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Accessibility, Cultural Affiliation and Indian Reserve Labour Force Development in Canada

by

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ABSTRACT

The purpose of this research is to investigate the relationship between the labour force development of Indian reserves in Canada and their physical accessibility to off-reserve communities designated as service centres. The second goal is to examine the relationship between the traditional cultural affiliation of reserves and their labour force development.

The diffusionist and dependency development paradigms are considered to place the roles of accessibility and cultural affiliation into the context of reserve development. A review of the literature investigating the influence of physical accessibility upon reserve development follows. The traditional Indian culture areas of Canada are introduced, as are the rationale for investigating the roles of these two factors in reserve development.

Data for each reserve from the 1981 Census, and from the Department of Indian and Northern Affairs Canada were used. Chi-square tests and two-way contingency tables were used to analyze the data. A sample of reserves were classified into four groups of decreasing levels of physical accessibility, which are urban, rural, remote and special access. These samples were compared in terms of various indicators representing official language proficiency, native language retention, education, participation in the labour force, occupational structure, and household and employment income.

The reserves were then classified into six samples representing cultural affiliation. These are the Iroquoian, Algonkian, Plains, Mackenzie River, Plateau, and Pacific Coast culture areas. These were also compared using most of the indicators mentioned above. These analyses identified distinct differences amongst the access samples and the culture area samples of reserves.

Lastly, two culture areas are examined to gain further insight into the nature of differences amongst reserves falling into the same access category. Levels of education and mother tongues spoken in the Algonkian and Pacific Coast culture areas are compared to this end.

In conclusion, the major differences amongst the samples are highlighted in terms of the hypotheses posed in this research. Some further avenues of inquiry are then suggested for future research.

RESUME

Le but de cette recherche est d'examiner la relation entre le développement de la main-d'oeuvre des réserves indiennes au Canada et leur accessibilité physique aux communautés qualifiés de centres de services. Ceci d'une part, d'autre part nous examinerons la relation entre l'affiliation culturelle traditionelle des réserves et leur développement de la main-d'oeuvre.

Les paradigmes diffusioniste et de développement dépendant sont utilisés dans le but d'analyser les rôles de l'accessibilité et de l'affiliation culturelle sur le développement des réserves indiennes. Aussi une revue de la littérature concernant l'influence de l'accessibilité physique sur le développement des réserves suivra. Les regions culturelles tradionnelles des indiens du Canada seront introduites comme étant les raisons d'analyser les rôles de ces deux facteurs sur le développement des réserves.

Des données provenent du recensement de 1981 et du Ministére des Affaires Indiennes et du Nord Canada on été utilisées en vue de construire une banque de données concernant les réserves. Le test du chi-carré et la table des contingences à double entrée ont été utilisé pour analyser celle-ci. Les réserves ont été classifiés en quatre échantillons: urbain, rural, lointain, et access special. Ces échantillons ont été comparé selon différents indicateurs: maitrise d'une des langues officielles, retention des langues aborigènes, structure occupationnelle, et revenu du ménage et d'emploi. Les réserves ont été par la suite classé en six échantillons représentant l'affiliation culturelle qui sont Iroquois, Algonquins, Plaines, Rivière Mackenzie, Plateau, et ceux des côtes du Pacifique. Ils ont été aussi comparé selon les indicateurs mentionnés plus haut. Ces analyses ont montré des différences entre les réserves classé accessibilité et

groupe culture. Ensuite nous avons comparé deux régions culturelles pour mieux comprendre la nature des différences entre les réserves qui composent la même catégorie accessibilité. Le niveau d'éducation et la langue maternelle dans les régions culturelles Algonquiennes et la côtes du Pacifique ont été comparé à cette fin.

En conclusion, les différences majeures entre les échantillions ont été éclairé en termes d'hypothéses de cette recherche. En dernier de nouvelles avenues de recherches sont suggérées.

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Chapter I

INTRODUCTION

The goal of this thesis is to explore the relationship between physical accessibility and labour force development of Indian reserves. As well, the influence of cultural group affiliation of bands upon their member reserves will be investigated. More specifically, the questions posed in this research are as follows:

1. What are the effects of differing levels of physical accessibility on reserve labour force development?
2. Does the historical affiliation of bands with different cultural groups influence reserve labour force characteristics? and
3. Is it possible to identify any patterns of labour force development related to accessibility or cultural group affiliation? And if so, how are they characterized?

According to the two development paradigms considered, the peripheral location of most reserves is hypothesized to be an important factor affecting reserve labour force development. Distance is perceived to act as a barrier because remote reserves often have limited interaction with outside communities and have little access to employment, business and education opportunities located in such communities. According to the diffusionist or acculturation paradigm, the most accessible reserves would have a better developed labour force than isolated, less accessible reserves. Development is thought to depend on repeating the past Euro-Canadian development experience and physical isolation would prevent the requisite acculturation from occurring.

In comparison, the dependency or core-periphery paradigm focuses on the exploitative aspects of native/non-native relationships, and assumes that greater interaction and integration leads to increasing underdevelopment, or only specialized dependent development of the peripheral reserve labour force.

It is assumed that reserves with the best transportation accessibility to outside communities would be most affected either way, because they would experience the greatest interaction with non-native communities than less accessible reserves. A review of the literature concerned with the role of accessibility in reserve development is included to summarize the work which has been carried out in this area and to identify some of the gaps which have yet to be investigated. This chapter also includes a section which introduces the notion of using Indian culture areas as a basis for making regional comparisons of reserves.

It is assumed that the cultural group affiliation of each band plays a significant role in the development of the Indian labour force. There are six major cultural groups to which Canadian Indian bands belong. This cultural affiliation may no longer be very strong today, however, it is assumed that this affiliation still effects most bands to some degree. By comparing various reserve labour force characteristics across culture areas it is hypothesized that significant differences may be identified. Culture areas were selected as the basis for making comparisons rather than political boundaries because these spatial divisions have evolved naturally and contain groups of peoples sharing cultural similarities.

The statistical analyses which were used to test the hypotheses are then described, along with the rationale for their choice. A brief discussion concerning the quality of data which was used in the analyses and the steps followed in preparing the data are outlined in the next chapter.

In the following chapter, the data analyses are discussed. Two-way contingency tables and chi-square tests will be employed to identify differences in labour force characteristics amongst the four access categories. These differences are then discussed, and the patterns of characteristics of reserves falling into each of the access categories is analyzed.

The same techniques are used to compare the six culture areas in the next chapter. We will see how the culture areas differ as measured by various indicators, and be able to draw a general profile of each culture area.

In the last analyses, the Algonkian and Pacific Coast culture areas will be contrasted in terms of their levels of educational attainment and Native language retention. The reserves of each are classified into the four access categories so that we may see how each of the two culture areas differs in terms of these two variables, as compared to each other and as compared to all reserves. Thus, it may also be possible to investigate whether or not accessibility influences these two culture area differently.

In the concluding chapter, the major findings will be reviewed in relationship to the research hypotheses.

Chapter II

CONCEPTUAL FRAMEWORK

This chapter will introduce the two major conceptual frameworks which have been used in analyses of the development of Indian reserve communities. The main features of the diffusionist and dependency paradigms will be briefly presented along with some of the problems associated with each. During the past twenty years there has been a fundamental shift in thinking about how reserves should develop. The goals of development policies have shifted away from assimilation into mainstream society to culturally distinct integration or even separateness when integration would threaten a loss of Indian socio-economic autonomy. This shift in thinking has important implications to DIAND policy regarding development programs and self-government. Furthermore, these changes have influenced our perception of how Indian communities have evolved, and indeed, what the concept of development can mean for Indian peoples.

Within the two development paradigms discussed, physical accessibility has been attributed with different roles and meaning. These will be highlighted in the context of each development paradigm, and the role that accessibility plays in each paradigm will be presented in the last section.

2.1 Diffusionist / Acculturation Paradigm

Assimilation and acculturation into non-native Canadian society has been the prevalent policy objectives underlying the reserve system, various Indian acts, and past development programs (Green, 1985:82). Colonial and later Canadian governments envisioned that Indians would assimilate as soon as they could be upgraded to the level of

Euro-Canadian standards. Indian status was originally only intended as a temporary designation, and was expected to eventually disappear when the Indians were upgraded and had been 'civilized'. Two schools of thought emerged as to how the Indians could be thus acculturated:

> (1) Indians should be settled close to responsible whites, in order that they should learn agriculture and become assimilated; and (2) Indians should be kept as far as possible from whites, until such time as they were ready for assimilation (Tanner, 1983:16).

In this way reserves were conceived of as protective way-stations in the process of assimilation and acculturation, and were therefore also expected to disappear. Development was considered to be virtually synonymous with assimilation and acculturation into mainstream white society.

Acculturation has been defined as

> those phenomena which result when groups of individuals having different cultures come into continuous first-hand contact, with subsequent changes in the original cultural patterns of either or both groups (Henderson, 1978:1).

The concepts of cultural change, assimilation and diffusion are all included in this definition. Culture change is seen as one aspect of acculturation, and assimilation is considered to be the final end product of this process. Cultural diffusion is the process of transmission and reception of cultural traits (Ibid). Acculturation is perceived as a unilinear, step-like process of change "from a 'traditional,' 'primitive,' or 'native-oriented' state to a 'progressive,' 'civilized,' or 'white-oriented' state" (Mooney, 1976:391). It is assumed that all societies begin from a common baseline of traditional 'underdevelopment' and that Euro-Canadian society is the further advanced (Browett, 1980:63). Implicit in the underlying assumptions of this model is the belief that Euro-Canadian society is inherently superior as it is the Indians who have been expected to adapt their values and lifestyles to that of whites and not vice-versa (Price, 1978:137).

Development in this sense is conceived of as a transformation or process of upgrading and of substituting one culture for another as more 'primitive' societies are thought to be unable to develop if traditional or 'backward' values are retained. Development will be achieved "through the elimination of of 'underdevelopment characteristics ... and the acquisition of the characteristics of more developed areas" (Browett, 1980:60). Development characteristics, if correctly identified, could be installed as 'inputs' into less developed areas to bring about the growth and improvements found in more developed areas (Browett, 1980:60; Katz, 1980:26).

From the assimilationist perspective Indian reserves were perceived as unable to develop autonomously, requiring financial and technological aid as well as capitalist value systems from the more developed non-native economy. The more traditional reserve economic and social structures are not strongly oriented to capitalist production and growth. This approach assumes the existance of a dual economy with "Indians (and persons in underdeveloped areas) operating in their own impoverished economy, underemployed, or unemployed, outside of the economy of the mainstream" (Mooney, 1976:390). Developed and underdeveloped areas are thus assumed to be poorly integrated and to function separately to a large extent.

Related to this concept is the assumption that "there will be a spread, a filtering or a diffusion of growth/development impulses from the more developed to the less developed areas" (Browett, 1980:65). The diffusion of beneficial 'spread' effects may radiate outwards from growth centres into their less developed hinterlands in a ripple effect. Similarly, spread effects may 'trickle-down' the urban hierarchy from larger to smaller sized centres. Ideally, the spread effects are to eventually supercede any detrimental 'backwash' effects which may occur. In reality, however, the hoped-for spread effects often do not surpass the backwash effects. The hinterlands and small centres ranking low on the urban hierarchy are often characterized by severe labour and other resources depletion.

According to the diffusionist paradigm of development, accessibility is thought to play a salient role in the acculturation of Indian reserve communities in several ways. Economic growth is thought to be transmitted from the core to the hinterlands by means of the urban hierarchy, which is in turn based on the level of accessibility (Bone and Green, 1986:69). In this context, accessibility entails the "capacity to obtain information in order to improve local productivity and income" (Ibid). More specifically, accessibility is usually thought of in terms of the distance of reserves to non-native urban centres, and in terms of the quality and means of transportation connecting reserves to other communities. Good physical accessibility would allow reserve inhabitants to commute to nearby non-native communities and facilitate the employment of Indians within those communities.

Associated with the acculturation model is the concept of demonstration effect (Hawthorne, 1966:107). Developing bands which successfully adopted white lifestyles and thereby prospered would provide more conservative impoverished bands with a good example and demonstrate the necessary steps to western wealth and power. In a similar fashion, Indian communities could learn by example from nearby prospering non-native communities. Indians are expected to observe and adopt some values of those communities with which they interact, and transplant them into home reserve communities in time. The material wealth accruing to Indians working off-reserve would presumably motivate more traditionally oriented members of the reserve labour force not participating in the wage labour market to acquire the requisite skills and comportment for similar employment. Consequently, the participation rate of the Indian labour force in off-reserve activities and in various on-reserve enterprises is expected to increase. Logically, this demonstration effect would be strongest upon the reserves in closest proximity and with the greatest access to urban centres.

A critical assumption of the diffusionist approach is that Indian reserve inhabitants want to simulate the Euro-Canadian development experience, and that they wish to assimilate into the mainstream wage economy. This assumption obviously does not hold true for a great many reserve inhabitants. Similarly, it is assumed that conflicts between reserve constituents and policy-makers can be resolved by 'greater effort and closer cooperation" of both groups and that their goals (and means used to accomplish these goals) are shared (Browett, 1980:66-67; Jackson et al, 1979:7-15). The conflicts between Natives and DIAND are just one example of how these two groups do not always agree on policy means or goals.

This approach assumed that by Indians becoming more 'white-oriented' the dual economy gap may be narrowed and ultimately eliminated as Indian workers and their families are upgraded into the mainstream economy. The convergence of the modern and traditional economies is therefore both predicted and desired. Indian communities were expected to transform by progressing through a series of stages of development, for this approach postulates that underdevelopment, as evidenced by poverty and backwardness, resides in and exists largely because of traditional structures (Katz, 1980: 26).

The origins of Indian underdevelopment is thus attributed in part to 'traditional' Indian culture. For example, Tanner states that

> there is a strong emphasis, both personally and politically, on the maintenance of community obligations. These obligations may interfere with success in mainstream society, such success may require, for example, that an individual be willing to move himself and his family, or that he be frugal and save, and ignore the needs of his kinsmen (Tanner, 1983:13).

Over the years, Indians have been made aware of this point of view and have been encouraged or forced to change their philosophies and ways of life. Despite the knowledge that these ways are considered obstacles to their betterment, many reserve communities have clung to, and or adapted their traditions. The assumption that Indians

are motivated to adopt the mainstream values, lifestyles and to drop those aspects of their traditional ways which conflict with their assimilation is one which has not been met, and this has influenced the successful application of this model.

The very lack of the hoped-for convergence of reserve and non-reserve economies has served to throw doubt upon the validity of the diffusionist-acculturation approach at least in the context of Indians. In spite of massive increases in the amount of 'aid' administered to reserves in the form of income supplements, education, and employment and community development schemes, etc., reserves failed to develop as expected. Thus, even though many of the 'inputs' deemed necessary for the development in other parts of the world were provided, Indian communities are still relatively disadvantaged at least economically in comparison to most other Canadians. This lack of sufficient expected development in regions in similar situations, coupled with the failure of this approach to explain why this is so, has led to the formulation of a more systematic development approach.

2.2 Dependency Paradigm

2.2.1 Internal Colonialism Model

A more recent approach to the origins of Indian underdevelopment has been to compare the historical circumstances of Canadian Indians to those experienced by other colonized peoples in other parts of the world. In basic terms,

> internal colonialism refers to a situation where some people are dominated by others. In the 'colonial situation' this generally means domination by a radically and culturally different foreign conquering group, imposed in the name of a dogmatically asserted racial, ethnic or cultural superiority, on a materially inferior indigenous population. There is a contact between the different cultures. The dominant society is condemned to an instrumental role by the metropolis. Finally, there is a recourse not only to force to maintain political stability but also to a complex of racial or cultural stereotypes to legitimate metropolitan superordination (Williams, 1978:273)

Typically the land, raw materials, labour, and other resources of the colonized are exploited leading to their political and economic domination. The colonized exist in a dependent and subordinate position vis a vis the dominant society, and just as in the case of classic colonialism, "a formal recognition is given to the differences in power, autonomy, and political status, and various agencies are set up to maintain this subordination" (Blauner, 1969:395). DIAND, the church, and the RCMP could be perceived as such authorities in the context of this model (Daniels, 1986:101).

To date, much of the development and empirical application of the concept of internal colonialism has been carried out in in the context of Latin American societies and Blacks in the United States (Blauner, 1969; Williams, 1978). Some recent use of this idea has been within the North American context as a framework in which to interpret the position of native peoples as internal colonies vis a vis the remaining dominant population. Some authors who have suggested this include Palmer Patterson (1972), Frideres (1974, 1983), Notkze (1985), Daniels (1986), Sandefur (1986), and Tanner (1983).

Within this framework, Indians are viewed as a separate people or a nation or nations within a nation in three ways:

> First, Indians are geographically isolated from the rest of society. This historical process of isolation has led to their residence far from the population and economic centres of the country. Second, there are distinct traditional Indian cultures and ways of life and dominant ... culture. These differences include the central emphasis placed by Indians on community and family that rivals in strength the emphasis placed by post-industrial American society on work ... Third, the geographical isolation of Indians and their desire to pursue their own style of life has led to their exclusion from full participation in the American economy (Sandefur, 1986:58).

The concept of internal colonialism is especially relevant in the context of Indian reserve development in that it rests upon a structure of domination and exploitation in social relations among heterogenous culturally distinct groups, i.e., Whites and Indians. These relations began with the virtually forced entry of non-natives into Indian society

and lands. The resultant impact of White/Indian contact upon Indian culture and social organization has been more than what would have 'naturally' occured because the colonizing Whites carried out a policy which "constrained, transformed or even destroyed the indigenous values and ways of life" (Blauner, 1969:396). Furthermore, the Indian people have been administered by non-natives and thus there is the added experience of being managed and manipulated by outsiders (Ibid). This process also helped to dismantle traditional native means of education, religion, and the like. Lastly, the racism accompanying colonialism has been manifested in the negative stereotypes which many non-natives have come to associate with Indian, e.g., drinkeness, lazyness, rowdyness, etc. Each of these components has served to support the system of domination and are part of the complex of colonization (ibid).

