classification</i> | <i>Socio- economic index</i> | <i>Rank</i> |
|---|--|--------------------------------------|-------------|
| 6193 | elevator operating occs. | 23.0774 | 479 |
| 9157 | engine & boiler room crew, ship | 29.8589 | 396 |
| 8511 | engine & rel. equip. fabricat. & assemb. occs. n.e.c. | 34.5173 | 339 |
| 9153 | engineering officers, ship | 41.8162 | 251 |
| 8391 | engravers, etchers & rel. occs. | 38.7543 | 292 |
| 8711 | excavating, grading & rel. occs. | 29.8278 | 397 |
| 8719 | excavating, grading, pavings & rel. occs. n.e.c. | 32.7188 | 359 |
| 8579 | fabricat. assemb. & repair. occs: rubb. plast. & rel. prod. n.e.c. | 31.3242 | 380 |
| 8549 | fabricat. assemb. & repair. occs: wood products, n.e.c. | 24.8377 | 463 |
| 8539 | fabricat. assemb. i. & r. occs: electric, electron. & rel. equip. | 34.8363 | 334 |
| 8569 | fabricat. assemb. repair. occs: text. fur & leath. prod. n.e.c. | 23.2252 | 477 |
| 7197 | farm machinery operators & custom operators | 26.2011 | 451 |
| 7131 | farm management occs. | 27.9879 | 425 |
| 7182 | farm workers | 24.2541 | 472 |
| 7112 | farmers | 23.0227 | 480 |
| 8393 | filig. grinding, buffing, clean. & polish. occs. n.e.c. | 32.9927 | 355 |
| 8163 | filtering, straining & separating occs: chem. & rel. mater. | 42.3316 | 248 |
| 1135 | financial management occs. | 68.2250 | 33 |
| 2792 | fine arts school teachers | 55.4545 | 123 |
| 6111 | fire fighting occs. | 50.9583 | 157 |
| 8217 | fish canning, curing & packing occs. | 18.2394 | 499 |
| 7313 | fishermen: net, trap & line | 18.6296 | 498 |
| 7319 | fishing, hunting, trapping & rel. occs. n.e.c. | 22.7447 | 482 |
| 8211 | flour & grain milling occs. | 28.9914 | 410 |
| 6129 | food & bev. prep. & rel. service occs. n.e.c. | 27.5225 | 428 |
| 8229 | food, bev. & rel. process. occs. n.e.c. | 32.2390 | 367 |
| 9110 | foremen: air transport op. occs. | 61.7911 | 72 |
| 8160 | foremen: chems. petrol. rubber, plast. & rel. mater. proc. occs. | 57.0673 | 108 |
| 8370 | foremen: clay glass & stone & rel. mater. machining occs. | 44.4470 | 228 |
| 8150 | foremen: clay glass & stone process. forming & rel. occs. | 47.0419 | 200 |
| 8730 | foremen: el. pow. light. & wire commun. equip. erec. i. & r. occs. | 56.0063 | 117 |
| 9550 | foremen: electr. & rel. commun. equip. op. occs., n.e.c. | 65.5887 | 52 |
| 8710 | foremen: excavating, grading, paving & rel. occs. | 38.9193 | 290 |
| 8510 | foremen: fabricat. & assemb. occs. metal products, n.e.c. | 54.2590 | 132 |
| 8550 | foremen: fabricat. assemb. & repair. occs: text. fur & leath. prod. | 42.7460 | 245 |
| 8530 | foremen: fabricat. assemb. i. & r. occs. el. electron. rel. equip. | 55.8867 | 118 |
| 8540 | foremen: fabricat. assemb. & repair. occs: wood products | 41.6081 | 254 |
| 8210 | foremen: food, bev. & rel. process. occs. | 45.9770 | 211 |
| 7510 | foremen: forestry & logging occs. | 38.0623 | 304 |
| 9310 | foremen: materials handling & rel. occs. n.e.c. | 43.8969 | 236 |
| 8580 | foremen: mechanics & repairmen exc. electrical | 45.0002 | 221 |
| 8310 | foremen: metal machining occs. | 52.1729 | 151 |
| 8130 | foremen: metal process. & rel. occs. | 51.4055 | 154 |
| 8330 | foremen: metal shaping & forming occs. exc. machining | 47.4094 | 197 |
| 8110 | foremen: mineral ore treating occs. | 53.8963 | 136 |
| 7710 | foremen: mining & quarrying incl. oil & gasfield occs. | 49.9946 | 168 |
| 9170 | foremen: motor transp. operating occs. | 40.9698 | 267 |
| 8780 | foremen: oth. construction trades occs. | 42.4216 | 247 |
| 9590 | foremen: oth. crafts & equip. operating occs. n.e.c. | 59.1308 | 92 |
| 8390 | foremen: oth. machining & rel. occs. n.e.c. | 46.6586 | 204 |
| 8290 | foremen: oth. process. occs. | 46.5696 | 206 |
| 9190 | foremen: oth. transp. & rel. equip. operating occs. | 54.5601 | 130 |
| 7180 | foremen: other farming, horticult. & animal husbandry occs. | 35.8990 | 321 |
| 9510 | foremen: printing & rel. occs. | 52.9503 | 142 |
| 8590 | foremen: product fabric. assemb. & repair. occs. n.e.c. | 47.9736 | 192 |
| 8250 | foremen: pulp & papermaking & rel. occs. | 52.4163 | 145 |
| 9130 | foremen: railway transport operating occs. | 50.4002 | 163 |
| 9530 | foremen: stationary engine & util. equip. operat. & rel. occs. | 53.4982 | 138 |
| 8260 | foremen: textile process. occs. | 44.7037 | 226 |
| 8350 | foremen: wood machining occs. | 40.2551 | 276 |
| 8230 | foremen: wood process. occs. exc. pulp & papermaking | 40.2219 | 277 |
| 8570 | foremen: fabric. assemb. repair. occs. rubb. plas. & oth. rel. prod. | 49.0253 | 182 |
| 7519 | forestry & logging occs. n.e.c. | 19.3280 | 496 |
| 7511 | forestry conserv. occs. | 31.8739 | 375 |
| 8331 | forging occs. | 33.8487 | 346 |
| 8155 | forming occs: clay, glass & stone | 31.2890 | 381 |
| 8221 | fruit & veget. canning, preserv. & packag. occs. | 26.4676 | 450 |
| 6141 | funeral directors embalmers, & rel. occs. | 51.3475 | 155 |
| 8151 | furnacemen & kilnmen: clay, glass & stone | 32.9690 | 356 |
| 8555 | furriers | 24.9863 | 461 |
| 1130 | gen. mgrs. & oth. senior officials | 66.6958 | 44 |
| 4197 | gen. office clerks | 46.4416 | 208 |
| 2112 | geologists | 69.2159 | 25 |
| 8795 | glaziers | 31.5716 | 371 |
| 1113 | government administrators | 68.6724 | 31 |
| 6115 | guards & watchmen | 28.7070 | 417 |
| 6144 | guides | 28.2021 | 421 |
| 3119 | health diagnosing & treating occs. n.e.c. | 57.1236 | 107 |
| 8295 | hide & pelt proc. occs. | 25.6631 | 457 |
| 9311 | hoisting occs. n.e.c. | 37.8511 | 306 |
| 6145 | hostesses & stewards, exc. food & bev. | 41.1612 | 261 |
| 4194 | hotel clerks | 30.0380 | 393 |
| 7315 | hunting, trapping & rel. occs. | 14.3963 | 500 |
| 8796 | i.t.g. & s. occs., construc., exc. electrical | 49.1070 | 179 |
| 8256 | i.t.g. & s. occs., pulp & paper-making | 55.5257 | 121 |
| 9916 | i.t.g. & s. occs. n.e.c. | 47.0743 | 199 |
| 8236 | i.t.g. & s. occs. wood process. exc. pulp & papermaking | 32.5377 | 362 |
| 8376 | i.t.g. & s. occs: clay, glass & stone machining | 29.2692 | 407 |
| 8156 | i.t.g. & s. occs: clay, glass & stone process. & forming | 39.9696 | 279 |
| 8586 | i.t.g. & s. occs: equip. repair exc. electrical | 44.5760 | 227 |
| 8526 | i.t.g. & s. occs: fabric. assemb. metal prod. n.e.c. | 45.5382 | 216 |
| 8546 | i.t.g. & s. occs: fabricat. assemb. & repair: wood prod. | 19.7729 | 494 |

| <i>Occupational classification number</i> | <i>Occupational classification</i> | <i>Socio- economic index</i> | <i>Rank</i> |
|---|--|--------------------------------------|-------------|
| 8226 | i.t.g. & s. occs: food, bev. & rel. process. | 39.0159 | 288 |
| 8396 | i.t.g. & s. occs: machining n.e.c. | 39.8583 | 280 |
| 8316 | i.t.g. & s. occs: metal machining | 45.1924 | 219 |
| 8146 | i.t.g. & s. occs: metal processing | 48.3808 | 188 |
| 8336 | i.t.g. & s. occs: metal shaping & forming, exc. machining | 46.4617 | 207 |