The components of colonization also serve to differentiate Indians from other ethnic immigrant minorities who have also had to struggle for their existance. For several generations, the wardship system under which Indian peoples lived kept them outside of, yet in full view of the developing mainstream society (Tanner, 1983:12). Indians did not start in the same place as did other ethnic groups who often possessed many of the work skills, values, and spirit of competitiveness compatible with the mainstream industrial society in which they now lived. Also, immigrants chose to migrate voluntarily in order to improve their fortunes. The lives of immigrants were not administratively controlled by outsiders, and they were left to transform their culture at their own pace (Blauner, 1969:396). These changes in culture and lifestyle were rarely as radical or complete as those demanded of Indians by the mainstream society. Note too that the notion of internal colonialism is more than an analysis of class structure alone. It may be distinguished from class relations in that it "is not only a relation of exploitation of workers by owners of raw materials ... but also a relation and exploitation of a total population ... by another population which also had distinct classes (Williams,

1978:274). In the case of native peoples, they constitute a 'total' population which has been subjugated by the dominant white population of Canada and the United States.

The conceptualization of reserves as internal colonies thus maintains that "the historical process of settlement and development has left the Indian population a separate colony developing outside of, while remaining in, the larger society" (Hecht et al, 1983:52). Indians are considered to be denied the benefits of the larger political-economic system in which they reside as internal colonies. Underlying the concept of internal colonialism is the model of a core-periphery spatial structure, which in turn rests upon the dependency paradigm. These are briefly outlined in the following section.

2.2.2 Core-Periphery Model

Like the diffusionist paradigm of development, the dependency paradigm may be applied world-wide to help explain underdevelopment (Mooney, 1976:391). This approach, while "recognizing the descriptions of unemployment and related poverty conditions as more or less accurate, attributed the cause of these conditions to full (sic) integration into the greater political economic society but in an exploited position" (Mooney, 1976:390).

According to the dependency paradigm, no dual economy exists, but rather core regions and their peripheries are functionally integrated into one system. In the core regions are concentrated economic and political power and influence, and the peripheries are the remaining areas which supply the cores with labour and resources. The core regions act as centres of labour migration, industrial agglomeration and innovation, and are characterized by high incomes, employment in secondary and tertiary activities and the provision of high quality education and health services (Hecht et al, 1983:53).

Exploitation inevitably occurs as "the ongoing development of the metropolis ... causes the increasing poverty or underdevelopment of the satellites, for while the satellites do not share proportionately in the surpluses from their own areas" (Mooney, 1976:391-2). It has been suggested that in addition to exploiting its hinterlands, the metropolis actually creates these hinterlands and "perpetuates as long as possible their economic, social and political dependence (Notze, 1985:1). As a result, the satellites or peripheries evolve into areas characterized by a predominance in primary and mono-export industries, low incomes, poor infrastructures, and inadaquate social services (Hecht et al, 1983:53). The development and underdevelopment of areas are the consequences of the same, functionally integrated historical process (Katz, 1980:27).

According to the dependency paradigm, Indian reserves have experienced a history of subordinate development that began before the first treaties were signed. Besides the protection of Indians, the explicit rationale of most treaties and other early Indian legisation based upon the wardship principle was to remove Indians off the more valuable, fertile lands so that this land could be used for the economic benefit of white colonizers (Ponting, 1986:138, Tanner, 1983:3). This relegated Indians "to the bottom rung of the ladder in a hierarchical system of economic exploitation" (Ibid).

Consideration of context and and historical trends may help to mitigate some of the major shortcomings of the dependency approach. Because the dependency theory developed as a critique of the shortcomings of the diffusionist economic development theory, it has been critisized in turn as

> being confined by the mirror-image limitations of the diffusionist problematic. Thus, for instance, one considers the spread of development, the other the spread of underdevelopment, one the need for greater world interdependence, the other the need for greater self-reliant development (Forbes, 1985:71).

The resulting causal explanations for underdevelopment are considered inadequate, as development is seen as a zero-sum process in dependency theory, whereby the advanc-

es of one nation were, and only could be, made at the expense of another (Forbes, 1985:71). This view places developing regions in a peripheral position determined almost solely by the dominant centres of power.

Thus, the dependency approach has also been criticized for its failure to take into account the different forms of underdevelopment. An understanding of the historical and cultural context is essential in interpreting research data because the economic and social development of countries and regions may vary considerably. The approachs' inability to differentiate different forms of development applies to the core/periphery model because "the major feature which determines the designation of 'satellite' is that it is dependent upon (and hence not) a metropole" (Katz, 1980:34). It is not clear whether all reserves are to be considered satellites and hence exploited by metropoles upon which they are supposedly dependent.

However, when some of the criteria which have been suggested to differentiate core from peripheral areas are considered then most reserves would probably fall into the latter catagory. Yeates suggested four chief characteristics of peripheral areas which would describe most reserves only too well (1985:103). First, peripheral areas lack the local markets and labour force required to support secondary and tertiary activities, but usually they have enough land to generate some primary output, e.g., agriculture. Second, peripheral areas are absorptive of innovations and are hence dependent upon the core for development. Peripheries also lack sufficient internal political and economic organization, and fourthly, they are poorly integrated, both internally and with the core areas.

It has been suggested that peripheral development and dependency are not necessarily mutually exclusive, but that certain types of development may result, e.g., specialized sectoral development. In the case of some reserves, successful combinations of participation in the wage economy and the continued pursuit of traditional lifestyles

may be the Indians' preferred mode of development. This may explain in part why some reserves have developed more than others, and enjoy higher levels of education, employment, income, etc. Some reserves along the coast in British Columbia have fared very well, while others remain impoverished in every sense, e.g., Grassy Narrows is well known for its desolation. On a world scale it is obvious too that some countries with apparently similar resources have developed in completely different directions and at different rates from other similarly endowed countries.

Different forms and levels of development are not sufficiently considered in the dependency theory. These reasons have lead theorists to yet another criticism, namely, of the theory's limitations as a guide to action (Forbes, 1985:74). If underdevelopment was attributed primarily to the exploitation of economic surplus of the periphery by the centre, the logical solution would be for the periphery to sever relations with the centre. Canadian reserves, let alone developing countries, can hardly adopt this as a strategy for development. Dependency theory has made valuable contributions to the understanding of underdevelopment by providing a critique of the diffusionist theory of development. In turn, criticisms of the dependency theory have focussed attention upon the socio-economic and class formations of developing areas. Elements such as the evolution of class structure, the history, culture, and other non-economic factors are now being increasingly included in development research.

Thus, the two development paradigms postulate diametrically opposed outcomes as a result of the interaction of communities with the mainstream economy: prosperity versus impoverishment, respectively. The literature suggests that past development policies based upon the diffusionist or acculturation paradigm have not benefitted reserve inhabitants adequately.

2.3 The Role of Accessibility in the Development Paradigms

The physical accessibility of reserves to non-native communities is considered a salient factor influencing development by each of the two development paradigms discussed. According to the diffusionist or acculturation approach, reserves in closer proximity to non-native communities would likely be the more developed and beneficially integrated into the mainstream economy and society.

In comparison, it may be inferred from the core/periphery approach that reserves experiencing substantial interaction and integration with non-native communities would be more impoverished than isolated reserves primarily as a consequence of the drainage of their labour and resources.

If accessibility is indeed a factor influencing development, then logically reserves with the greatest access to non-native employment and lifestyles would be most affected either way. This is assumed because such reserves would interact and integrate with non-native communities to a greater extent than more isolated, physically inaccessible reserves. If so, then a spatial pattern of development related to the nature and degree of accessibility of reserves to non-native communities may be identified.

Chapter III

ACCESSIBILITY AND CULTURAL AFFILIATION AS DEVELOPMENT FACTORS

> The rule enunciated by Senator Plumb of Kansas that sympathy with the Indian increases with the distance from him still seemed to apply (Cumming and Harrison, 1972:77).

The first part of this chapter will outline how physical accessibility has been perceived as a factor influencing reserve development. The literature review which follows is a brief summary of the limited number of studies which have endeavored to demonstrate the effects of physical accessibility of native communities to urban centres. These studies were conducted using different conceptual frameworks, with varying objectives and data, and they reached a number of conflicting conclusions. The last part of this section will introduce the criteria of physical accessibility as defined by DIAND. This classification of bands into four categories was later used to compare labour force and other characteristics.

The second part of this chapter will introduce the notion of using Indian culture areas as the basis for regional comparisons of reserve and the role of accessibility. It is argued that these boundaries provide a sound basis of comparison in addition to other artificial delineations, such as provincial and regional boundaries. The six culture areas into which Canada's Indian peoples have been classified are then described. These areas will form the basis of comparison amongst reserves for the second series of analyses which were performed.

3.1 Review of Literature on Role of Physical Accessibility

Physical accessibility has been cited as one of many salient factors influencing reserve development in much of the literature surveyed. Usually accessibility, or a lack of it, is rather vaguely defined as the isolation experienced by a band, or the 'remote' location of its reserves. Alternatively, actual distance from southern urban centres is used as a measure of accessibility. The absence of highway connections or a bands' dependence upon alternate means of transportation has also been mentioned as an indication of the degree of accessibility experienced by reserve communities.

The remote location and distance of reserves from non-native communities is normally perceived as a negative force which serves to alienate Indian communities from mainstream society. Lack of physical accessibility is thought to inhibit the diffusion of innovation and change, primarily by restricting Indian participation in the wage economy, as well as access to business opportunities and larger markets (Bone and Green, 1986:66). Poor accessibility is also assumed to raise the costs of importing various goods and services to communities, e.g., southern foods, fuel oil, building materials, as well as the services of doctors, teachers, and the like. Not only do these imports cost more, they take longer to arrive and some may not be available at all, or only for short periods of time. Thus, inhabitants of the more inaccessible communities may be forced to either do without an import, wait for it, or travel to where the good/service is available. In short, the 'remote' location or distance of reserves to other centres has conventionally been viewed as a cost or 'positive disutility' to be overcome (O'Sullivan, 1968:195).

Surprisingly little empirical research has been undertaken with the primary goal of investigating the possible socio-economic effects of the accessibility of reserves to non-native communities.

One of the earliest studies examining the role of physical accessibility was conducted in 1966 upon a representative sample of thirty-five Indian bands. Conducted at a time when policies concerning the development of reserves followed the diffusionist/ acculturation paradigm, this study investigated the hypothesis that urban proximity leads to acculturation (Hawthorne, 1966). Surprisingly, only a low correlation between urban proximity and economic prosperity was identified. The low correlation was evidenced by the author's findings that

> Among the highest income and most developed bands ... are several which are located at considerable distances from urban centres. Among the most depressed Indian bands are some located in or near White prosperous and expanding business or industrial towns that would seem to offer manifold job opportunities (Hawthorne, 1966:108).

Moreover, the following types of reserves were found to be anomalies:

> The more isolated bands in the northern belt and some of the more isolated rural bands in the Prairies are among the least developed ... By contrast ... most economically developed bands in the sample studied are located in or near large metropolitan centres or industrial towns (Hawthorne, 1966:108).

Hawthorne's study concluded that proximity to non-native centres was probably overshadowed as a factor in the development of reserves by social factors influencing native integration. Despite these and other findings, this study embraced the acculturation paradigm as its philosophy of development. Indians were supposed to progress "through a series of industries and occupations having widely different job characteristics and requirements with regard to skill, seasonality, punctuality, degree of mechanization, authority and supervision" eventually leading up to their successful assimilation into the national urban economy (Hawthorne, 1966:184).

Other studies using data more limited than Hawthorne's speculated that proximity plays a more important role in the integration of Indian reserves into mainstream society than did Hawthorne. Price (1978) postulated a hierarchy of reserves according to proximity to urban centres, claiming that the

> most distant reservations tend to be abandonned, to survive as retirement communities, or to turn to a low cost-of-living and welfare adaptation. Those reservations closest to the cities tend to develop a pattern of commuting to jobs in the city, population increase, and a new sophistication in working with modern bureaucratic politics (Price, 1978:131).

Prices' hypothesis, which subscribes to the regional diffusionist model, was not substantiated by empirical research.

Still working within the diffusionist paradigm, Bone and Green (1983, 1986) investigated the effects of differing transportation accessibility upon the level of Metis participation in the wage economy. 'Southern-style' development was postulated to have had a much stronger impact on residents in the more accessible communities than those in remote locations. It was assumed that "those settlements with year-round road connections to southern Canada have a stronger wage economy and hence wage employment is a more dominant factor in their economic life" (Bone and Green, 1983:92). The objective of the study was to identify economic differences that would demonstrate that the accessible centres are becoming more involved in the wage economy than the remote centres (1968:67).

The data used for this study was drawn from a 1976 housing survey of 34 north Saskatchewan Metis communities, of which 7 are classified as Indian reserves. The presence of a year-round road link was used as the criterion of accessibility on the premise that the absence of such a link is a major impediment to economic growth. Of the 32 communities, 20 are served by a provincial highway and are therefore classified as accessible, while the remaining 12 are classified as remote. Distance and the degree of accessibility as afforded by other means of transportation were not taken into account in this study.

It was found that the remote Metis communities tended to be smaller and more isolated, suggesting that they may be more strongly oriented towards a traditional land-based economy. The labour force of accessible communities was assumed to be more

integrated into the mainstream wage economy. It was hypothesized that beneficial spread effects would be stronger in the accessible communities, and should lead to higher incomes in them.

When the participation rates and average wage incomes for the two types of communites were compared they were found to be remarkably similar, suggesting that differences in the two types of economies were negligible.[1] However, an examination of the distribution of wage incomes revealed significant structural differences:

> 1) a larger proportion of the workers in remote centres (nearly 47 per cent) fell into the low income class, compared to only 38 per cent of the workers in accessible centres; 2) the middle-income class was considerably larger in accessible centres (50 per cent) compared to remote places (35 per cent); and 3) the high-income class was (surprisingly) larger in the remote centres than in the accessible ones (Bone and Green, 1986:68).

These differences were attributed in part to differences in the length of employment, rates of pay, and differences in income earned by self-employed workers.

Male workers were found to earn approximately 80 per cent of the earnings both types of communities. Furthermore, the average wage income for women is significantly lower in remote centres as compared with accessible ones, $2,851 and $3,355 respectively (Ibid). The more traditional role of Metis women and lower rates of pay for female employees in remote centres were suggested as reasons for these income differences.

The last part of these authors' 1986 study sought to investigate the importance of accessibility in economic development by testing three hypotheses using the tau c statistical technique. It was hypothesized that income increases with age, with education, and with employment in a public sector. The tests revealed that per capita income does not increase with age in either type of community. Per capita incomes were found

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[1] Annual income was classified into three classes: 1) low-income class was defined as those wage earners receiving an annual income of $3,000 or less; 2) middle-income class refers to those receiving $3,001 to $9,000; and 3) high-income class receiving over $9,000 (Bone and Green, 1986:67).

to rise with increases in education for both men and women in accessible communities, but only for women in remote ones. In addition, it was found that income increases with employment in a public sector for both sexes only in the accessible communities.

The major findings of these studies by Bone and Green are twofold. First, "greater road accessibility to the south has not resulted in higher annual wage incomes" (1986:70). However, the different wage distributions were thought to suggest structural differences between the two types of economies. Also, the differing effects of age, education, and public sector employment in accessible and remote communities reinforced this finding, and indicated that "the economy of accessible centres is taking on some of the characteristics of other Canadian urban places" (Ibid).

Second, the authors concluded that wage employment was important in both types of communities (1983:98-99). The structural differences in the economies suggested that the role of wage employment may differ with traditionally-oriented Metis located in remote communities who use wage employment as a means of financing their preferred, traditional activities such as hunting, fishing, trapping, and food gathering.

Using the diffusionist paradigm to analyse the findings of these studies the authors concluded that these communities are indeed "marginally located" in terms of their potential for economic development, because the 'trickle-down' effects appear to have been unable to surmount the spatial barrier of reserve inaccessibility. The next study which will be discussed approaches the subject from a different perspective.

Hecht conducted an empirical study to investigate the conditions of Indians in Ontario as a cultural minority group in a core-periphery spatial study. Hecht postulated that "the Indian minority is disproportionately concentrated in peripheral geographic and socio-economic space in relation to the Province's dominant charter group of British origin" (Hecht et al, 1983:55).

The evidence for this hypothesis would be found in the "spatial isolation of the Indian population from the Toronto-centred core, its segregation on reserves from the British, and its concentration in the Province's more deprived areas" (Ibid). Such differences would also be evidenced by the lower levels of wage income, educational achievement, occupational status, housing, health conditions, and employment experienced by Indians.

Moreover, Hecht postulated that "the isolation of the Indian society will contribute, over time, to the persistance of cultural dissimilarities in that society" and that this would be evidenced by a "higher degree of native language retention and a separate political culture" (Ibid).

By examining data for all census divisions in Ontario, Hecht found that the Indian population is over-represented in the north. The Indian population was characterized by low incomes, high unemployment, and a disproportionate over-representation in low-status, primary occupations. Furthermore, it was found that "socio-economic conditions are particularly severe on the isolated reserves" when the occupational structure and income levels of various districts were compared. Hecht also found that Indian workers were often restricted to a narrow range of occupations, and to intermittant and/or seasonal work.

Hecht drew upon Ansari's study of spatial variations in levels of socio-economic activity across Ontario (Ansari, 1979). In his study, Ansari performed a factor analysis using 47 socio-economic variables for all 914 townships (census subdivisions) of Ontario.