| 8116 | i.t.g. & s. occs: mineral ore treating | 47.8694 | 193 |
| 8296 | i.t.g. & s. occs: processing, n.e.c. | 36.9336 | 315 |
| 8596 | i.t.g. & s. occs: product fabricat. assemb. & repair, n.e.c. | 38.6001 | 293 |
| 8276 | i.t.g. & s. occs: textile processing | 27.4283 | 429 |
| 8356 | i.t.g. & s. occs: wood machining | 24.6923 | 465 |
| 8176 | i.t.g. & s. occs: chem. petrol. rubber, plast. & rel. mater. proc. | 52.4039 | 146 |
| 8536 | i.t.g. & s. occs: fabric. assem. i. & r. el. electron. & rel. equip. | 48.8063 | 183 |
| 8736 | i.t.g. & s. occs: el. pow. light. & wire commun. equip. erect. i. & r. | 59.5654 | 89 |
| 8566 | i.t.g. & s. occs: fabr. assem. & rep. textile, fur & leath. prod. | 27.6826 | 426 |
| 8576 | i.t.g. & s. occs: fabric. assem. & repair, rubb. plast. & rel. prod. | 40.9796 | 266 |
| 8523 | ind. farm const. & oth. mech. equi. & mach. fabr. & assem. occs. nec | 33.2208 | 352 |
| 8584 | indus. farm & construc. machinery mechanics & repairmen | 41.4781 | 256 |
| 2145 | industrial engineers | 67.1195 | 39 |
| 1116 | inspectors & regulatory officers govt. | 59.7212 | 88 |
| 1176 | inspectors & regulatory officers non-govt. | 54.2791 | 131 |
| 2797 | instructors & training officers n.e.c. | 56.3952 | 116 |
| 8786 | insulating occs. construction | 34.7941 | 335 |
| 5171 | insurance salesmen & agents | 57.7196 | 102 |
| 4135 | insurance, bank & oth. finance clerks | 49.6863 | 173 |
| 6191 | janitors, charworkers & cleaners | 24.9784 | 462 |
| 8591 | jewellery & silverware fab. assem. & repair. occs. | 32.5292 | 363 |
| 2341 | judges & magistrates | 72.0631 | 12 |
| 8271 | knitting occs. | 22.0573 | 486 |
| 9918 | labourers, n.e.c. | 27.6005 | 427 |
| 9921 | labourers, manufacturing | 29.0274 | 409 |
| 9926 | labourers, other industries | 26.8178 | 440 |
| 9925 | labourers, public administration & defence | 25.6058 | 459 |
| 9924 | labourers, service | 26.5015 | 448 |
| 9923 | labourers, trade | 26.7645 | 442 |
| 9922 | labourers, transportation & communication | 28.6236 | 419 |
| 6162 | laundering & dry cleaning occs. | 24.2647 | 471 |
| 2343 | lawyers & notaries | 72.7302 | 9 |
| 2351 | librarians & archivists | 61.8705 | 70 |
| 4161 | library & file clerks | 45.5775 | 215 |
| 4169 | library, file & corr. clerks & rel. occs. n.e.c. | 54.6357 | 129 |
| 2135 | life sciences technologists & technic. | 55.3551 | 126 |
| 9131 | locomotive engineers & firemen | 46.3239 | 209 |
| 7517 | log hoisting, sorting, moving & rel. occs. | 30.3240 | 390 |
| 7516 | log inspect. grad. scaling & rel. occs. | 39.2284 | 284 |
| 9313 | longshoremen, stevedores & freight handlers | 32.4366 | 365 |
| 8315 | machine tool operating occs. | 37.6640 | 310 |
| 8313 | machinist & machine tool setting-up occs. | 41.9239 | 250 |
| 4173 | mail & postal clerks | 48.0802 | 191 |
| 4172 | mail carriers | 41.7737 | 252 |
| 1132 | management occs., soc. sciences & rel. fields | 66.8855 | 43 |
| 1145 | management occs. construc. operations | 55.4962 | 122 |
| 1147 | management occs. transport & communications operations | 60.9983 | 79 |
| 1131 | managers, sci. & engineering | 74.4373 | 4 |
| 6131 | managers: hotel, motel & oth. accom. | 39.0288 | 287 |
| 8592 | marine craft fabricat. assem. & repair. occs. | 33.3758 | 350 |
| 4159 | material recording, scheduling & distrib. occs. n.e.c. | 39.8265 | 282 |
| 9319 | materials handling & rel. occs. n.e.c. | 32.5434 | 361 |
| 9315 | materials handling equip. operators n.e.c. | 31.9098 | 373 |
| 2181 | mathematicians, statisticians & actuaries | 66.9806 | 41 |
| 2147 | mechanical engineers | 67.5427 | 36 |
| 8589 | mechanics & repairmen exc. electrical, n.e.c. | 37.6721 | 309 |
| 3156 | medical lab. technologists & technic. | 56.8694 | 111 |
| 8115 | melting & roasting occs: mineral ores | 42.0305 | 249 |
| 1111 | members of legis. bodies | 56.8551 | 112 |
| 4177 | messengers | 30.1310 | 391 |
| 8141 | metal extruding & drawing occs. | 38.1482 | 303 |
| 8133 | metal heat treating occs. | 38.9896 | 289 |
| 8319 | metal machining occs. n.e.c. | 29.3887 | 406 |
| 8149 | metal process. & rel. occs. n.e.c. | 35.0812 | 332 |
| 8135 | metal rolling occs. | 41.0819 | 262 |
| 8339 | metal shaping & forming occs. exc. machining, n.e.c. | 36.2515 | 320 |
| 8399 | metal shaping & other machining & rel. occ. n.e.c. | 40.5645 | 271 |
| 8131 | metal smelt, converting & refining furnacemen | 39.4135 | 283 |
| 2151 | metallurgical engineers | 71.6364 | 16 |
| 8334 | metalworking-machine operators, n.e.c. | 31.6284 | 376 |
| 2114 | meteorologists | 72.8036 | 8 |
| 8223 | milk process. occs. | 30.9860 | 385 |
| 8557 | milliners, hat & cap makers | 20.6313 | 490 |
| 8119 | mineral ore treating occs. n.e.c. | 42.5039 | 246 |
| 7719 | mining & quarrying incl. oil & gas field occs. n.e.c. | 40.6229 | 270 |
| 7717 | mining & quarrying: cutting, handling & loading occs. | 34.3501 | 341 |
| 2153 | mining engineers | 68.7107 | 29 |
| 2511 | ministers of religion | 50.4228 | 162 |
| 8161 | mixing & blending occs. chemicals & rel. materials | 36.6975 | 317 |
| 8113 | mixing, separating, filtering & rel. occs. mineral ores | 43.8922 | 237 |
| 9557 | motion pictures projectionists | 43.2204 | 241 |
| 9179 | motor transport operating occs. n.e.c. | 39.8416 | 281 |
| 8513 | motor vehicle fabricat. & assem. occs. n.e.c. | 34.7114 | 336 |
| 8581 | motor vehicle mechanics & repairmen | 32.8137 | 358 |
| 9193 | motormen & dinkymen, exc. rail transp. | 37.8323 | 307 |
| 8573 | moulding occs. rubb. plast. & rel. prod. | 31.0887 | 384 |
| 8137 | moulding, coremaking & metal casting occs. | 32.6249 | 360 |
| 3332 | musicians | 43.3157 | 240 |

| <i>Occupational classification number</i> | <i>Occupational classification</i> | <i>Socio- economic index</i> | <i>Rank</i> |
|---|--|--------------------------------------|-------------|
| 5143 | newsboys | 19.2430 | 497 |
| 2157 | nuclear engineers | 74.7182 | 2 |
| 2513 | nuns & brothers (w) n.o.r. | 46.6069 | 205 |
| 7195 | nursery & rel. workers | 28.0194 | 423 |
| 3133 | nurses-in-training | 49.8921 | 170 |
| 3131 | nurses, grad. exc. supervisors | 51.3173 | 156 |
| 3135 | nursing aides & orderlies | 32.2890 | 366 |
| 3134 | nursing assistants | 36.5502 | 318 |
| 3139 | nursing, therapy & rel. assist. occs. n.e.c. | 38.2307 | 301 |
| 3319 | occs. in fine & commerc. art. photog. & rel. fields n.e.c. | 45.9477 | 212 |
| 8298 | occs. in lab. & oth. elem. work, oth. process. | 25.6716 | 455 |
| 7518 | occs. in lab. & oth. elem. work: forestry & logging | 24.8347 | 464 |
| 8278 | occs. in lab. & oth. elem. work: text. process. | 20.7319 | 489 |
| 6198 | occs. in lab. & oth. elemen. work: services | 26.5539 | 446 |
| 8718 | occs. in lab. & oth. elemen. work. excavat. grading & paving | 23.9854 | 474 |
| 9318 | occs. in labour. & oth. elemental work, mater. handling | 29.9291 | 395 |
| 8258 | occs. in labour. & oth. elemental work, pulp & papermaking | 36.7853 | 316 |