This analysis yielded standardized scores for nine significant factors for 23 reserves. Of these, standardized scores for 7 factors were subsequently correlated with kilometre distances of reserves from Toronto by Hecht. From these correlations, Hecht noted that socio-economic status (as defined by Ansari) declined with distance;

and that the further a reserve is located from Toronto the fewer the number of English-speaking poor; or alternately, the greater the number of native-speaking poor. Some primary employment and middle-income earners are found on reserves distant from Toronto; and Indians are successful in some reserves in earning incomes from mining and forestry industries in northern Ontario. Moreover, Hecht found that unemployment is unaffected by distance and tends to be common to all reserves (1983:71). From the correlation coefficients, Hecht concluded that "as the core-periphery model suggests, the socio-economic peripherality of reserves is related to their spatial peripherality as measured by distance" (Ibid).

The application of a simple correlation and multiple regression analysis between well-being and eight regional characteristics in both the Indian and British populations was used to contrast the two groups. Well-being was measured by average family income, and average wages and salaries. Two of the regional characteristics used were distance measures: distance from a census division's major population centre to Toronto; and from the Windsor-Toronto-Cornwall manufacturing corridor. The results indicated that

> Whether Indian well-being is measured by family income or wages and salaries, it tends to decrease with distance from the core. ... This inverse relationship supports the similar negative correlation calculated between Ansari's factor for socio-economic status on reserves and their distance from Toronto (Hecht et al, 1983:74).

Well-being of the British population, in contrast, was found not to vary significantly in locations distant from the core. Note that the status Indian population was identified earlier as being over-concentrated in the ten northernmost census divisions.

To test the hypothesis that the remote location and isolation of the Indian population contributes to the persistance of its cultural traditions, Hecht correlated reserve distance to Toronto with the percentage of those claiming a native language as their mother tongue, and the percentage of those claiming their native language was spoken

most often at home. In both cases a significant positive relationship was found, indicating the prominance and retention of native languages in more remote locations (Hecht et al, 1983:78).

From this research, Hecht concluded that Ontario's Indian population comprises a relatively powerless political subculture as a result of their spatial, socio-economic, and political separation from mainstream society. Furthermore, Hecht noted that "Although some individuals have attained higher levels of well-being in the core, as a group they remain on the periphery of Ontario society" (1983:78).

The most recent research examining the role of accessibility in reserve development was done by Armstrong in 1988. Accessibility was an explanatory variable incorporated into a model of local area economic sucess. This model

> views economic success as the degree to which the localized population is able to earn income through employment. Economic success is seen as resulting from an unexamined set of dynamics (treated as a black box) associated with the educational level of the area's population, the degree to which native culture is present and incompatible with mainstream culture, whether or not the local area comes under the legal framework of the Indian Act and the degree of accessibility of the area to markets and the basic factors of production (Armstrong, 1989:10).

Data for this analysis was accessed from the Statistics Canada and covered 629 census subdivisions characterized by populations being at least 25 percent Native. Variables selected included the proportion of people aged 15 or greater with less than a grade 9 education; those that have some university education; the proportion of the population that claimed exclusively native ancestry, and accessibility. In addition, two dummy variables indicating if a census subdivision is an Indian reserve, and if it is located in the national manufacturing core were included. Accessibility was measured in an innovative way as accessibility disadvantage at the regional core. Each census subdivision was assigned a value for this variable, which is "measured as the average straight-line distance per person (in kilometres) to assemble the nearest 100,000 to a CSD centroid" (Armstrong, 1989:11).

These factors were forced into a multiple linear step-wise regression analysis to determine if, and to what degree, total employment income is significantly associated with the variables selected. Armstrong found that all of the independent variables except the dummy variable indicating location in the core are significantly related with total employment income.

Second, a negative correlation between accessibility and total employment income was found. Armstrong concluded that education and cultural factors are major determinants of economic development in Indian reserve communities, and that "lack of accessibility and provisions of the Indian Act are potential impediments to development, but do not generally influence development at the present time due to the overriding influence of other factors (1989:13).

To date, there has been a very limited amount of research conducted to identify and analyze the role of accessibility as a factor affecting reserve development. The studies which have investigated the role of physical accessibility approached the problem using different conceptual frameworks, analyzed different types of data for different population samples, employed a variety of statistical techniques, and, not surprisingly perhaps, reached different, even contradictory conclusions. These studies have identified physical accessibility as a potentially important factor influencing reserve development, but the extent and nature of these effects remain to be further investigated. One of the aims of this study is to further explore the role of physical accessibility in the development of the reserve labour force. To this end, 1981 census data for 557 reserves across all of the provinces were used to analyze reserve population characteristics. This data included indicators for income, education, occupational structure, labour force participation, and language skills. The reserves were classified into four access categories: urban, rural, remote and special access according to a system used by DIAND. By using this system, the reserves could then be compared to each other

using the indicators provided in the census data. To date, this is the first endeavor made to compare a nationwide sample of reserves on the basis of their physical accessiblity. The following section will describe the DIAND scheme which was used to classify the reserves by access.

3.2 Classification of Reserves into Access Categories

DIAND categorizes bands by geographic zone and nearest service centre for determining funding for housing and capital infrastructure (DIAND, 1983). A service centre is defined as a community where the following services are available:

1. suppliers, material and equipment, i.e., construction, office, etc.;
2. a pool of skilled and semi-skilled labour;
3. at least one financial institution, i.e., band, trust company, credit union;
4. provincial services, i.e., health services, community and social services, environmental services; and federal services, i.e., Canada Post, employment services, etc.

Road access includes surface transportation on year-round paved or gravelled roads linking the Indian community with the nearest regional centre.

Urban bands are those which are located within 50 kilometres from the nearest regional centre by year-round road access. Rural bands are those located between 50 to 350 kilometres from the nearest regional centre by year-round road access. Remote bands are those located over 350 kilometres from the nearest regional service centre by year-round road access. Special access bands lack year-round access to the nearest regional centres, and may be served instead by ferries, airplanes, or a combination of these with roads not open all year.

DIANDs' system of classification takes into account not only the degree of accessibility as defined by distance to a service centre, but also alternative transportation to

highways, such as winter roads, air transportation, and skidoo routes in the case of communities classified as 'special access'. Increasing distance and the use of such alternative transportation tends to limit the types of goods shipped and to increase the cost of access both in terms of time and money required (Bone and Green, 1983:95). The table below lists the breakdown of reserves by access catagory for all 557 reserves in the dataset, and also for the 249 reserves in the data subset containing income variables.[2]

Table 1: Classification of Reserves by Access Category

Access Category	249 Reserves	557 Reserves
Urban	84	199
Rural	102	259
Remote	12	21
Special Access	47	71
Not Classified	4	7

The DIAND classification scheme is limited to the concept of physical accessibility and does not extend to the idea of social access to non-native communities, nor to other intangibles such as access to education, employment and other opportunities off-reserve. In other words, this scheme does not touch upon any of the non-physical impediments to mainstream opportunities which are experienced by Indians.

The measure is somewhat crude too, in several aspects. The criteria used to define a service centre is such that only a bare minimum is specified: by the definition, a service centre may range in size from a small town to a city the size of Vancouver. Obviously the potential impact of large cities is different than that of small towns upon reserves of the same access category.

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[2] On page 40 it is explained how income data is provided for only 249 out of a total of 557 reserves as a result of the 250 rule of area suppression applied to all income data.

Also, the kilometre range used to distinguish one access category from another, and that within categories, is quite large. For example, remote reserves are all those located more than 350 kilometres from the nearest service centre by year-round road access. This could be 400 kilometres or it could be 1000! Rural reserves can be located 51 or 349 kilometres away from a service centre, and this is a large range. However, the DIAND classification scheme is very useful in that it is comprehensive, that is, it is available for all the bands used in this study, and it is assumed to be fairly accurate as well.

3.3 Culture Areas as Spatial Divisions for Analyses

One of the reasons for the lack of extensive research into this domain may be attributed to the fact that until recently, the data required to conduct such research was either non-existent or available for only a limited geographic area, e.g., Ontario or northern Saskatchewan. The lack of suitable data has hindered researchers from making regional comparisons of reserves. For example, reserves have yet to be compared in terms of their accessibility and development across the provinces or any other spatial divisions. DIAND and Statistics Canada have conducted a number of provincial and regional analyses of reserves, with the focus upon describing levels of educational achievement, employment and un/under employment, and the like (DIAND, 1980; Siggner, 1983; Statistics Canada, 1984).

The paucity of comparative research on reserve development on a basis other than by province prompted the idea of using culture areas as the basis of regional comparisons in this study. It is argued that culture areas offer a more logical basis for making regional comparisons of reserves than other artificially superimposed types of boundaries such as provincial borders or census tracts. This is because culture areas constitute geographical areas which evolved naturally and because they contain more

homogenous groups of peoples than can be delineated using other types of political divisions. The peoples of each culture area are assumed to be more homogenous because they share similar customs, cultural traits, and usually the same linguistic affiliations as well.[3] At the same time, the peoples of a culture area show a significant degree of dissimilarity with the cultures of peoples of other such areas (Driver, 1969:17). Of course, within these culture areas a variety of cultural and linguistic differences exist, and it is certainly not assumed that culture areas constitute flat, homogenous culture plains!

Culture areas will be used in two different ways as the basis for making comparisons amongst reserves. First, they will be used to compare various characteristics of reserves, such as levels of income earned, educational achievement, occupational structure, and the like across the different culture areas. From these comparisons we may find, e.g., that reserves affiliated with certain culture areas are characterised by different income levels, employment structures, etc., than reserves in other culture areas. These differences may be linked to the particular traits of each group rather than to the fact that they are located in particular provinces if provincial boundaries were used as the basis of comparison.

Second, the analyses of culture areas may also help us to understand more about the role of accessibility as a factor influencing the development and evolution of the reserve population. Culture areas are characterized by distinct cultural traits, customs, beliefs, linguisitic affiliations, and other factors. Culture areas are not only distinct from each other, but also from the mainstream Canadian culture. Some culture areas may be more acculturated than others, and this may also have a comfounding effect upon the influence of accessibility upon labour force development. If the members of a

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3 In some cases tribes in one culture area may speak languages belonging to different linguistic families. This disparity between cultural and linguistic areas has occurred "because historically tribes have moved from one area to another, retaining their language but adapting to a new set of environmental conditions" (Energy, Mines and Resources Canada, 1980).

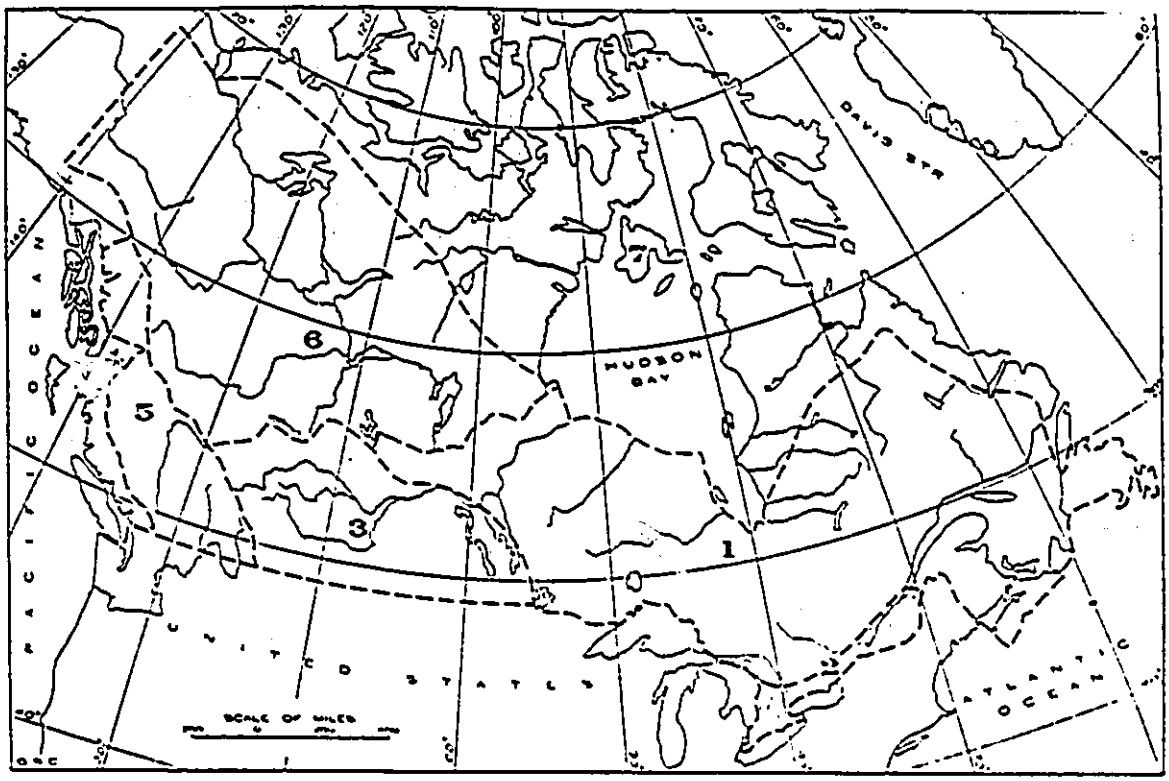
particular culture area generally tend to reject the values and norms of the mainstream culture, then their physical accessibility to non-native centres may be of little consequence, as they would want to retain their own culture and lifestyes. Many of the values and cultural traits of native societies are different and even at odds with those of the mainstream culture in Canada, so this is an important consideration.

By comparing culture areas using indicators such as educational achievement and language use and retention, we may gain more understanding about the levels and types of acculturation taking place in reserve societies.

Thus, we may contrast separate analyses of labour force characteristics and access for individual culture areas. From this it will be possible to determine if accessibility is consistently influential as a development factor in the culture areas contrasted. Or, we may discover that there are distinct patterns amongst the access samples of various culture areas. This type of comparison will presumably be more meaningful than comparisons of reserves in different provinces.

Figure 1: Culture Areas of Canada

Taken from Diamond Jenness *The Indians of Canada* 1934.



Cultural areas of Canada. 1, Migratory tribes of the eastern woodlands; 2, Agricultural tribes of the eastern woodlands; 3, Plains' tribes; 4, Tribes of the Pacific coast; 5, Tribes of the Cordillera; 6, Tribes of the Mackenzie and Yukon River basins; 7, The Eskimo.

CULTURE AREAS

1. Algonkian
2. Iroquoian
3. Plains
4. Pacific Coast
5. Plateau
6. Mackenzie River

3.4 Culture Areas

The concept of culture areas of North American native peoples was developed and codified beginning in the late 1900's with Otis T. Mason, who originally conceived of eighteen 'environments' (Kehoe, 1981:11). These were later reduced to twelve, and it is this figure which is still generally accepted by anthopologists today. By 1914 Clark Wissler published a map of the "Material Cultures of the North American Indians" which integrated six major food staple areas with the established geographic regions. Alfred L. Kroeber further developed Mason and Wisslers' schemes by incorporating vegetation zones, and produced *Cultural and Natural Areas of Native North America* in 1931.

Through the use of culture areas, a wide array of descriptions of numerous native American societies could be organized into a scheme. Thus, by identifying the location of a tribe, one could "predict its major food resources, nomadic or sedentary settlement, level of political complexity, and so forth" (Ibid). Culture areas were also thought to be useful in identifying environmental factors which had influenced human societal development over time.

Culture areas may be viewed as 'geographical units of culture' which share similar customs, cultural traits, linguistic affiliations, economies, and political organization. Culture areas exist because the peoples in each area tend to resemble each other rather than distant groups for two reasons:

> (1) all peoples within a geographical region must adjust their diet, shelter, and other biologically demanded practices to the conditions of that region, and (2) people borrow ideas from and adjust to adjacent social groups (Kehoe, 1981:13).

It was noted earlier that culture areas do not constitute homogenous plains. Culture areas are inherently unstable because climate, topography, soils and vegetation change over time, and because migrations, epidemics, and inventions change human populations (Ibid).

Thus, in regard to historical cultural affiliations, Waldman notes that

> whichever system is applied, it should be kept in mind that the modern categories meant nothing to the Indians themselves; that tribal territories were vague and changing, with great movement among the tribes and the passing of cultural traits from one area to the next; and that people of the same language family sometimes lived in different culture areas, even in some instances at opposite ends of the continent. In summary, the culture areas are not finite or absolute boundaries, but simply helpful educational devices. (Waldman, 1985:30).

It has been suggested that culture areas are best considered as mental constructs to help us to organize the various tribes, as the boundaries are essentially spurious in some cases, and also because each group within a particular culture area also possesses unique practices (Morrison and Wilson, 1986:16). Thus, most details of various cultures do not fit the areas exactly, and the boundaries drawn on maps overemphasize the sharpness of the break between one culture and the next (Driver, 1969:18). In reality, the boundaries of culture areas "are generally the lines at which the two ways of life are in balance and only occasionally represent an abrupt break (Idem:19). Culture areas constitute a classification system useful for analyzing the various social and physical factors which have influenced the development of a way of life (Kehoe, 1981:13).

Six culture areas encompassing Canada's Indians have been identified in according to the classification system cited by the literature distributed by DIAND (DIAND, 1979). These are listed along with the number of reserves falling into each catagory in Table 1. This classification is according to Diamond Jenness, a noted scholar who did much in the field of native Canadian anthropology, in his work entitled *The Indians of Canada*. Please refer to Figure 1 for a map depicting the six culture areas.

These culture areas comprise half of the twelve culture areas which have been identified for all of North America (Waldman, 1985:30).[4] Regardless of which scheme

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[4] According to Driver, North America may be divided into seventeen culture areas. Note that Canada's bands fall into only six areas and these basically correspond to Waldmans' classification.

Table 2: Classification of Reserve Sample by Cultural Affiliation

Cultural Group	557 Reserves	249 Reserves
Algonkian	227	133
Iroquoian	6	5
Mackenzie River	19	4
Plains	93	52
Plateau	85	18
Pacific Coast	107	27
Not Classified	20	10

is used to establish cultural areas, the greater part of Canadian territory falls into the subarctic or Algonqian culture area. It may also be noted from Table 2 that the breakdown of reserves is not evenly proportioned, nor does it necessarily parallel the geographic area covered by each culture area.