| 8118 | occs. in labouring & oth. elemental work, mineral ore treat. | 37.7532 | 308 |
| 8148 | occs. in labouring & oth. elemental work, metal process. | 34.8435 | 333 |
| 9518 | occs. in labouring & oth. elemental work, print. & rel. n.e.c. | 34.6923 | 337 |
| 2349 | occs. in law & jurispru. n.e.c. | 52.6475 | 143 |
| 2359 | occs. in library, museum & archival sics. n.e.c. | 44.7284 | 225 |
| 6139 | occs. in logging & oth. accomm. n.e.c. | 26.5112 | 447 |
| 2189 | occs. in math. stats., systems anal. & rel. fields n.e.c. | 57.2225 | 106 |
| 3339 | occs. in performing & audio-visual arts. n.e.c. | 40.5122 | 272 |
| 2119 | occs. in physical sics. n.e.c. | 49.0506 | 181 |
| 2519 | occs. in religion. n.e.c. | 35.7054 | 323 |
| 2339 | occs. in soc. work & rel. fields n.e.c. | 54.0327 | 134 |
| 2319 | occs. in social sciences n.e.c. | 60.9556 | 80 |
| 3379 | occs. in sport & recreation. n.e.c. | 22.2337 | 484 |
| 2333 | occs. in welfare & commun. services | 49.2108 | 178 |
| 1179 | occs. rel. to management & administration n.e.c. | 64.7042 | 56 |
| 8798 | occs: lab. & oth. elem. work. oth. constr. trades | 27.0100 | 437 |
| 8158 | occs: lab. & oth. elem. work: clay, glass, stone proc. & forming | 25.8264 | 454 |
| 8528 | occs: lab. & oth. elem. work: fabric. & assem. metal prod. nec. | 27.2044 | 433 |
| 8548 | occs: lab. & oth. elem. work: fabric. assem. & repair, wood prod. | 22.1647 | 485 |
| 7718 | occs: lab. & oth. elem. work. mining & quarry. inc. oil & gas fields | 33.2949 | 351 |
| 8178 | occs: lab. & oth. elem. work: chem. petr. rub. plas. & rel. mat. prod. | 34.0719 | 345 |
| 8578 | occs: lab. & oth. elem. work: fab. assem. rep. rub. plas. & rel. prod. | 29.7354 | 400 |
| 8228 | occs: lab. & oth. elem. work: food, bev. & rel. proc. | 25.9034 | 453 |
| 8598 | occs: lab. & oth. elem. work: prod. fab. assem. & repair. n.e.c. | 28.7094 | 416 |
| 8738 | occs: lab. & oth. elem. wrk: el. pow. light. & wir. comm. equ. er. i & r | 33.0574 | 354 |
| 8538 | occs: lab. & oth. elem. wrk: fab. ass. i & r. el. electron. & rel. equi | 28.7140 | 415 |
| 8238 | occs: lab. & oth. elem. wrk: wood proc. exc. pulp & papermaking | 26.0082 | 452 |
| 8568 | occs: lab. oth. elem. wrk: fab. ass. & rep. text., fur & leath. prod. | 21.8708 | 487 |
| 3359 | occupations in writing n.e.c. | 66.2099 | 47 |
| 4141 | office machine operators | 44.3225 | 231 |
| 1119 | officials & administrators unique to govt., n.e.c. | 58.8662 | 94 |
| 3153 | optometrists | 74.2831 | 5 |
| 3117 | osteopaths & chiropractors | 71.2672 | 17 |
| 4199 | oth. clerical & rel. occs. n.e.c. | 48.7367 | 184 |
| 8790 | oth. construc. trades occs. n.e.c. | 31.3978 | 379 |
| 9599 | oth. crafts & equip. operating occs. n.e.c. | 44.1848 | 234 |
| 8529 | oth. fabricat. & assemb. occs. metal products. n.e.c. | 34.1891 | 343 |
| 7199 | oth. farming, horticult. & animal husbandry occs. n.e.c. | 29.6735 | 401 |
| 2169 | oth. occs. in architec. & engineering. n.e.c. | 40.4515 | 273 |
| 3159 | oth. occs. in medicine & health n.e.c. | 44.7832 | 224 |
| 2399 | oth. occs. in soc. scis. & rel. fields n.e.c. | 57.9668 | 100 |
| 9919 | oth. occs. n.e.c. | 34.1703 | 344 |
| 8299 | oth. process. occs. n.e.c. | 27.4241 | 430 |
| 8599 | oth. prod. fabricat. assem. & repair. occs. n.e.c. | 32.1822 | 369 |
| 6117 | oth. ranks, armed forces | 43.1314 | 242 |
| 7713 | oth. rock & soil-drilling occs. | 35.5183 | 325 |