In the following section, the six culture areas will be briefly introduced, with their principal tribes, linguistic affiliations, and economic base (DIAND, 1986; DIAND, 1979).[5][6] Canada's largest and easternmost culture area is that of the Woodland or Algonkian Indians. Eight principal tribes comprised this area, all of whom spoke languages affiliated to the Algonkian family. These included the Micmac, Malecite, Montagnais, Naskapi, Ojibway, Algonkin, Cree, and the now extinct Beothuk. This culture area extends from the Maritime provinces through Quebec and Ontario, all the way west to the prairie frontier, where Cree territory finally ends.

The Iroquoian culture area is very small in Canada, and it is located in southeastern Ontario. The Huron, Tobacco and Neutral nations, plus the Iroquois historically inhabited this area. The Iroquois nation is actually a confederation of the Mohawk,

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5 A more detailed summary is provided in Appendix 1.

6 Detailed descriptions may also be found in DIAND's *The Canadian Indian*, MacMillan's *Native Peoples and Cultures of Canada*, and in *The Indians of Canada* by Diamond Jenness.

Oneida, Onondaga, Cayuga, Seneca, and Tuscarora tribes. The Iroquoian tribes' economy was agriculturally based, in comparison to that of the Algonkian, which was a migratory lifestyle based upon game, fish and wild fruit harvesting.

The Plains Indians included eight principal tribes with different linguistic affiliations. Of these, the Plains Cree, Gros Ventre, Blackfoot, Blood and Peigan spoke languages belonging to the Algonkian linguistic family. The Sarcee spoke an Athapaskan language, and the Assiniboine and Sioux spoke languages affiliated to the Siouan family. These tribes were located in the Prairies, and their economies were based upon the buffalo.

Another vast area, but containing relatively few reserves, is the Mackenzie River culture area. This area covers over one-quarter of Canada's land mass, and is located around the Mackenzie and Yukon River basins, and the woodlands north of Churchill River. Twelve tribes speaking languages of the Athapaskan family lived here.They are the Chipewyan, Beaver, Slave, Yellowknife, Dogrib, Hare, Kutchin, Han, Tutchone, Kaska, Mountain, and Sekani tribes. These tribes followed a semi-nomadic lifestyle based upon hunting cariboo, moose, hare, and fishing and gathering berries.

The Plateau culture area covers the interior plateau of British Columbia and the Yukon. Six principal tribes live here, which consist of numerous groups speaking languages affiliated with the Salishan, Athapaskan, Tlingit and Kootenayan language families. These six tribes included the Interior Salish, Kootenay, Chilcotin, Carrier and Tahltan. Theirs was an economy based upon fishing, especially salmon; hunting, and gathering berries. Aside from using similar fishing techniques, this culture area is characterized by pronounced differences in the social organization and house designs amongst the various tribes.

The westernmost Pacific Coast culture area is located, as its name suggests, along the coast and islands of British Columbia, including the Queen Charlottes and Vancou-

ver Island. This area includes the Haida tribe, which is the only one which speaks Haida. Other principal tribes include the Tsimshian, Nootka, Coast Salish, Kwakuitl and Bella Coola. These tribes spoke languages belonging to the Tsimshian, Salishan and Wakashan language groups. Their coastal location is reflected in their fish and seafood based economy, with a highly developed trade system amongst the numerous coastal bands.

3.5 Goals and Hypotheses

To conclude, the goals of this research are two-fold. The first is to explore the relationship between labour force development of reserves and their physical accessiblity to non-native communities. The second goal is to investigate the relationship between culture group affiliation of reserves and reserve labour force development.

To address these broad goals two hypotheses have been formulated. These null hypotheses may be tested and either accepted, or proven to be invalid. For the first research goal the null hypothesis is simply that reserve laobur force characteristics do not differ significantly amongst the four access groups of reserves. The null hypothesis for the second goal is that the reserve labour force characteristics do not differ significantly amongst the six culture area groups of reserves.

The analyses will seek to prove these null hypotheses to be invalid. We expect to find significant differences, e.g., in the levels of education, levels of native language retention, occupational structure, and other socio-economic indicators used to profile the reserve labour force, among the samples compared.

Chapter IV

METHODOLOGY

This chapter will present the objectives of this study first. The statistical methods which were selected to best test the hypotheses will then be discussed. Chi-square analyses were employed to analyse the data, which consists of frequency counts of nominally defined catagories of population characteristics. Next, the data quality and coverage will be outlined to show the types of data which were used in the analyses. The last section will describe how the data was prepared before it could be used in the SAS system.

4.1 Objectives

The objectives of this study are to:

1. identify the effects of differing levels of transportation accessibility upon the reserve labour force; and
2. to identify the effects of historical band affiliation with different cultural groups upon the reserve labour force.

4.2 Chi-square Tests of Significance

Chi-square tests were used in the analyses to determine if the differences among the samples of data are truly significant or due merely to chance. If it appears that the relationships are due to chance, then there is little point in looking for explanations of these insignificant relationships.

In the first set of analyses, four groups of data are compared. These samples were created on the basis of the level of accessibility assigned by DIAND to each reserve, i.e., urban, rural, remote, and special access.[7] The samples of data will be compared in terms of various labour force indicators to see if they were drawn from the 'same' population (Shaw and Wheeler, 1985:131). These indicators have been subdivided to represent various levels, e.g., of income, educational achievement; and various catagories of occupation, languages spoken at home, class of worker, etc. This set of anayses will aim to show whether or not any differences in the labour force indicators are due to random sampling variations or if they are contingent upon accessibility as defined in the four access catagories.

In the second set of analyses, six samples of data representing the culture areas are used. Here, the aim is to discern any significant differences among the six culture area samples, again in terms of labour force indicators.[8]

By examining the two-way contingency tables produced for each indicator (group), it will be possible to gain insight into the nature of any differences among samples which exist by comparing the observed and expected frequencies and their deviations. Furthermore, these tables serve to show the breakdown of the reserve labour force according to each indicator subdivision across the the samples. This is important because the chi-square tests performed are all non-directional. For example, a preponderance of paid versus self-employed workers was found to exist for all of the samples. Moreover, this ratio was different for each of the sample reflecting different employment patterns for each of the samples. Not only could the null hypothesis be rejected in the case of this particular indicator, but it was also possible to see which samples are under or over-represented.

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7 See pages 27 to 28 for a detailed description of these categories.

8 The six culture areas are indicated with a breakdown of reserves affiliated with them in Table 1.

The data are well suited for this type of analyses as it meets the basic criteria of the test (Williams, 1987:119). First, the data consists of frequencies classified into nominal catagories. Second, there are a large number of observations, i.e., 249 for the three analyses using income variables, and 557 for the remainder. Third, the expected frequency in any one catagory is never zero, i.e., there are no cell values of zero. To meet this criteria, all the actual counts (persons) for each reserve, for each indicator were summed to provide the cell values for each indicator catagory.[9] Lastly, the observations will not influence each other. This is because the reserves are located some distance apart, i.e., they are not contiguous.

High chi-square values were expected from the analyses for two reasons. First, these will indicate significant relationships providing the observed probabilities are also very low. Second, the tests were performed on a dataset containing a great number of observations. This is expected to contribute to high test statistics (Norusis, 1983:53).

4.3 Data Quality

4.3.1 Statistics Canada Census Data

The data used in the analyses was accessed from the 1981 Census of Canada and from a 1981 Statistics Canada Profile Series B user summary tape (UST) and from DIAND. The UST provided most of the data used, including variables representing official language proficiency, educational achievement, occupational and industrial labour force breakdown, as well as income distribution.

The census subdivision, or municipality, was selected as the unit of analysis for this study. This is the smallest unit for which data is provided on the UST selected. For the first time in 1981, the census reported data for reserves and unorganized territories separately in tabulations which supply data by census subdivision (Statistics Can-

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9 These counts constituted the observed frequencies upon which the expected frequencies were based.

ada, 1982:98).The UST selected is one such tabulation. The municipal status of each census subdivision is given in the form of a csd type code. Indian reserves, Indian settlements and non-reserve settlements were identified and pulled from the UST by their type codes, which are 91, 92, and 93, respectively. (Statistics Canada, n.d.:n.p.). The total number of csds identified in this way as potential study cases was 593.

Since the data for the UST used was collected on the csd level, it is representative of both native and non-native reserve inhabitants. For example, reserve inhabitants may be status or non-status Indians, Metis, or have some or no native ancestry. Thus, the analyses performed in this study are based upon reserve rather than specifically Indian reserve populations.

This particular UST was chosen instead of Statistics Canada's Native Peoples tape because of the differing rules of area suppression applied to each tape. The Profile Series B UST which was selected contains data subject to only a 25/50 rule of area suppression. This means that all geographic areas, as well as all data, are dropped in cases where there are fewer than 50 persons for self-enumeration, and fewer than 25 persons for canvasser areas (Statistics Canada, n.d.:n.p.). This rule eliminated the least populated reserves from this study.

In comparison, the Native People's UST uses a 100/500 rule of suppression. The only exception to this rule is data showing population counts of total, Native, and non-Native peoples (Statistics Canada, n.d. b:52). By selecting the much larger Profile Series B UST, data for many more csds was available for analyses, i.e., 593. This is the case for all data except those variables representing income distributions. Income distribution data is deleted if the total csd population is less than 250. For the purposes of this study, the two rules of area suppression meant that all data is availables for all csd's with total populations larger than 250; and that all non-income data is available for csd's with populations less than 250, but greater than 25, given the 25/50 rule

of area suppression. This was an important factor limiting the scope of some of the analyses performed.

To preserve confidentiality, all figures are randomly rounded, either up or down, to a multiple of 5, except for total population, land area, and all ratio variables. This has two implications of significance here. First, it means that very small cell counts may suffer some distortion because the rounding technique used is random, i.e., the precision of some minimal cell counts may be affected. Second, random rounding meant that if percentages were calculated on the rounded figures, they would not necessarily add to the total. However, Statistics Canada indicates that "when data cells are reaggregated by the user the rounding errors tend to cancel out" (Statistics Canada, n.d.:n.p.).

For some variables, many of the cell values were zeros. Zero values may indicate either missing, i.e., suppressed or not available data; or actual zero values. According to Statistics Canada, it may be assumed that virtually all zero counts in the UST do represent actual zero values for that particular variable. As the data was summed for each category, i.e., access or culture area, this did not affect the analyses.

The data for the UST selected was collected on a 20 percent sample basis and then weighted to compensate for sampling. The values are therefore not entirely consistent with data collected on a 100 percent basis, as it is an estimate only of the entire population.

Coverage errors may affect the data quality if reserve inhabitants were double counted or missed. Statistics Canada has indicated that the tendency is towards under estimation at a rate of about two percent (Statistics Canada, 1983:54). This may be an overly conservative estimate, as the real rate of undercoverage may run as high as twenty percent in some communities. In his comparison of census labour force age population figures to counts given by DIAND and another survey of five communities,

Hull discovered that the Census tended to undercount the native population by a significant amount. Furthermore, Hull found that the size of the undercount varied substantially from community to community (1984:154). Some of the problems associated with obtaining an accurate count include

> differences in the definition of on-reserve residence between Indian Affairs and the Census, late reporting of birth, deaths and marriages to the Indian Affairs Department, financial incentives to individuals and reserves in reporting on-reserve residency, possible failure of parents to report the status of foster or adopted Indian children, and failure of women without Indian ancestry who are married to status Indian men to report their legal Indian status (Hull, 1984:148).

In addition, coverage may be adversely affected by the use of mail-out surveys, as well as the reluctance or difficulty some native people have in responding to questionaires. Finally, a large proportion of reserves are located in rural or remote areas which "present particular problems of accessibility which hamper the enumeration process" (Hull, 1984:154).

Response errors may have occurred if responses were incorrectly coded, or where reserves have refused to participate. The local governments of some reserves refused to allow enumeration, including the Kahnawake 14, Webequi, Wunnumin 2, Kingfisher 1, Peigan 147, Cowichan 1, Cowichan 9, and Theik 2 reserves. (Hull, 1984:158, Statisties Canada, n.d.:n.p.). These reserves contain a total population of 9,510, and were not included in the study as data was not available.

4.3.2 DIAND Data

DIAND was the othe major source of data. Most of the data accessed from DIAND is also generated by the department. Data representing accessibility and cultural affiliations were accessed from DIAND.

The DIAND data used was reported at either the reserve or band level. Data reported at the band level was disaggregated to the reserve level. For example, cultural group affiliation was reported for each band only, so that reserves belonging to a

particular band were assigned the same cultural group affiliation. This applied to access category affiliation data as well. This method of classification implies some problems in the case of access levels assigned. Most bands have several reserves, although the majority of the band population will usually reside on one reserve only in order to minimize infrastructure and service costs and to have better access to schools, band services, and the like.

Most band offices are located on the most populated reserve belonging to each band, and it is from the reserve on which the band office is located that a bands' level of accessibility is calculated by DIAND. The problem, of course, is that not all of a bands' reserves necessarily fall into that access catagory, as they may be located in different areas. However, nearly all of the reserves used in these analyses are those containing by far the majority of its bands' population, and therefore we may assume that the access catagories assigned are correct in most cases. This assumption will be violated most frequently in British Columbia because it is here that many bands have a great number of reserves, and in some cases have sizable populations living on several of them.

4.4 Data Preparation

After manually entering all of the DIAND variables, a master dataset consisting of both the Statistics Canada and DIAND variables was created. All Yukon and Northwest Territories observations were deleted at this point. These areas were excluded for several reasons. DIAND data for them was incomplete, e.g., cultural and linguistic affiliation data was not available for the Yukon, and in the case of the NWT, all reserves and settlements would fall into one group. In addition, the populations of many of these areas was so low that Statistics Canada did not provide data for them in the UST. Finally, it was decided that the Yukon and Northwest Territories are suffi-

ciently diverse, both internally and from the remaining areas included in the study, to merit separate study at another time. Excluding the Yukon and Northwest Territories reduced the total number of reserves available for study to 557.

At this point, all UST variables were divided by 100 to eliminate the two redundant zeros contained in each UST cell value.

The last step in preparing the data for subsequent analyses was to create dummy variables for all ordinally scaled DIAND variables. These variables originally grouped each observation into one of the four access groups and one of the six culture areas. The original variables were kept for sorting purposes later. The new dummy variables contain dichotomous values, e.g., a value of either one or zero.

Dummy variables were created because in their original form, these ordinally scaled variables could only be used to group the data into subsets, e.g., all observations falling into the 'urban' access class. Subsequent analyses would then have to be performed separately upon each subset of data and the results compared for significant differences. At this point, the data was ready to be used in the chi-square analyses.

Chapter V

COMPARISONS OF RESERVES BY LEVELS OF ACCESSIBILITY

The first set of chi-square analyses aimed to determine if any differences in labour force characteristics exist among the reserves falling into the four accessibility catagories. Thus, four samples were used for this analysis based on the level of accessibility determined for each reserve.[10] The four samples used are urban, rural, remote, and special access reserves. Chi-square test statistics and detailed two-way contingency tables were produced for the four samples by a number of variable groups. All of the chi-square test statistics were highly significant at very low probability levels. This was as expected because of the large sample size or numbers of observations used in the tables.

Much more useful than the test statistics were the contingency tables. These tables included the observed and expected frequencies under the hypothesis of independence; the deviation of the cell count from the expected value; row and column percentages and totals, and finally the percentage of the total frequency (or population) represented by each cell. The contingency tables are given in Appendix B. The figures provided allowed for analyses of any differences and trends identified amongst access samples in the catagories of variables used.

The variable groups have been classified as follows: education, language proficiency, labour force activity, occupation structure, and income. Two-way contingency tables for each of these catagories by access samples are discussed below in the same order.

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10 For a description of the criteria determining each accessibility catagory, please refer to pages 27 and 28.

5.1 Levels of Education Attained

A two-way table consisting of four access samples and six classes of educational achievement was analysed. The six levels consisted of education of less than Grade 9 (or functionally illiterate); grades 9 to 13 without a secondary certificate; the same but with a certificate; a trades certificate or diploma; some university education; and a university degree.

It was hypothesized that the greatest proportion of the population aged fifteen or older would not have completed highschool, and furthermore, that the levels of educational achievement would decline with decreasing levels of accessibility.

Table 3: Levels of Education Attained, by Access

	Less than Grade 9	Grades 9-13 no diploma	Grades 9-13 with diploma	Trade diploma	Some Univ--sity	Degree (s)
Urban	40.6%	41.7%	7.0%	3.2%	5.2%	2.1%
Rural	53.2%	36.4%	2.7%	1.9%	4.0%	1.5%
Remote	57.4%	30.0%	4.2%	1.2%	3.8%	3.2%
Special	61.4%	29.1%	3.1%	1.0%	2.5%	2.6%
Total %	49.6%	37.0%	4.6%	2.2%	4.3%	2.0%
Total #	48,980	36,535	4,620	2,245	4,245	2,060

Chi-Square DF=15 Value=3377.444 Probability=0.000

Almost 50 percent of this population had less than a Grade 9 education. This proportion is reflected in the percentage of each access samples' population that is functionally illiterate, with another interesting dimension: this percentage steadily increases with decreasing levels of accessibility, from 40% to 53% to 57% to 61% in urban,

rural, remote, and special access samples, respectively. There are increasingly more than the expected numbers of people in this class as we move from urban through to the special access sample as well.

Similarly, the proportion of persons having some highschool education falls successively lower with decreasing levels of accessibility, from 40% in the urban sample to only 29% in the special access sample. In total, 37 percent of the total population aged 15 or older had completed some highschool.

The proportion of the total population having completed highschool is very low at only 4 percent, and the same pattern is evident when the samples are compared using this indicator. In urban reserves 7 percent have a diploma, but this falls to only 3 percent in special access reserves. Note too that only 2.7 percent of the rural reserve population has a diploma, and that this sample is the most under-represented in terms of the numbers which were expected.

Surprisingly, only 2.7 percent of the total population, or 2245 out of 98,685 persons had a trades certificate or diploma. The percentage of each samples' population drops with decreasing levels of accessibility as well, from 3 percent down to 1 percent in the urban and special access samples, respectively.