| 6199 | oth. service occs. n.e.c. | 29.6090 | 403 |
| 2799 | oth. teaching & rel. occs. n.e.c. | 55.4041 | 125 |
| 9199 | oth. transp. & rel. equip. operating occs. n.e.c. | 26.6524 | 445 |
| 1149 | other managers & administrators, n.e.c. | 63.9995 | 62 |
| 1154 | other managers, construction | 58.4063 | 98 |
| 1152 | other managers, durable goods manufacture | 66.3979 | 46 |
| 1151 | other managers, mines & oil wells | 68.6711 | 32 |
| 1153 | other managers, non-durable goods manufacture | 64.6404 | 57 |
| 1158 | other managers, other industries | 65.2116 | 53 |
| 1157 | other managers, service | 64.8013 | 55 |
| 1156 | other managers, trade | 58.8655 | 95 |
| 1155 | other managers, transportation & communication | 64.3958 | 60 |
| 5199 | other sales occs. n.e.c. | 44.1485 | 235 |
| 9317 | packaging occs. n.e.c. | 31.1612 | 382 |
| 8785 | painters, paperhangers & rel. occs. | 28.8448 | 412 |
| 3311 | painters, sculptors & rel. artists | 39.0343 | 286 |
| 8595 | painting & decorating occs. exc. construc. | 30.3390 | 389 |
| 8593 | paper product fabricat. & assemb. occs. | 35.2914 | 329 |
| 8253 | papermaking & finishing occs. | 46.9033 | 201 |
| 8551 | patternmak., marking & cutting occs: text., fur & leath. prod. | 27.3972 | 431 |
| 8395 | patternmakers & mouldmakers n.e.c. | 47.2699 | 198 |
| 8713 | paving, surfacing & rel. occs. | 25.6197 | 458 |
| 6149 | personal service occs. n.e.c. | 30.1133 | 392 |
| 1136 | personnel & indus. relations mgmnt. occs. | 63.1203 | 63 |
| 1174 | personnel & rel. officers | 65.7001 | 51 |
| 4195 | personnel clerks | 56.9941 | 110 |
| 2154 | petroleum engineers | 69.7069 | 21 |
| 3151 | pharmacists | 72.1743 | 11 |
| 9515 | photoengravers & rel. occs. | 49.8940 | 169 |
| 3315 | photographers & cameramen | 49.5214 | 175 |

| <i>Occupational classification number</i> | <i>Occupational classification</i> | <i>Socio- economic index</i> | <i>Rank</i> |
|---|--|--------------------------------------|-------------|
| 9591 | photographic process. occs. | 44.8545 | 223 |
| 2117 | physical scis. technologists & technicians | 60.4386 | 84 |
| 3111 | physicians & surgeons | 74.2246 | 6 |
| 2113 | physicists | 68.7922 | 27 |
| 3137 | physiotherapists, occup. & oth. therapists | 53.5215 | 137 |
| 9111 | pilots, navigators, & flight engineers | 67.8389 | 35 |
| 8791 | pipefitting, plumbing & rel. occs. | 37.6162 | 312 |
| 8355 | planing, turning, shaping & rel. wood machin. occs. | 25.6634 | 456 |
| 8784 | plasterers & rel. occs. | 30.4749 | 387 |
| 8143 | plating, metal spraying, & rel. occs. | 33.6194 | 348 |
| 8233 | plywood making & rel. occs. | 32.4753 | 364 |
| 6112 | policemen & detectives, gov't. | 60.1046 | 85 |
| 6113 | policemen & investigator, priv. | 45.6711 | 213 |
| 2793 | post-secondary school teachers, n.e.c. | 69.2577 | 24 |
| 1115 | postmasters | 49.1020 | 180 |
| 9531 | power station operators | 54.8191 | 128 |
| 8527 | precis. instrum. & rel. equip. fabricat. & assem. occs. n.e.c. | 38.2462 | 300 |
| 8588 | precis. instrument mechanics & repairmen | 57.8979 | 101 |
| 6165 | pressing occs. | 20.5893 | 491 |
| 9514 | printers, engravers exc. photoengravers | 50.3028 | 164 |
| 9519 | printing & rel. occs. n.e.c. | 37.0982 | 314 |
| 9512 | printing press occs. | 41.5833 | 255 |
| 3330 | producers & directors, performing & audio-visual arts | 67.0394 | 40 |
| 3313 | product & interior designers | 53.0155 | 141 |
| 4151 | production clerks | 50.4406 | 161 |
| 1143 | production management occs. | 62.7272 | 65 |
| 6119 | protec. service occs. n.e.c. | 41.0713 | 265 |
| 2315 | psychologists | 62.2645 | 67 |
| 8259 | pulp & papermaking & rel. occs. n.e.c. | 41.4186 | 257 |
| 1175 | purch. officers & buyers, exc. wholesale & retail trade | 60.7041 | 82 |
| 1141 | purchasing management occs. | 61.8599 | 71 |
| 9551 | radio & t.v. broadcasting equip. operators | 56.5194 | 115 |
| 8537 | radio & t.v. service repairmen | 43.0365 | 243 |
| 3337 | radio & television announcers | 58.5342 | 97 |
| 3155 | radiological technologists & technicians | 58.7227 | 96 |
| 8583 | rail transp. equip. mechanics & repairmen | 39.0343 | 285 |
| 8715 | railway sectionmen & trackmen | 24.0700 | 473 |
| 9139 | railway transp. operating occs. n.e.c. | 30.6828 | 386 |
| 9135 | railway transport operating support occs. | 44.4045 | 229 |
| 5172 | real estate salesmen | 50.0692 | 167 |
| 4179 | recep., info., mail & message distrib. occs. n.e.c. | 42.7816 | 244 |
| 4171 | receptionists & info. clerks | 40.6897 | 269 |
| 3371 | referees & rel. officials | 38.5612 | 295 |
| 8167 | roasting, cooking & drying occs. chemicals & rel. materials | 36.3204 | 319 |
| 8787 | roofing, waterproofing & rel. occs. | 26.9817 | 438 |
| 7711 | rotary welldrilling & rel. occs. | 41.0808 | 263 |
| 1137 | sales & ad. management occs. | 65.1050 | 54 |
| 5137 | sales clerks, commodities | 38.3541 | 297 |
| 5149 | sales occs: commodities, n.e.c. | 41.4111 | 258 |
| 5179 | sales occs: services, n.e.c. | 52.4014 | 148 |
| 5135 | salesmen & salespersons commodities, n.e.c. | 43.7909 | 239 |
| 5173 | salesmen & traders, securities | 59.7802 | 86 |
| 8231 | sawmill sawyers & rel. occs. | 26.9558 | 439 |
| 2733 | secondary school teachers | 71.7725 | 15 |
| 4111 | secretaries & stenos. | 52.4455 | 144 |
| 8153 | separat., grind., crush. & mixing occs: clay, glass & stone | 27.3214 | 432 |
| 5145 | service station attendants | 29.6593 | 402 |
| 1142 | services management occs. | 57.9985 | 99 |
| 8563 | sewing machine operators, text. & similar mat. | 23.2175 | 478 |
| 8333 | sheet metal workers | 37.6528 | 311 |
| 4153 | shipping & receiving clerks | 34.4410 | 340 |
| 8561 | shoemaking & repair, occs. | 19.9182 | 493 |
| 8215 | slaughtering & meat cutting, canning, curing & pack. occs. | 31.1280 | 383 |
| 6135 | sleeping-car & baggage porters, & bellmen | 28.8280 | 413 |
| 2331 | social workers | 61.6410 | 74 |
| 2313 | sociologists, anthropologists & rel. soc. scientists | 60.5728 | 83 |
| 9555 | sound recording & reproduction equip. operators | 58.8836 | 93 |
| 9539 | stationary engine & util. equip. operating & rel. occs. n.e.c. | 41.3749 | 259 |
| 4137 | stats. clerks | 51.5852 | 152 |
| 9513 | stereotypers & electrotypers | 45.3223 | 218 |
| 4155 | stock clerks & rel. occs. | 38.5252 | 296 |
| 5141 | street vendors & door-to-door salesmen | 32.0964 | 372 |
| 8793 | structural metal erectors | 35.8482 | 322 |
| 9191 | subway & streetrailway operating occs. | 44.3000 | 232 |
| 8225 | sugar process. & rel. occs. | 35.3198 | 328 |
| 9910 | supervisors & foremen, n.e.c. | 46.2227 | 210 |
| 4140 | supervisors office machine & e.d.p. equipment operators | 68.6739 | 30 |
| 2160 | supervisors, oth. occs. in architecture & engineering | 67.1897 | 38 |
| 6160 | supervisors: apparel & furnishing service occs. | 40.3394 | 275 |
| 4130 | supervisors: bookkeeping, acct.-recording & rel. occs. | 61.4871 | 76 |