When the percentages of the population having some university education to those having a degree is compared amongst the four samples, the results are unexpected. Although these two classes comprise only a small proportion of the total population, i.e., only 4 and 2 percent respectively, altogether 6,305 persons have attended university. The surprising discovery was that the percentages of each samples' population having a degree actually increased with decreasing levels of accessibility. Only in this class of educational acheivement is the general pattern of decreasing levels of education with decreasing levels of accessibility reversed! The higher levels of graduates may represent persons employed as teachers, social workers, counsellors, and others

providing similar services on reserve. Reserves located closer to non-native communities may be forced to seek such services off reserve. Or, it may be that students from remote and special access reserves are more able or motivated to complete their degrees, perhaps because they are unable to commute to their home reserves while studying as easily as students from more accessible reserves. However, the total numbers of such persons is quite low, only 190 in the remote and 430 in special access samples.

In summary, urban reserves have the greatest proportions of more highly educated inhabitants, and the least proportion of functionally illiterate persons compared to the other three access samples. A trend of decreasing levels of educational achievement with declining levels of accessibility is evident when the sample percentages falling into each variable class are compared. This finding is supported by the increasingly negative deviations of observed against expected frequencies in variable classes when we move from the urban through to the special access sample. The only exceptions are the functionally illiterate and university diploma classes, where the pattern is reversed. In the first case, the trend parallels that of the other classes, as there are increasingly higher percentages of functionally illiterate people in the less accessible samples. Only in the class of persons having a degree is this trend therefore truly reversed.

5.2 Language Use and Proficiency in the Official Languages

This section is concerned with three dimensions of language use. Firstly, we will investigate levels of proficiency in an official language amongst reserve inhabitants. Proficiency in either English or French is virtually a prerequisite to some types of work, such as off-reserve contract employment and administrative jobs. This indicator is no doubt correlated to a persons' age and level of education, as well as to exposure to television and other forms of mass media. Proficiency in an official language may also

be used as an indicator of the ease with which a person can function in an off-reserve setting, when a person must interact with people not sharing his or her language.

Secondly, we will look at the breakdown of mother-tongues reported by reserve inhabitants. This is the language reported by as the language first learned and still understood by an individual. This will serve to indicate to what extent English, French, and perhaps other Native languages have replaced 'other' or presumably Native mother-tongues amongst reserve inhabitants. Finally, by investigating that subsection of the population which reported an 'other' mother-tongue, we may be able to determine to what extent these people have adapted English or French as their home language, or language most often spoken at home. This last section will give an indication of the level of Native language retention and transfer amongst reserve inhabitants, and indirectly, of recent levels of cultural loss in communities.

5.2.1 Official Language Proficiency Levels, by Access

The question posed in this section is 'Do levels of proficiency decline with decreasing levels of accessibility?' If this is the case, then we should find that when the four sample populations are compared, the more accessible samples will have greater proportions of people proficient in either or both English and French. Correspondingly, these proportions should be 'over-represented' in terms of the deviations of their observed from expected frequencies. Furthermore, we can expect to find that the least accessible samples contain the largest sample proportions of persons not proficient in either official language. Inversely, the sample percentages of such persons should be lowest in the urban and then rural samples.

A few generalizations may be made before the access samples are compared. A very high percentage of the total reserve population is proficient at least in English: fully 85 percent, or 154,270 out of a total of 181,025 persons. This contradicts the notion put forth in much of the literature surveyed that native people are unable to participate

off-reserve in the wage economy because they lack official language skills. An additional 4.7 percent of the population speaks French, and another 2.6 percent are proficient in both English and French, bringing the total of persons proficient in one or both official languages up to 92.6 percent! Only a small percentage of the total reserve population is unable to communicate readily with persons who do not speak their Native language.

When the category representing persons proficient in English is compared amongst the samples, a clear pattern may be seen. There are slightly more persons than expected in the urban and rural samples, and increasingly fewer than the expected number in the remote and special access samples. This pattern is also evidenced in the declining percentage of each samples' population which speaks English: from highs of 87 and 90 percent in urban and rural areas, down to 77 and only 69 percent in remote and special access areas. From this we can conclude that the proportions of English speaking persons drops off steadily with decreasing levels of accessibility, especially in areas more than 350 kilometres from a service centre.

Of the small number of French speakers, the highest sample proportions are found in urban and remote areas. No doubt these small proportions and their distribution amongst the samples are related more strongly to whether they are located in a francophone region than to their level of accessibility. Most reserves in francophone regions are classified as urban or special access as this is where the bulk of French speakers are located.

Approximately 4700 persons speak both official languages, of which 2700 fall into the urban sample, and 1300 into the rural. Reserves classed as special access have far fewer than the expected number of such bilingual persons, only 255 where 796 were expected. Together, these findings suggest that as in the case of English speakers, levels of proficiency decline with decreasing levels of accessibilty, albeit unevenly.

The most clearcut, linear trend emerges when levels of persons not proficient in either English or French are compared amongst the four samples. Their numbers are severely underrepresented in urban and rural samples, and increasingly overrepresented in the remote and special access samples. If we compare the percentages of each samples' population in this category, there is an increase from 1 to a hefty 22 percent, in the urban and special access samples, respectively. As expected, a lack of proficiency in either language is positively related to decreasing levels of accessibilty. Most of these people are probably older, and did not attend schools where English and French were spoken for as long as younger persons.

Table 4: Proficiency in English and French By Access

	English & French	English Only	French Only	Neither Language
Urban	3.78%	87.5%	7.07%	1.6%
Rural	1.93%	90.9%	2.15%	4.9%
Remote	4.16%	77.8%	1.28%	16.6%
Special	0.84%	69.6%	6.63%	22.8%
Total %	2.61%	85.2%	4.79%	7.37%
Total #	4730	154,270	8,675	13,350

Chi-Square DF=9 Value=19450.254 Probability=0.000

From this table we may conclude that levels of official language proficiency are highest in the most accessible reserves, and fall with decreasing accessibility. The opposite is true, of course, for levels of persons lacking both English and French language skills. The latter group of persons comprise only about 7 percent of the total population, and a surprisingly high number of persons are proficient in English: altogether 85 percent. Lastly, it was found that of the relatively small numbers of French speakers, most are located in reserves classed as urban and special access, and the

majority are located in francophone regions, e.g., Quebec, and parts of Ontario and Manitoba. Most people speaking both official languages also live in these areas, especially in Ontario and Manitoba, because it is here that they would have the greatest opportunity to learn both.

5.2.2 Mother Tongue and Home Language Reported, By Access

This section will look at the breakdown of persons reporting English, French, or an other language as their mother tongue to see if the proportions of persons claiming an 'other' or presumably Native mother tongue increases with declining levels of accessibility. If this is the case, then the urban sample should have the highest sample proportions of persons claiming English or French as their mother tongue; and these proportions should decrease steadily in the remote and special access samples. Inversely, the proportion of persons claiming an 'other' mother tongue should be highest in the remote and special access areas, and lowest in the urban and then rural samples.

Table 5: Breakdown of Mother Tongue, by Access

	English	French	Other
Urban	64.9%	4.40%	30.6%
Rural	50.3%	1.20%	48.4%
Remote	32.3%	1.02%	66.6%
Special	29.2%	2.9 %	45.8%
Total %	51.4%	2.74%	67.8%
Total #	93,190	4,965	82,955

Chi-Square DF=6 Value=15711.937 Probability=0.000

Our expectations are confirmed in the figures given in Table 4. Sample percentages of persons claiming English as their mother tongue drops from roughly two-thirds in the urban sample down to only one-third in the special access sample. Similarly, the

observed number of such persons was substantially more than that expected in the urban sample, and with decreasing levels of accessibility, this number of persons is progressively lower than what is expected.

These generalizations are also true of persons claiming French as their mother tongue, as sample percentages drop from 4.4 sample down to 1.0 percent in the remote sample. However, there are also more such persons than expected in the special access sample, which parallels our earlier finding that there are more than the expected number of persons proficient in French in this sample.

These figures suggest that the proportion of persons claiming an official language as their mother tongue rises steadily with increasing levels of accessibility. When taken in combination with the distinct pattern of lower levels of native mother tongues claimed in more accessible areas, these trends suggest a loss of Native languages in the sense that these languages are no longer being passed on through the generations. In the more accessible areas, English and French are increasingly replacing Native languages as the 'language first learned and still understood' by reserve inhabitants. The effects of this will, of course, be strongest in small bands with reserves located primarily in urban areas, as they stand to suffer the greatest loss of their traditional languages.

Home language, or the language spoken most often at home, was compared to mother tongue data to indicate the extent to which persons still use the language they reported as the language first learned and still understood. This comparison was only made for persons who claimed an 'other' mother tongue, and from Table 5 it may be seen that the pattern confirm the findings from Table 4. There appears to be an ongoing language transfer from Native to either English or French as the language commonly spoken at home. Of all the persons claiming a mother tongue other than an official language, 75 percent continue to speak an 'other' language at home, and 24 percent transferred to using English.

Table 6: Home Language of Persons Claiming an 'Other' Mother Tongue, by Access

	English	French	Other
Urban	37.2%	1.4%	61.3%
Rural	27.6%	0.1%	72.2%
Remote	8.8%	0.1%	91.0%
Special	10.1%	0.1%	89.7%
Total %	24.1%	0.4%	75.4%
Total #	19,760	380	61,869

Chi-Square DF=6 Value=6083.663 Probability=0.000

Moreover, this language transfer is most pronounced in the urban and rural areas, in which only 61 and 72 percent of the respective populations continue to speak their Native mother tongue at home.[11] In comparison, approximately 90 percent of the remote and special access population subsets continues to speak their Native mother tongue at home.

In summary, the trends revealed by these analyses of language proficiency and transfer suggest several things. First, the great majority of reserve inhabitants are able to function in at least one official language, and thus meet this prerequisite for many types of employment. This is probably especially true of that segment of the population aged 40 or younger, who are most likely to have attended school and lived off-reserve for longer periods of time. Second, there appears to be a distinct loss of Native languages especially in urban reserves, if we consider a persons' mother tongue as an indicator of Native language retention. Over one-half of the reserve population reported either English or French as their mother tongue, and when the proportions of each samples' population were compared, it was found that nearly 70 percent reported

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11 Note that an 'other' mother tongue and 'other' home language is assumed to be a Native language for the reserve population.

an official language as mother tongue in the urban sample. The extent of this ongoing language transfer was seen to be highest in urban and rural areas, when home language was compared to mother tongue data in Table 5. However, it was also found that 75 percent of the population which claimed an 'other' mother tongue also continued to speak that 'other' language most often at home. Such a high proportion is encouraging because most of these persons may in turn pass on their Native language to their children, and thus ensure the survival of not only the language, but also the ideas and perceptions uniquely articulated in that language and culture.

5.3 Labour Force Activity

5.3.1 Participation in the Labour Force

This section is concerned with the extent to which reserve inhabitants participate in the labour force, and also with the nature of that participation. In the first part, we will look at male and female participation levels to see the general pattern which exists, and also to identify any differences between men and women; and amongst the four access samples. It is postulated that overall, the non-participation levels will be quite high for reserve populations, and furthermore, that more men than women will be active participants. The proportion of non-participants compared to participants is expected to increase with decreasing levels of accessibility as it is assumed that less wage employment opportunities exist both on and off-reserve in the more isolated areas.

The total population over 15 years of age is approximately evenly divided with 56,825 men and 53,215 women. The proportion not participating in the labour force is quite high at 59 percent of the total population. However, the proportion of women not participating is much higher than that for men at 72 percent of the total female

population, as compared to only 48 percent of the total male population.[12] These two findings were consistant with our initial expectations.

The next step was to look for any patterns in the non/participation levels of men and women amongst the four access samples. For this contingency table, four variable classes were used: females in the labour force, females not in, and the same for males. It was mentioned earlier that the total male and female populations were approximately equal in size, however, when the numbers of participating men and women are compared, the men consistently outnumber the women about 2 to 1 in all access samples. Moreover, in the urban and remote samples, this proportion is somewhat less extreme, i.e., 1.7:1. For example, in the special access sample, participating women constitute only 10 percent while participating men constitute 22 percent of that samples' total population.

Table 7: Sample Percentages of Men and Women in the Labour Force

	Women In	Women Out	Men In	Men Out
Urban	16.3%	32.7%	28.8%	22.1%
Rural	12.3%	35.3%	25.7%	26.5%
Remote	15.0%	33.7%	26.6%	24.5%
Special	10.8%	36.7%	22.3%	30.0%
Total %	13.9%	34.3%	26.5%	25.0%
Total #	15,380	37,835	29,245	27,580

Chi-Square DF=9 Value=1045.293 Probability=0.000

From these figures and from the deviations of the observed from the expected frequencies, it is evident that the urban and remote samples have the greatest proportions of their populations in the labour force, and that they actually have more people par-

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12 Any population counts in this table are comprised of the population aged 15 years or older.

ticipating in them than could be expected. In comparison, the rural and special access samples have less people than expected in the labour force, and have lesser percentages of their sample totals in the labour force, e.g., only 37 and 32 percent of the total rural and special access sample populations, respectively. From these figures, it appears that the urban and remote sample populations are performing 'better' in the sense that they have more people in the labour force.

If we compare non-participation levels between men and women amongst the samples, we can see that the number of women is consistently the largest. For example, the ratio of women to men not in the labour force is about 1.4:1 in urban, 1.3:1 in rural and remote, and 1.2:1 in the special access samples. Moreover, the percentage of non-participating men out of each samples' population increases steadily with declining levels of accessibility: from 22 to 30 percent in the urban and special access samples, respectively. This percentage of women is very high in all samples, ranging from 32 to 36 percent with a trend to higher proportions not in the labour force in rural and special access samples.

In summary, it is evident that not only is a high proportion of the total reserve population of working age not in the labour force, but also this proportion is especially large amongst women in all access samples. When the four samples are compared in terms of persons in the labour force, the urban and secondly the remote samples rank highest. Note, however, that as with all of the contingency tables analysed, the population of remote samples is very small. In this case it constitutes only 6 percent of the total, or 6,625 persons.

These findings suggest that men and women alike have more opportunities to find employment if they live in urban reserves, i.e., within 50 kilometres of a service centre. This is probably because of the greater access to larger, off-reserve markets, supplies, and information than the opportunities available to more isolated reserves. The inter-

esting discovery that the small number of remote reserves tend to have relatively high percentages of their populations in the labour force suggests that these people are able to generate employment, e.g., hunting, fishing, trapping, or guiding; as well as find non-traditional employment both on and probably off-reserve. The fact that they have road access distinguishes them from reserves falling into the special access catagory, and this seems to be a salient factor affecting labour force participation, considering the much lower participation levels in the most isolated reserves.

5.3.2 Class of Worker: Paid versus Self-employed Workers

This analysis will attempt to discern the degree to which class of worker patterns differ amongst the four access categories. The class of worker categories identify the numbers of paid employees and self-employed employees in the reserve labour force. Both categories are divided by sex, allowing for comparison of male and female patterns of employment.

This variable was included for analysis because it was considered to be a plausible indicator of the level of entrepreneurship to be found on reserves. Paid workers include persons paid wages, salaries, tips, and commissions. Self-employed workers include persons operating a business or farm, providing meals or services in their own home, selling and delivering products, fishing, and the like (Statistics Canada, 1982:12-13). Gaining some insight into the possibilties of self-employment on reserves may give some indication to what degree reserve inhabitants are dependent upon the wage economy for their subsistance. Finally, it was hoped that by looking at the breakdown between paid and self-employment, one could get an estimate of the extent to which native peoples living on reserves can make a living pursuing more traditional ways of life.[13]

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13 This premise is not without weaknesses, as it is not possible to determine exactly what kinds of work self-employed persons actually do from the data used.

It was postulated that paid workers would constitute a much larger proportion of the labour force than those who are self-employed. Furthermore, it was expected that there would be more self-employed men than women, because it was found in the labour force participation analysis that there are greater numbers of men in each samples' labour force than there are women. Also, more women are expected to be at home to take care of their children.

Table 8: Class of Worker, by Access

	Paid Women	Self-Employed Women	Paid Men	Self-Employed Men
Urban	35.0%	0.69%	59.9%	4.2%
Rural	31.2%	0.49%	64.2%	4.0%
Remote	34.5%	0.37%	59.2%	5.7%
Special	31.9%	0.45%	65.4%	2.0%
Total %	33.3%	0.57%	67.0%	3.9%
Total #	14,285	245	26,570	1,705

Chi-Square DF=9 Value=165.710 Probability=0.000

From the contingency table it is evident that the overwhelming proportion of workers are paid as opposed to self-employed: a ratio of 40,855 to 1,950 in total. Self-employed workers comprise only 4.5 percent of the total labour force! Evidently opportunities for self-employment are extremely limited, or perhaps some persons who fall into this catagory did not declare it. The number of self-employed women comprises only 0.5 percent or only 245 of the total. Their number never exceeds 1 percent of any samples' population, indicating that hardly any women operated a business, farm, or even provided services such as meals, babysitting, room and board, or the like. It is likely that such services are not considered a 'business' in small reserve communities, and that they may not be formally paid for and hence not declared in the census.

In comparison, the percentage of self-employed men in each samples' population varies between 5 and 2 percent. Interestingly, there are many more than the expected number of self-employed men in remote areas, possibly because it is possible to hunt, fish, trap and guide, as well as to supply one's own business in an area which is isolated and far from competition, yet is still served by a road. The fact that there are far fewer self-employed men than expected in special access areas which lack this road connection supports this rationale.

That there are slightly more than the expected numbers of self-employed men and women in urban areas suggests that people are more easily able to operate a business in these areas, perhaps because of the larger markets available to them off-reserve, e.g., especially for handicrafts or specialized services. It may also be easier for these people to gain access to and import goods which they will in turn market to customers on-reserve, as buying trips are shorter and less costly to make.

Of the 95 percent of the population which are paid employees, 33 percent are women and 62 percent are men. This is chiefly because there are only half as many women in the labour force as there are men, or only 14,530 women compared to 28,275 men in the class of worker figures. The percentage of each samples' population that are paid women is highest at 35 and 34 percent in the urban and remote samples; and 31 percent in the rural and special access samples. That there are more than the expected numbers of paid women in the former two catagories is consistent with the results of the last analyses, which found greater female participation levels in the labour force in urban and remote areas. The opposite pattern is evident in the levels of paid male employees, as sample population percentages range from 59 percent in urban and remote areas, to 64 and 65 percent in rural and special access areas. This is an interesting reversal of what could be expected, as these areas have less men in the labour force than the urban and remote areas. Men on special access reserves may

be engaged in providing services otherwise available in non-native communities, as well as band government and administration. Many resource extraction projects employ Native people and these are also often located in isolated areas. Note that the observed frequencies fall within very close range of those expected for both categories of paid workers in all samples, which suggests that the variations amongst samples is not highly significant. Thus, the highly significant chi-square test statistic produced is chiefly caused by the extreme deviations of observed from expected frequencies in the self-employed catagories of workers.

To summarize, the preponderance of persons in the labour force are paid rather than self-employed. This distinction is especially true in the case of female workers, who number only 245 out of a total female labour force of 14,530.[14] Small variations in the percentages of paid workers were identified amongst samples, but these patterns were opposite for each sex. Larger proportions of paid female workers were found in the urban and remote samples, whereas the largest proportions of paid male workers were identified in the rural and special access samples.

These variations are not very large, i.e., less than 5 percent of the total sample populations, and so little importance should be attached to them. However, it is interesting to note that in the case of women, the trend to greater proportions of paid workers corresponds to the greater proportions of women in the labour force in urban and remote reserves.

At this point, it may be useful to return briefly to our original research question, i.e., 'Are there significant variations in the socio-economic characteristics of reserves according to their level of accessibility?' It may be recalled that according to the diffusionist (or modernization or acculturation) school of thought, we could expect decreasing levels of 'well-being' as we move further away from urban centres. We saw that if

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14 This figure differs somewhat from the total given in Table 1 due to discrepancies in reporting and from random rounding.

we consider higher educational achievement and proficiency in an official language as indicators related to economic well-being, then indeed the level of 'well-being' on reserves declines with decreasing levels of accessibility. Progressively smaller sample percentages of persons having attained higher education and proficiency in English or French were found as we moved from urban through to special access samples.

However, when we examine reserves using participation in the labour force and class of worker as an indicator of well-being, the results are are not as clear. Although it is true that the proportions of men and women participating in the labour force declines with decreasing levels of accessibility, this decline is not as steep as expected, nor is it a linear decline, as reserves classed as remote consistently outperform rural reserves. If we look at the sample percentages of paid workers, the only conclusion we can reach is that accessibility is indeed a factor influencing levels of paid workers – but its effects are not linear, i.e., that we could expect a clear trend if we move from the most accessible to the most isolated reserves; and also that these effects appear to be opposite for men and women. That is, the urban and remote samples have the highest sample percentages of paid women, but the lowest of men.

The next two sections will investigate the occupational structure and income levels of workers on reserve. By examining these characteristics, we may be able to better interpret the levels of labour force activity identified, and if differing levels of education and language skills have influenced the occupational structure and/or income levels found on reserves.

5.4 Occupational Structure of Men and Women, by Access

Variables representing the occupational structure refer to the kind of work people did, based on the types of duties they performed in the course of their work. As this data represents the experienced labour force only, the unemployed are not included.[15] The

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[15] For these analyses, the data is for persons 15 years of age and over who stated an

data are provided separately for men and women, which allowed for comparisons between the two, which may help to fill in some of the gap in knowledge about the female workforce. Aside from Lautards' study in 1982, much of the data on the occupational structure of women was either unavailable, ignored, or lumped together with that of men and not separately acknowledged (Lautard, 1982:1). The Standard Occupational Classification is the classification on which the occupational categories are based.

For both men and women in the labour force, we are interested in in identifying differences in their occupational structure amongst the four access samples. If no differences exist, we may expect to find a breakdown of the labour force into the various occupational categories that is approximately equal amongst the access samples. Significant differences would be evidenced by dissimilar sample proportions of persons falling into particular occupational categories, and also by large deviations of observed from expected frequencies.

The largest proportions of male workers are expected to be employed in primary and secondary occupations, rather than administrative. These categories, plus professional and technical-processing occupations comprise the five occupational categories into which men were classified. Statistics Canada provides 13 categories but this breakdown was too detailed for use in contingency table analyses as the differences amongst variable categories and samples were quite small in some cases and only too easily overlooked. Hence, the 13 original occupational categories were collapsed into just 5. This entailed lumping together managerial and administrative occupations; teaching; and health and medicine occupations to form the 'professional' occupation category. Secondary occupations are the amalgamation of construction, machining, transportation, and 'other' occupations. In the case of men, 'other' occupations are

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occupation, and excludes the unemployed who have never worked or who had worked only prior to January 1, 1980.

defined as material handling, other crafts and equipment operating occupations; and occupations not elsewhere classified by Statistics Canada (n.d.:Table 1). Technical and processing occupations together form one catagory, and the administrative occupations category consists of clerical, sales, and service occupations. Lastly, primary occupations are those defined by Statistics Canada as farming, horticultural, and animal husbandry occupations; fishing and trapping; forestry and logging; mining and quarrying; and oil and gas field occupations.

Although collapsing the occupational catagories may have obscured some information, it was decided that the new composite categories were more useful in this analysis because they highlighted any differences and similarities amongst the access samples, and amongst the occupational categories too. Contingency tables were produced using the 13 original categories in addition to the 5 composite catagories, and these more detailed tables were referred to for additional information and clarification in the analysis.

The population breakdown of the experienced labour force roughly parallels that found in other contingency tables. In this case, the total population of men in the experienced labour force is divided so that 46 percent falls into the urban sample; 33 percent into the rural; 6 percent into the remote; and and 13 percent into the special access. The breakdown of women in the experienced labour force is similar in proportions, although the absolute numbers are much lower.

From Table 8, it is evident that more men are employed in secondary occupations than in any other single occupational category, nearly 43 percent of the total.
Table 9 shows that over half of these workers are engaged in construction occupations. This is probably due in part to construction and renovation activity taking place on reserves, as Native populations increase and the demand for new housing stock increases. Table 8 revealed that the percentage of each samples' workers employed in

Table 9: Occupational Structure of Men, by Access

	Professional	Admin	Tech/Process	Secondary	Primary
Urban	9.0%	14.9%	11.3%	46.4%	18.2%
Rural	10.8%	11.7%	11.3%	41.7%	24.3%
Remote	12.1%	17.5%	12.1%	36.8%	21.3%
Special	13.7%	18.5%	11.8%	36.3%	19.5%
Total %	10.4%	14.4%	11.4%	42.9%	20.6%
Total #	2930	4065	3225	12050	5795

Chi-Square DF=12 Value=372.976 Probability=0.000

Table 10: Breakdown of Men in Secondary Occupations

	Construction	Machining	Transportation	Other
Total %	21.2%	6.5%	5.7%	9.3%
Total #	5975	1850	1610	2615

secondary occupations drops with declining levels of accessibility, particularly between the urban and remote samples, from 46 down to 36 percent, respectively. Presumably off-reserve employment opportunities are less plentiful around the less accessible, isolated reserves, as was evidenced in the labour force activity contingency analyses. Another possible reason for the percentage decline is that remote and special access reserves may not have the same level of construction activity, as many of these reserves have smaller populations and possibly higher levels of out-migration, and thus these reserves may not be experiencing a housing squeeze as strongly as the urban reserves are. Indeed, the percentage of each samples' population employed in construction occupations drops from 21 and 22 percent in urban and rural samples, down to 17 and 18 percent in the remote and special access samples, respectively.

Table 11: Occupational Structure of Women, by Access

	Professional	Admin	Tech/Process	Secondary	Primary
Urban	18.5%	55.3%	11.2%	11.1%	3.7%
Rural	27.3%	46.3%	14.0%	9.3%	2.9%
Remote	33.1%	51.7%	9.5%	3.5%	2.0%
Special	31.8%	49.8%	13.0%	2.9%	2.3%
Total %	23.9%	51.6%	12.2%	9.0%	3.1%
Total #	3485	7525	1780	1325	465

Chi-Square DF=12 Value=417.097 Probability=0.000

When the occupational structure of women is compared to that of men, one of the chief differences is that only a small percentage of women, or 9 percent, is engaged in secondary occupations. For women, this is also a composite category including only machining and 'other' occupations. In the case of women, 'other' occupations include construction and transportation occupations which are provided separately for men. A clear linear trend can be identified as the sample percentages of women in secondary occupations drops with declining levels of accessibility, from 11 percent in the urban sample down to just 2.9 percent in the special access sample. This pattern is similar to that of men in secondary occupations if we compare the rural, remote and special access samples.

These findings suggest that overall, women are not employed in large numbers in secondary occupations traditionally held by men. Furthermore, the less accessible the reserve, the more likely this is to be true, as evidenced by barely 3 percent of the experienced female labour force is working in secondary occupations in special access reserves, compared to 11 percent in urban reserves.

The second largest category in which men are employed is primary occupations. Altogether, 20 percent of male workers and 3 percent of female workers are engaged

in primary occupations. These include farming; fishing, trapping and related activities; forestry and logging; as well as mining and quarrying, and oil and gas field occupations. The sample percentages for men vary slightly, with the largest proportion being in the rural sample. This is not altogether surprising because inhabitants of rural reserves are most likely to be involved in agriculture, as such reserves are sufficiently distant from urban centres to inhibit daily commuting to work; yet are still close enough to off-reserve markets for farmers to be able to bring their produce to market. Remote and especially special access reserves are too distant from urban centres to profitably market most agricultural produce. Within all four samples, however, much of the agricultural activity which does take place is likely geared toward reserve consumption rather than for off-reserve sales.

It has been suggested that most Native peopes are not oriented to farming activities, for a variety of reasons. Reserve lands are often unsuitable for farming, some being swampy and poorly drained, or too hilly, or having insufficient frost-free days resulting in too short a growing season for most crops. The only lands offered to Natives when treaties were made were those considered inappropriate for White settlers (Frideres, 1983:308). Thus, the poor agricultural potential of much reserve land is not very surprising. According to DIAND, fewer than one million hectares of reserve lands are potentially arable and only half as much could be used for grazing, and the remainder can support neither crops nor grazing. (DIAND, 1980: in Frideres). These figures are based on agricultural potential, and Frideres notes that even if this land were fully developed it would still only support a maximum of 4,000 farms, or perhaps 40,000 Natives (1983:308). With high reserve population growth rates, this represents an ever smaller percentage of the population which could be sustained by agriculture in the future.

Another explanation for the small role which agriculture has played in many reserve economies is that Indians of some cultures do not have an historical tradition of farming, and it was considered as 'womens' work' by others who considered mens' work to be primarily hunting, trapping, fishing and related activities. Moreover, commercial farming and animal husbandry is an expensive proposition, when machinery and equipment, transportation, seed, animals, etc, are all considered. For many bands, their lack of suitable natural conditions and absence of historical orientation to farming, coupled with the high costs and bureaucratic red tape necessary to obtain funding, often work together to preclude the possibility of agriculture on a commercial scale on reserves.

Interestingly, only about 3 percent of the women are employed in primary occupations as compared to 20 percent of men. When samples of women in primary occupations are compared, we find a 'high' of 3.7 percent in the urban sample, which falls to roughly 2 percent in the remaining samples. Note, however, that the actual numbers of women in primary occupations in the remote and special access samples are very low, i.e., only 20 and 40, respectively. As these are randomly rounded numbers calculated on a 20 percent sample, they are likely to be only loose approximations of the real situation at best. Unfortunately, the data does not allow for a more detailed breakdown of primary occupations, and so we cannot identify what percentage of men and women were actually engaged in hunting, fishing, trapping, and other traditional activities compared to those in agriculture, mining, and the like.

Administrative occupations involve the third largest group of men, or about 14 percent of the male experienced labour force; and the largest group of women, or 51 percent of the female experienced labour force! For both sexes, this category includes sales, services, and clerical occupations. A glance at the detailed contingency tables revealed that the breakdown of men and women differs amongst these three occupa-

tions, for women are largely concentrated in clerical (23 %) and service (22 %) occupations, whereas men fall mostly into service occupations.

When the four access samples of male workers in administrative occupations are compared, slight variations amongst the samples may be discerned, with more than the expected number of men in all samples except in rural reserves. The very high sample percentages in the remote and special access samples indicate the high proportion of male workers who are probably employed in the public sector, e.g., in development project clerical tasks, band councils, and the like. Sample percentages of women in administrative occupations also vary but not systematically. For example, a sharp drop occurs between reserves classified as urban to rural, from 55 to 46 percent. Presumably many of the women living in urban reserves are able to work off-reserve, probably in clerical and related occupations. This is suggested by the drop in the percentage of women engaged in clerical occupations, a fall from 27 percent in the urban sample, down to roughly 20 percent in the remaining three samples.

An unexpectedly large proportion of the female workforce is involved in professional occupations, nearly 24 percent. The proportion of each samples' female workforce employed in professional occupations rises dramatically with decreasing levels of accessibility, especially between the urban to rural samples. There, the percentage rises from 18 to 27 percent, and the more detailed contingency table reveals that this increase is due to the sharp increase in the percentage of women in teaching occupations: from 7 percent in the urban sample, to 16 percent in the rural, up to 21 percent in both the remote and special access samples. The proportion of women in professional occupations peaks at 33 percent in the remote sample, and is also very high at nearly 32 percent in the special access sample, suggesting that women in less accessible reserves have an advantage in terms of occupation. In comparison, only 10 percent of the male workforce is employed in professional occupations. Moreover, the propor-

tion of men in these increases only slightly with decreasing accessibility, from 9 percent in the urban sample to 13 percent in the special access sample. As it is for women, this increase is also attributable to rising proportions of men in teaching occupations. These results are rather surprising as one may have predicted more men in the managerial and administrative occupations, which were traditionally dominated by men off-reserve in the past. However, the largest part of men in the professional category are in the managerial occupations – about 7 percent, whereas most women in this composite category are in teaching rather than in health/medicine or managerial occupations.

Table 12: Men and Women in the Professional Category of Occupations

	Managerial & Administrative	Medicine & Health	Teaching & Related
Women	4.9%	5.5%	13.3%
Men	7.1%	0.4%	2.8%

Clearly, the contingency tables revealed different occupational structures for men and women. Women are concentrated in professional and administrative types of jobs, especially teaching, service, and clerical work. Men are much more likely to be engaged in secondary and then primary occupations, and particularly in construction trades. The occupational structure identified for men did not reveal the very high concentrations of workers in primary occupations that were expected. For example, Frideres states that Natives have been exploited as an 'unskilled, seasonal workforce' concentrated in primary industries and practicing subsistance agriculture to survive (Frideres, 1983:298). In fact, only 20 percent of male workers and 3 percent of female workers are employed in primary occupations. Almost 43 percent of male workers are

in secondary occupations, chiefly construction trades. In contrast, only 9 percent of female workers are employed in machining or 'other' occupations. Together, primary and secondary occupations account for 63 percent of employed men, but only 12 percent of women. When these proportions are compared to those in professional and administrative occupations, it is evident that women predominate in white collar work such as teaching, clerical, and service jobs. Three-quarters of all employed women are in these occupations, but only one-quarter of all employed men. Thus, it would appear that men are continuing to work in the same types of jobs long associated with the Native labour force, whereas women have moved into professional and other types of office work. This is similar to the female occupations structure found off-reserve and suggests that Native women face similar job opportunities and impediments that other Canadian women experience.

From the contingency table it is also clear that levels of accessibility to service centres affect the occupational structure of both men and women. The proportions of people in some occupational categories was found to increase with declining accessibility, e.g., men and women in professional occupations; and to decrease in others, e.g., men and women in secondary occupations and women in administrative occupations. Lastly, the tables also show that accessibility does not seem to affect the proportions of workers in other occupations. For example, the percentages of men and women in technical and processing occupations remains steady amongst the samples regardless of access.[16]

The last section will investigate levels of income amongst the four access groups, to see if differences exist and if these can be related to the patterns found in the other indicators used.

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16 The tech/proc occupational catagory is comprised of processing occupations combined with technological, social, religious, artistic, recreational and related occupations.

5.5 Level of Income Attained, by Access

This section will examine household income as well as male and female employment income levels amongst the samples. Based on the results of the previous contingency table analyses, we can test to see if there exist any differences at all amongst access samples. More specifically, we would expect to find that when the four access samples are compared, the more accessible urban and rural samples have larger proportions of their populations falling into the higher income catagories than the remote and special access samples. Similarly, those sample proportions falling into the higher income categories should be overrepresented in the urban and rural samples. In short, we are trying to see if levels of income decline with decreasing levels of accessibility to service centres. Results from the previous analyses lead to these expectations, as urban reserves especially enjoy the highest levels of education, official language skills, and labour force activity compared to the remaining samples.

Two variables were used to represent levels of income. Private household income encompasses all income amassed by family and non-family members of a household. Sources of income may include various transfer payments, employment and income from reserve resource exploitation, e.g., oil and gas. This variable acts as a crude measure of household well-being as it measures the total monetary wealth of each household, regardless if it is a nuclear or other type of composite household.

Individual employment income was used separately for men and women 15 years or older and who worked in 1980. From these figures, it was possible to determine differences in levels of income between the sexes and amongst access samples. Moreover, they show how much income is actually derived from employment as opposed to transfer payments, etc., and this indicates more accurately the standard of living reserve inhabitants can expect to attain through their earnings alone.[17]

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[17] Remember that in all analyses involving income levels, only 249 reserves are included because data for reserves with populations less than 250 have been suppressed. The breakdown of reserves amongst the four access catagories is given in

5.5.1 Levels of Private Household Income, by Access

Urban and remote households are the wealthiest overall as there are increasingly more than the expected number of households falling into the higher income catgories, i.e., over $15,000 per annum, and especially in the $30,000-$39,000 bracket. These two samples also have the highest percentages of households falling into these higher income catagories, and have the smallest percentages in the two lowest income catagories. The urban sample is the largest, as it includes nearly half, or 46 percent of all households, whereas only 6 percent are classified as remote.