| 6120 | supervisors: food & bev. prep. & rel. service occs. | 37.2441 | 313 |
| 4160 | supervisors: libr., file & corr. clerks & rel. occs. | 64.1414 | 61 |
| 4150 | supervisors: material recording, scheduling & distrib. occs. | 49.6442 | 174 |
| 3130 | supervisors: nursing occs. | 57.0085 | 109 |
| 2350 | supervisors: occs. in libr., museum & archiv. scis. | 62.1512 | 68 |
| 6130 | supervisors: occs. in lodging & other accom. | 35.6811 | 324 |
| 4190 | supervisors: oth. clerical & rel. occs. n.e.c. | 61.3559 | 77 |
| 5190 | supervisors: oth. sales occs. | 47.4196 | 196 |
| 6190 | supervisors: oth. service occs. | 38.2848 | 298 |
| 4170 | supervisors: recep. info. mail & message distrib. occs. | 56.6130 | 114 |
| 5130 | supervisors: sales occs., commodities | 47.6628 | 195 |
| 5170 | supervisors: sales occs., services | 61.5618 | 75 |
| 4110 | supervisors: steno. & typing occs. | 56.8004 | 113 |

| <i>Occupational classification number</i> | <i>Occupational classification</i> | <i>Socio- economic index</i> | <i>Rank</i> |
|---|---|--------------------------------------|-------------|
| 2161 | surveyors | 54.1410 | 133 |
| 2183 | systems analysts & comput. programmers & rel. occs. | 68.7215 | 28 |
| 8553 | tailors & dressmakers | 24.2752 | 470 |
| 9173 | taxi drivers & chauffeurs | 26.6796 | 444 |
| 2795 | teachers of excep. students n.e.c. | 53.2098 | 139 |
| 2353 | technic. in library, museum & archival scis. | 44.4040 | 230 |
| 5131 | technical salesmen & rel. advisers | 64.4944 | 58 |
| 9553 | telegraph operators | 50.9492 | 158 |
| 4175 | telephone operators | 38.2805 | 299 |
| 4133 | tellers & cashiers | 40.4164 | 274 |
| 8273 | textile bleaching & dyeing occs. | 24.4136 | 468 |
| 8261 | textile fibre prepar. occs. | 19.6522 | 495 |
| 8275 | textile finishing & calendering occs. | 23.4167 | 476 |
| 8279 | textile process. occs. | 24.3613 | 469 |
| 8263 | textile spinning & twisting occs. | 22.5059 | 483 |
| 8267 | textile weaving occs. | 21.7177 | 488 |
| 8265 | textile winding & reeling occs. | 24.4378 | 467 |
| 7513 | timber cutting & rel. occs. | 22.8047 | 481 |
| 8293 | tobacco process. occs. | 34.2377 | 342 |
| 8311 | tool & die making operations | 52.4026 | 147 |
| 3355 | translators & interpreters | 61.6940 | 73 |
| 4193 | travel clerks, ticket, station, & freight agents | 55.0394 | 127 |
| 9175 | truck drivers | 29.7365 | 399 |
| 9511 | typesetters & compositors | 45.0035 | 220 |
| 4113 | typists & clerk typists | 45.4604 | 217 |
| 2711 | univ. teachers | 72.2955 | 10 |
| 2719 | univ. teaching & rel. occs. n.e.c. | 52.2331 | 150 |
| 8562 | upholsterers | 27.1699 | 434 |
| 3115 | veterinarians | 73.4877 | 7 |
| 6125 | waiters, hostesses & stewards, food & bev. | 28.0074 | 424 |
| 8587 | watch & clock repairmen | 40.0036 | 278 |
| 9159 | water transp. operating occs. n.e.c. | 35.3916 | 327 |
| 4157 | weighers | 35.2532 | 330 |
| 8335 | welding & flame cutting occs. | 35.1540 | 331 |
| 8735 | wire commun. & rel. equip. i. & r. occs. | 59.3464 | 90 |
| 8359 | wood machining occs. n.e.c. | 28.8047 | 414 |
| 8351 | wood patternmaking occs. | 48.4971 | 187 |
| 8239 | wood process. occs. exc. pulp & papermaking. n.e.c. | 29.5722 | 404 |
| 8357 | wood sanding occs. | 20.3135 | 492 |
| 8353 | wood sawing & rel. occs. exc. sawmill | 23.6649 | 475 |
| 8235 | wood treating occs. | 34.6748 | 338 |
| 3352 | writers & editors | 62.8184 | 64 |
| 2139 | occs. in life sciences. n.e.c. | 52.3517 | 149 |