Table 13: Private Household Income, by Access

	Under $5000	$5000-$9999	$10000-$15999	$15000-$20999	$20000-$24999	$25000-$29999	$30000-$39999
Urban	16.7%	23.0%	18.8%	13.7%	11.4%	7.4%	8.8%
Rural	22.0%	27.6%	19.8%	12.5%	8.5%	4.7%	4.7%
Remote	18.7%	22.0%	19.5%	12.4%	10.4%	6.8%	9.9%
Special	20.0%	27.7%	20.4%	12.6%	8.2%	5.9%	4.7%
Total %	19.0%	25.1%	19.4%	13.0%	9.9%	6.2%	6.9%
Total #	5735	7570	5855	3935	2980	1890	2090

Chi-Square DF=18 Value=502.605 Probability=0.000

Noticeably more rural and special access households received either less than $5,000 or between $5,000-$10,000 in 1981, and correspondingly, less of these samples' households fell into the higher income catagories. This pattern of urban and remote samples faring better than the others is in keeping with the pattern evidenced in the labour force activity tables. In them, we saw that there are slightly more persons in the labour force and more paid employees in the urban and remote samples. However, the very small remote sample size for income data means that the figures for this sample must be cautiously interpreted. Certainly we can safely state that the large

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Table 1. Even though Table 13 includes only 249 reserves, their breakdown amongst the four access samples is similar to that found when all 557 reserves are included.

sample of urban reserves is wealthier than the remaining less accessible reserves, probably from greater employment income.

Remote households may be better able to generate income from hunting, trapping, fishing and guiding. Road access to these distant reserves facilitates these activities by allowing Natives to market their harvests of furs, etc., and may make it easier and cheaper for people to travel or commute to shift work on construction and resource extraction projects. Workers do not have to fly in to work as would special access reserve workers, which is a prohibitive expense for employers. Relatively large proportions of women living in remote and special access reserves are engaged in professional and administrative occupations, which will also contribute to higher household incomes. This finding is substantiated in tables 11 and 14.

Table 13 shows that overall, reserve households are very poor: almost one-fifth received less than $5,000; and another quarter received between $5,000-$10,000. Just over three-quarters of all households received less than $20,000 in 1981, a shocking figure considering that these are household income figures, i.e., for households that may be comprised of several families living together.

That the differences amongst the samples are not very strongly pronounced suggests that most reserve households are almost equally impoverished regardless of where they are located. Uniformly high dependency rates of reserve inhabitants upon government transfer payments such as welfare may be the reason for this. Indeed, these payments would not vary much with a recipients access to a service centre.[18] Thus, although we saw earlier that urban and remote reserves have greater proportions of their labour force actively participating, and that these reserves are characterized by slightly higher income levels, the variation amongst the samples is less than expected. Employment income figures will by analysed in the following section to shed more light

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18 Band housing allowances do vary considerably with accessibilty, which is why many bands attempt to be classified as 'remotely' as possible, in order to maximize these payments.

on whether or not employment makes a difference in income levels, or if most reserve members are equally dependent upon transfer payments to bring them up to a minimum living standard.

5.5.2 Employment Income of Men and Women, by Access

To facilitate comparisons amongst access samples the income catagories provided by Statistics Canada were collapsed from nine to five income catagories for men, and nine to four catagories in the case of women. The levels of employment income used are much lower than levels of household income in the previous analyses. Note too that the levels of income of women are considerably lower than they are for men, reflecting the lower incomes earned by women. For example, the highest income catagory for women is $12,000 and over, as compared to $20,000 for men. Also, the total number of female workers is just over half that of male, only 14,065 versus 25,570, respectively. However, the breakdown of men and women amongst the samples is approximately equal for both groups, except that there is a slightly greater percentage of women working in the urban sample than men, reflecting perhaps the greater number of off-reserve administrative jobs available to women in these locations.

Table 14: Levels of Employment Income of Women, by Access

	Less than $2,999	$3,000 to $7,999	$8,000 to $11,999	$12,000 & over
Urban	39.5%	27.1%	15.5%	18.2%
Rural	44.8%	24.0%	16.2%	14.8%
Remote	34.3%	24.6%	14.3%	26.6%
Special	44.4%	25.5%	11.8%	18.1%
Total %	41.3%	25.8%	14.9%	17.8%
Total #	5820	3635	2095	2515

Chi-Square DF=9 Value=124.879 Probability=0.000

From table 14 we can see that women did not earn much in 1981: over 40 percent earned less than $3,000, and the original contingency tables showed that almost 19 percent of women actually earned less than $1,000, and roughly 14 percent earned between $1,000 - $2,000 for the entire year. Another 25 percent of women earned between $3,000 - $8,000, and less than 20 percent earned more than $12,000. Men are earning considerably more money, although the distribution of income is similar for both. For example, 40 percent of men earned less than $5,000, 20 percent earned between $5,000 - $10,000, and another twenty-five percent of men earned over $15,000, of which more than half received more than $20,000.

The remote sample is performing best in that it has the smallest percentage of women earning less than $3,000; and it has the largest percentage of women earning more than $12,000 – 26 percent. In comparison, the urban and special access sample have only 18 percent of their workers falling into this high income catagory.

The large urban sample is also well off in that the observed and expected frequencies of persons falling into each income catagory are very close. In comparison, the rural and special access samples are the poorest as these samples have large percentages of women in the lowest income catagories, and fewer than expected in the highest income catagory. Note that the differences amongst samples are most evident when the lowest and highest income catagories are compared, because the two middle income catagories contain very similar percentages of women in each sample.

To summarise, the table revealed that women earn much lower incomes than do men living on reserves. Almost two-thirds of working women earned less than $8,000 in 1981, and 40 percent earned less than $3,000. Women living on reserves classified as urban and remote were best off in that more such women earned more than $3,000 than did women living in rural or special access reserves. Thus, although we saw from previous contingency tables that many more women are employed in professional and

administrative types of work than are men percentage-wise, their earnings do not reflect the higher 'status' of such work in terms of wages and salaries. Possible reasons for this are because many women may be employed on a part-time basis, or for shorter periods of time than men, either because they must spend time at home with children or because full-time permanent work is unavailable.

We saw that in the case of female workers the remote and then the urban samples were best off.[19] From the following contingency table, however, it is clear that the urban sample is best off, as this is the only sample that has fewer than the expected number of men in the lowest income catagory, or only 33 percent that earned less than $5,000 in 1981. Moreover, there were consistently more than the expected numbers in the successively higher income catagories, especially in the $20,000 or more catagory, in which there were 19 percent of the urban sample as compared to only between 9 to 12 percent of the other sample totals.

Table 15: Levels of Employment Income of Men, by Access.

	$4,999 or less	$5,000 - $9,999	$10,000 - $14,999	$15,000 - $19,999	$20,000 & over
Urban	33.9%	17.7%	16.1%	13.7%	19.0%
Rural	45.5%	22.4%	14.0%	7.5%	10.4%
Remote	41.5%	18.9%	17.4%	9.4%	12.6%
Special	49.3%	19.3%	13.7%	7.8%	9.6%
Total %	40.6%	19.5%	13.7%	7.8%	9.6%
Total #	10,390	4990	3885	2635	3670

Chi-Square DF=12 Value=844.235 Probability=0.000

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19 The remote sample is quite small, however, as only 975 women or 6.9 percent of all working women in the analysis fall into the remote sample.

As expected, the remote sample ranks second to the urban, if we judge on the basis of sample proportions falling into the lowest and highest income catagories, and upon expected versus observed frequencies. By looking downwards on the contingency table we can see that the percentage of each samples' workers earning less than $5,000 increases with declining levels of accessibility: from a low of 33 percent in the urban sample up to 49 percent in the special access sample. Clearly, the less accessible a reserve is, the more working men will fall into the lowest income class. Similarly, the percentages of men earning more than $20,000 drops with decreasing levels of accessibility, from 19 percent in the urban sample down to only 9 percent in the special access. This reinforces the findings that the less accessible reserves are also the poorest in terms of employment income, as they have the smallest proportions of men in the highest income class as well.

When the high cost of living in distant reserves is considered, this means that Natives in these communities have much less purchasing power than do Natives earning the same amount of money in urban reserves. Remuneration should be higher in remote and special access areas simply to compensate for the higher costs of living found there. Food, clothing, and other goods and services are much more expensive when they are shipped to these distant locations. Salaries considered adequate near urban areas are hopelessly insufficient to cover living costs in most remote and special access locations.

5.6 Summary

In summary, we have been able to make several generalizations about labour force characteristics amongst the four access groups. Urban reserves were found to possess the highest proportions of more educated persons, and the least functionally illiterate persons. Decreasing levels of educational achievement were found to decrease with

decreasing accessibility when sample proportions falling into the functionally illiterate and lower educational levels were compared amongst the four groups.

Over 85 percent of the study subjects were proficient in English, and over 92 percent were proficient in either English or French. It was seen that English language proficiency levels were highest in the urban group, and declined with decreasing accessibility. Roughly the same trend was true for the French language speakers. Inversely, we saw that the proportions of people not proficient in either English or French increased linearly with decreasing accessibility.

Native language loss appears to be highest in the urban reserves, when mother tongue and home language structures were compared. However, it was encouraging to note that over 75 percent of persons who claimed an 'other' mother tongue continued to speak that tongue most often at home. This suggests that these persons may in turn also pass their native tongue onto future generations.

When labour force participation rates were compared amongst the samples, the urban and remote samples had the highest proportions of their workers participating as compared to rural and lastly the special access samples. Large proportions of persons were found to be out of the labour force, especially women. A comparison of paid versus self-employed workers amongst the samples revealed that only about 4.5 percent of those in the labour force were self-employed. This rate is especially pronounced in the case of female workers, as only 245 out of 14,530 women in the labour force are self-employed. Also, the sample proportions of paid women are larger in the urban and remote access samples. Differences between paid and self-employed men amongst the four access samples were small, with slightly more than the expected numbers in urban and remote samples. The largest proportions of paid men are found in the rural and special access samples. These results revealed that if we go from urban to special access samples, there is no straight linear trend in terms of labour force participation,

as remote reserves had slightly larger proportions of paid men, and persons in the labour force than did rural reserves.

The analyses identified different occupational structures for men and women. Women were found to be most concentrated in professional and administrative work, such as teaching, service, and clerical jobs. Men, in comparison, were found to be concentrated in secondary occupations, especially construction work. However, the proportions of men engaged in primary and tertiary level occupations were fewer than expected.

Occupational structures of men and women were found to vary amongst the four access samples, suggesting that accessibility affects some types of work people performed. For example, proportions of people in professional occupations increase with declining levels of accessibility, while the proportions of people in secondary occupations, and women in administrative occupations decrease with declining accessibility.

Small differences amongst samples were revealed in the household income analyses. The rural sample had the largest proportion of poorest households, i.e., 22 percent amassed less than $5,000 in 1980, compared to only 16 percent in the urban sample. Overall, the urban and remote samples were the richest when the proportions falling into the lowest and highest income catagories are compared amongst the samples. However, all households are quite poor, when we consider that almost 20 percent received less than $5,000, and another 25 percent received between $5000 and $10,000.

Analyses of employment income levels of men and women revealed even more alarming results when we consider that over 40 percent of women earned less than $3,000, and nearly 66 percent earned less than $8,000. Men did earn more money, on the whole, but nontheless 40 percent of men earned less than $5000. Over 17 percent of women earned $12,000 or more, and 25 percent of men earned $15,000 or more.

When the four access samples were compared, the pattern found is similar to that found in the previous analyses. Women workers in the remote and then urban reserves fared better than those in the rural, and special access samples, as more such women earned over $3,000. This is despite the fact that women are concentrated in professional and administrative work, which suggests that many may be working part-time, or that they are poorly paid for their work. Male workers in the urban sample fared best compared to the other samples, as a greater proportion of this samples' workers earned $20,000 or more, and it contained the smallest proportion of any sample which earned less than $5,000: only one-third!

Chapter VI

COMPARISONS OF RESERVES BY CULTURE AREAS

In this chapter, chi-square analyses and contingency tables were used to identify any labour force differences which exist amongst the six culture areas. Six samples were thus compared, as reserves were classed according to the culture areas they belong to, as seen in Table 2. Although the numbers of reserves are not evenly divided into each culture area, the the contingency tables allow us to compare samples according to expected versus observed frequencies as well as the proportions of each sample falling into each individual catagory.

All of the chi-square test statistics were highly significant at very low probabilities, as they were in the analyses of access catagories. This was despite the fact that a small number of indicator classes in a few of the tables had frequencies of zero. The following analyses will therefore also be based upon two-way contingency tables to determine trends amongst the culture areas.

6.1 Levels of Education Attained

It was hypothesized that one or more culture groups would be characterized by higher overall levels of education attained than others. This would be evidenced by larger than expected numbers of persons having completed highschool and some university education; and lower proportions of the functionally illiterate population. Of course, a lack of discernable differences would suggest that culture is not a significant variable affecting educational achievement.

Table 16: Levels of Education Attained, by Culture Areas

	Less than Grade 9	Grades 9-13 no diploma	Grades 9-13 with diploma	Trade diploma	Some Univer-sity	Degree (s)
Algonkian	53.6%	34.6%	3.7%	1.5%	3.7%	1.7%
Iroquoian	37.8%	37.8%	11.8%	2.6%	4.7%	2.7%
Mackenzie	72.3%	22.3%	1.7%	1.9%	1.1%	1.7%
Plains	52.1%	36.2%	3.2%	2.4%	5.2%	1.5%
Plateau	32.7%	43.5%	8.0%	5.1%	4.5%	1.5%
Pacific	34.7%	45.7%	7.3%	0.5%	5.8%	4.3%
Total %	49.5%	37.0%	4.6%	2.2%	4.3%	2.0%
Total #	47845	35805	4520	2200	4215	2015

Chi-Square DF=25 Value=3359.115 Probability=0.000

If we compare the proportions of each sample which are considered functionally illiterate, we can see that the Mackenzie River sample has 72 percent, or approximately double the proportion of its populations falling into this class, compared to the populations of the Pacific Coast, Plateau, or Iroquoian culture areas. In comparison, slightly over half of the populations of the Algonkian and Plains areas have completed less than grade nine. Similarly, the smallest proportion of all populations having some highschool, a trades certificate, or some university education is that of the Mackenzie River culture area. These proportions indicate that in terms of education, the people of the Mackenzie River culture area have the least. This finding may be due in part to the small size of the sample, as this group contains the smallest number of people compared to the other culture areas. However, this sample has far fewer than the expected number of persons with high school and higher levels of education when the expected and observed frequencies are compared.

When the remaining culture areas are compared, we can see that the Iroquoian group has a relatively large proportion of its population with a highschool certificate; and that the Plateau and Pacific Coast groups have more than the expected numbers of

persons with some highschool education. Other differences amongst the samples are too small to reveal any significant trends.

6.2 Language Use and Proficiency in the Official Languages.

In the first subsection the levels of proficiency in the official languages will be compared. Not only is proficiency in English or French an important criteria for employment, it is also a useful indicator when we consider the degree of acculturation occurring in the cultural areas. The breakdown of mother tongues reported by reserve inhabitants will clarify this, as these indicators will show to what degree English and French have replaced Native languages as the language first learned and still understood by the respondants. If Native languages are no longer passed on as a mother tongue, this would suggest an enormous and probably irrevocable loss of cultural heritage, as many of the values, perceptions, stories, and world views unique to each culture are captured in its language.

The last subsection will look at patterns of home language use among respondants who reported an 'other' or presumably Native language as their mother tongue. This analyses will reveal to what extent each cultural group is continuing to use and hopefully pass on its Native language, or if these languages are being replaced by English or French. If the latter true, then we can infer the extent to which todays Native language speakers are no longer retaining and transferring their original languages.

6.2.1 Official Language Proficiency Levels, by Culture Area

By comparing the six culture areas by levels of proficiency in the official languages, we can identify differences amongst them. From the previous analyses, we saw that the Mackenzie River group had the lowest levels of educational achievement overall. We could expect this group to also report the lowest number of persons proficient in English or French as well.

Table 17: Official Language Proficiency, by Culture Areas

	English & French	English Only	French Only	Neither Language
Algonkian	3.3%	77.3%	7.6%	11.6%
Iroquoian	14.1%	67.3%	18.2%	0.3%
Mackenzie	0.7%	82.3%	0.0%	16.9%
Plains	0.5%	96.8%	0.0%	2.6%
Plateau	2.1%	97.0%	0.0%	0.8%
Pacific	1.6%	98.2%	0.0%	0.2%
Total %	2.6%	85.3%	4.6%	7.3%
Total #	4685	151430	8235	13040

Chi-Square DF=15 Value=19014.140 Probability=0.000

Not surprisingly, very small numbers of people are proficient in both languages, or in French only. Exceptions to this are the Iroquoian and Algonkian samples because of their geographic location. The Algonkian culture area extends from Nova Scotia, New Brunswick, through all but the the most northern parts of Quebec, Ontario, up to the prairie provinces. The Iroquoian cultural area is only a fraction of the size compared to the Algonkian, and is located in southeastern Ontario and in southwestern Quebec, along the St. Lawrence seaway. Members of these two cultural areas would have the greatest opportunity to learn and use French, and usually both official languages as compared with, e.g., Pacific Coast Indians who are not near francophone communities.

Over 95 percent of the populations of the Plains, Plateau and Pacific Coast culture areas speak English, as compared to only 77 and 82 percent of the populations in the Algonkian and Mackenzie River culture areas. This suggests that these populations have greater contact with non-native communities, and indeed higher proportions of the British Columbian groups are classified as urban or rural. Only negligible propor-

tions of the westernmost culture do not speak either English or French, compared to 11 and 16 percent of the Algonkian and Mackenzie River populations, respectively. This bears out our expectations from the previous analyses that the Mackenzie River cultural group would have the greatest proportion and the largest number of observed versus expected persons which are not proficient in at least one official language.

Lastly, the table reveals that the Iroquoian culture group has the largest proportion of persons proficient only in French, 18 percent, and the lowest proportion of persons only proficient in English, 67 percent. When these figures are combined this group still has one of the lowest proportions of persons not proficient in either French or English. This culture area also has the highest percentage of persons fluent in both English and French.

In summary, we can see that the populations of the western culture areas are virtually all proficient in English, both in terms of the proportions of their respective populations, and when expected and observed numbers of persons are compared. These areas also had the lowest proportions of functionally illiterate persons. The Iroquoian and Algonkian culture areas contain the largest numbers and proportions of persons speaking one or both official languages, and the Algonkians have a relatively large proportion of persons not proficient in either English or French. This may be because many reserves in this culture area are located in distant and isolated parts of Northern Ontario. Lastly, the Mackenzie River cultural area contains the largest proportion, nearly 17 percent of its population, unable to speak English or French. The next question, then, is: how do the culture areas vary in terms of the languages first learned by its members? And are persons claiming a Native language as their mother tongue continuing to use it at home?

6.2.2 Mother Tongue and Home Language Reported, by Culture Area

Only the Iroquian and Algonkian culture areas contain significant numbers of persons claiming French as a mother tongue. Moreover, when we compare the proportions of each samples' population falling into this class, only the Iroquoian group has a significant proportion, nearly 30 percent! Reserves in this culture area also have far more than the expected numbers of persons claiming French as their mother tongue. The low proportion of such people in the Algonkian culture area is surprising, considering that this area spans most of Quebec. From table 18 we can see that this is accounted for in part by the relatively large proportion of the Algonkian population claiming an other mother tongue, compared to the Iroquoian group.

Table 18: Breakdown of Mother Tongue, by Culture Areas

	English	French	Other
Algonkian	40.5%	3.4%	55.9%
Iroquoian	58.1%	29.0%	12.8%
Mackenzie	26.3%	0.0%	73.6%
Plains	54.9%	0.1%	44.8%
Plateau	77.2%	1.0%	21.7%
Pacific	81.9%	0.5%	17.5%
Total %	51.6%	2.7%	45.5%
Total #	91670	4950	80870

Chi-Square DF=10 Value=30244.556 Probability=0.000

If the percentages of each samples' population claiming English are compared, it is clear that the Mackenzie River and Algonkian groups have the lowest, 26 and 40 percent, respectively. The especially low proportions in the Mackenzie River group corresponds to that groups' low levels of official language proficiency. The Iroquoian and Plains groups claim higher proportions in this category and the westernmost groups

have extremely high proportions: 77 and 81 percent for the Plateau and Pacific Coast culture areas! Note too that the latter two areas also had very high proportions of their populations proficient in English, and had relatively higher levels of educational achievement.

By looking at the proportions of each samples' population claiming an other mother tongue we can see that the greatest losses of aboriginal languages is occurring in the Iroquoian, Pacific Coast, and Plateau culture areas. Only 12 percent of the Iroquoian respondents claimed an other mother tongue. That these languages are being replaced by English or French indicates a serious loss of cultural identity; as only about 565 persons claimed an other language in this group, out of a total sample population of 4395. Only the Algonkian and especially the Mackenzie River culture area groups show significant aboriginal language retention levels.

Lastly, the home language of persons claiming a mother tongue other than English or French was compared amongst the culture area groups in table 19. This comparison serves to show the extent of language transfer occurring amongst people who first learned a Native language. In total, nearly 25 percent are transferring to English as their home language. It is encouraging to note that 75 percent of the total population is continuing to use their Native language.

It is obvious that the highest levels of language transfer are occurring in the Plateau and Pacific Coast areas, as 60 percent of their respective populations now speak English at home. The Iroquoian culture area also has a significantly large proportion of its population using English at home, and this area also has the largest sample proportion, but not actual numbers, speaking English.

In comparison, it is the Algonkian and Mackenzie River culture areas which show the highest levels of Native language retention, 82 percent; and the Plains Indians also have a relatively high proportion, or 65 percent, continuing to speak a Native language at home.

Table 19: Home language, by Culture Area

	English	French	Other
Algonkian	17.2%	0.6%	82.1%
Iroquoian	41.8%	6.3%	51.8%
Mackenzie	17.2%	0.0%	82.7%
Plains	34.3%	0.0%	65.6%
Plateau	60.5%	0.0%	39.4%
Pacific	60.0%	0.0%	39.9%
Total #	24.6%	0.4%	74.9%
Total %	19660	380	59875

Chi-Square DF=10 Value=7602.917 Probability=0.000

In summary, we have seen from the three tables showing language use that the westernmost Plateau and Pacific Coast culture areas have the highest sample proportions claiming proficiency in English, English as a mother tongue, and English as the language spoken most often at home. All of these trends suggest that it is these two culture areas which are suffering the greatest loss of their Native languages and indirectly, their cultural heritage.

In comparison, the Algonkian and Mackenzie River culture areas have the highest levels of Native language retention, both in terms of claiming these languages as a mother tongue and as their home language. Note that these areas cover vast stretches of land in the northern parts of the provinces and the Yukon, and many reserves located in these areas may be considered as isolated, i.e., falling into the remote and special access catagories. We saw in the analyses of accessibility that it is precisely those less accessible reserves which had the highest levels of Native language retention, and so this would likely be a factor influencing the higher retention levels in these culture areas.

The following sections will examine levels of labour force participation as well as differences in the levels of paid and self-employed labour. It was evidenced in the accessiblity analyses that labour force participation was related to offical language proficiency and educational achievement. The next sections will illustrate that this was also the case when culture areas are compared.

6.3 Labour Force Activity

6.3.1 Participation in the Labour Force

From the access analyses we found that roughly equal numbers of men were participating and not participating in the labour force, whereas less than half as many women were participating as were not. Furthermore, when the access catagories were compared, small differences were found to exist. A similar pattern emerges when the six culture areas are compared.

Table 20: Labour Force Participation, by Culture Areas

	Women In	Women Out	Men In	Men Out
Algonkian	13.1%	35.2%	25.1%	26.4%
Iroquoian	20.4%	29.0%	31.7%	18.8%
Mackenzie	8.7%	37.1%	22.5%	31.5%
Plains	12.7%	36.2%	25.1%	25.8%
Plateau	15.0%	33.5%	29.2%	22.1%
Pacific	18.2%	29.1%	32.3%	20.2%
Total %	14.0%	34.3%	26.7%	24.9%
Total #	15155	37005	28735	26910

Chi-Square DF=15 Value=1161.189 Probability=0.000

Male and female participation levels are highest in the Iroquoian and Pacific Coast areas. These areas have the highest proportions of their populations participating, and

have consistently more than the expected numbers when observed and expected frequencies are compared. The lowest levels of participation of women are found in the Mackenzie River, Plains, and Algonkian culture areas, judging from the number of observed versus expected numbers. The same pattern is evidenced in the case of male workers, suggesting two possibilities. First, the cultures found in these areas may not be as 'acculturated' to wage labor as those in other areas. Tribes in these three culture areas were characterized as being migratory hunter-gatherers, having consensal forms of government. Tribes of the Pacific Coast and Iroquoian culture areas, in comparison, were relatively sedentary, had developed complex political systems, accumulated possessions, and relied upon farming or fishing, and trade as economic mainstays rather than hunting. Clearly, the cultural affiliation of Indians is related in some way to their characteristics as measured by indicators measured thus far.

Second, job opportunities may be much more scarce in these areas, which seems plausible when the more isolated location of many bands in these three areas is taken into account. This observation is supported by our earlier findings that there are higher percentages of men and women out of the labour force in reserves falling into the special access catagory. This is evident in table 25 which shows that 17 percent of the reserves of the Algonkian, and 31 percent of the Mackenzie River culture areas' reserves are classified as special access.

6.3.1.1 Class of Worker: Paid versus Self-employed, by Culture Areas

From table 21 it may be seen that the proportions of self-employed workers, either male or female, are negligible in all of the culture areas. The highest numbers of self-employed men are to be found in the Algonkian and Plains culture areas, but the proportions that these constitute of each samples' labour force are always small, i.e., five percent or less.

Table 21: Paid versus Self-employed Workers, by Culture Areas

	Paid Women	Self-employed Women	Paid Men	Self-employed Men
Algonkian	32.8%	0.5%	63.1%	3.4%
Iroquoian	38.7%	0.6%	53.1%	4.5%
Mackenzie	28.4%	0.0%	71.5%	0.0%
Plains	32.8%	0.3%	61.6%	5.1%
Plateau	33.2%	1.0%	60.5%	5.1%
Pacific	35.0%	0.6%	60.3%	4.0%
Total %	33.4%	0.5%	61.9%	4.0%
Total #	14080	245	26100	1685

Chi-Square DF=15 Value=158.783 Probability=0.000

These small numbers, when compared across the samples for both men and women suggest that no cultures are inherently more entrepreneurial than are others. That is, the minute differences indicate that all cultures are equally hampered by their lack of capital, markets, skill, and other factors rather than by specific cultural orientation to entrepreneurship.

Another interesting finding from this analyses is that the Mackenzie River area has the lowest proportion of paid women, but the highest proportion of paid men. This suggests limited employment opportunities for women, and or a traditional society in which women are not encouraged to take on paid work. Another possibility, of course, is that some work goes unreported.

From the analyses thus far several generalizations may be made. First, it was seen that the Iroquoian, Plateau, and Pacific Coast culture areas are characterized by the lowest levels of functionally illiterate persons. Reserves classed into these areas also have more than the expected numbers of persons with some highschool education. From the access analyses, it was also discovered that greater proportions of these reserves were classified as urban and rural, and that they are located in more southern parts of Canada, compared to, e.g., the Mackenzie River culture area. As expected,

these three areas also contain the largest sample population proportions proficient in at least one official language. Unfortunately, these areas have also suffered the greatest loss of their aboriginal languages, as seen from the tables showing the breakdown of mother tongues and languages used most frequently at home.

In contrast, the Mackenzie River and Algonkian culture areas have much lower levels of educational achievement, labour force participation, and higher levels of native language retention. It would appear that the populations of those reserves with higher levels of education, and which are losing their aboriginal language skills are also more active in the labour force.

6.4 Levels of Income Attained, by Culture Areas.

In the next analyses, levels of household and employment income will be examined to identify any difference amongst the culture areas. Such differences are expected to be consistent with our findings thus far, i.e., that the Iroquoian, Plateau, and Pacific Coast culture areas will have the highest levels of income, especially employment income.[20]

6.4.1 Levels of Private Household Income, by Culture Areas

Reserves located in the Pacific Coast culture area are the wealthiest in terms of private household income. This is all income amassed by a household, regardless of the source of income, or numbers of members. The Pacific Coast area has the largest sample proportion of households who claimed between $30,000 and $35,000; and the lowest proportion which claimed less than $5,000. Furthermore, this group had fewer than the expected number of households in the poorest catagory, when expected and

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20 These analyses involving income variables used only 249 reserves, instead of the 557 used in all other analyses. When the breakdown of these 249 reserves amongst the six culture areas is compared to that of the 557 reserves, virtually the same breakdown is evident according to the number of respondants (but not the number of reserves falling into each culture area).

observed frequencies are compared.

Table 22: Private Household Income, by Culture Area (in dollars)

	Under 5000	5000-9999	10000-14999	15000-19999	20000-24999	25000-29999	30000-39999
Algonkian	20.2%	25.9%	19.9%	13.3%	9.0%	5.7%	5.7%
Iroquoian	21.6%	24.1%	18.2%	13.1%	9.3%	5.0%	8.4%
Mackenzie	17.3%	25.0%	17.3%	17.3%	11.5%	9.6%	1.9%
Plains	23.8%	26.0%	19.1%	11.8%	7.3%	5.6%	6.1%
Plateau	11.1%	27.4%	17.3%	15.2%	14.8%	6.2%	7.7%
Pacific	10.1%	20.3%	17.4%	12.9%	15.1%	10.3%	13.6%
Total %	19.1%	25.0%	19.5%	13.1%	9.9%	6.2%	6.9%
Total #	5650	7405	5780	3890	2925	1850	2050

Chi-square DF=30 Value=990.083 Probability=0.000

The Plateau culture area also has a very low proportion of households which claimed less than $5,000. In addition, this group has larger proportions of households in the middle income catagories, i.e., between $10,000 to $24,000, compared with the other culture areas.

The Plains culture area is the most impoverished of all, judging by the proportions of its population that obtained less than $5,000: nearly 24 percent! This is over double the percentage found in the Plateau and Pacific Coast areas.

The remaining Algonkian, Iroquoian, and Mackenzie River areas fall in between the extremes displayed by the Plains and British Colombian areas. That is, they have between 17 and 21 percent of their sample household earning less than $5,000; and they have the average proportion earning between $5,000 and $10,000. Note, however, that the Mackenzie River area has the lowest proportion of all sample populations which claimed between $30,000 and $35,000 at just 1.9 percent. This is very low compared to the 13 percent found in the Pacific Coast area, or to the average level of 5 to 8 percent in the four remaining areas.

In summary, the relatively high levels of private household income found in the Pacific Coast and Plateau culture areas were as we had expected to find. These two areas also have high levels of education and labour force participation. The large proportion of very low income households in the Plains area suggests that these households are probably earning the least income from employment. The labour force participation tables also revealed that this area had low participation levels. Lastly, the very low proportion of the Mackenzie River population which is earning a high income is a reflection of this groups' low educational achievement and labour force participation levels. A surprisingly similar income structure was found to exist between the Algonkian and Iroquoian culture areas, despite the considerable differences in the education, native language retention, and labour force participation characteristics of these two areas. This suggests that other factors not included in the analyses are over-riding variables included which were found to significantly differentiate these these two areas.

The following sections will look at the employment earnings of men and women in the labour force to see if these earnings reflect the household income structure. Also, it will be interesting to note if there are any significant differences between the employment income structure of men and women in the six culture areas.

6.4.2 Employment Income of Men and Women, by Culture Areas

The most striking differences amongst the culture areas are evidenced in the proportions of sample populations falling into the highest and lowest income catagories.

In table 23 it may be seen that 45 and 42 percent of working men in the Algonkian and Plains culture areas earned less than $5,000, respectively. This is in keeping with the low levels of household income obtained by large proportions of these areas populations. Of all the culture areas, the Algonkian culture area has the lowest proportion of men who earned over $20,000: only 10 percent, compared to 27 and 21 percent in the Pacific Coast and Plateau areas, respectively. In the Pacific Coast area especially, the

Table 23: Levels of Employment Income of Men, by Culture Areas

	Less than $5000	$5000-$9999	$10000-$14999	$15000-$19999	$20000+
Algonkian	45.6%	19.3%	15.0%	9.8%	10.2%
Iroquoian	32.3%	23.0%	16.9%	11.2%	16.4%
Mackenzie	34.0%	20.4%	13.6%	18.1%	13.6%
Plains	42.0%	21.1%	14.2%	9.0%	13.5%
Plateau	29.5%	20.6%	15.0%	13.6%	21.1%
Pacific	26.7%	17.2%	16.5%	11.9%	27.5%
Total %	40.6%	19.6%	15.1%	10.3%	14.2%
Total #	10215	4930	3805	2605	3585

Chi-Square DF=20 Value=1062.165 Probability=0.000

logging and fishing industries offer much employment not available in other culture areas. Significantly more men are employed in primary industries in the Pacific Coast area which may account for the higher earnings there. The Pacific Coast and Plateau areas also have the lowest proportions of men who earned less than $5,000, 26 and 29 percent, respectively.

Thus far the patterns of household and male employment income structures are fairly consistent. Table 24 shows the female employment income structure of the culture areas. Note that the number of women in the labour force is only about half of that of men, and that the income earned by women was generally much lower too. The lower income levels are reflected in the lower income spans of each variable category.

Sample proportions in the lowest income catagory of less than $3,000 are at 36 to 37 percent for all except the Algonkian and Iroquoian culture areas, which have 44 and 41 percent, respectively. Thus, when male and female income levels are compared, not only are these levels much lower for women, but the levels differ according to the

Table 24: Levels of Employment Income of Women, by Culture Area

	Less than $2,999	$3000-$7999	$8000-$11999	$12000+
Algonkian	44.8%	23.9%	14.1%	16.9%
Iroquoian	41.2%	20.6%	22.1%	16.0%
Mackenzie	36.8%	26.3%	21.3%	15.7%
Plains	36.9%	28.1%	17.8%	17.0%
Plateau	36.2%	30.5%	13.2%	19.9%
Pacific	37.7%	28.2%	11.8%	22.0%
Total %	41.4%	25.7%	14.8%	17.9%
Total #	5750	3580	2060	2490
Chi-Square	DF=15	Value=171.639	Probability=0.000	

culture area. These findings confirm our expectations. For example, we saw that the Pacific Coast and Plateau areas had the lowest sample proportions of men in the lowest income catagory of less than $5,000. Female proportions in the lowest income catagory of less than $3,000 are no lower in the Pacific Coast and Plateau areas than then are in others: rather, these levels are lowest in the areas covering Algonkian and Iroquoian areas. Presumably, some of the employment opportunities available to men in the British Columbian areas are not equally afforded to women, such as work in the forestry industry. This picture is somewhat improved, however, if the sample proportions of women in the highest income catagories are compared. There, the Pacific Coast and Plateau groups fare best, with 22 and nearly 20 percent of their populations earning more than $12,000 per annum. These proportions are consistent with the profile of male employment income levels identified.

6.5 Summary

In summary, we can identify several patterns in the various indicators which were compared. We saw that the Mackenzie River culture area people have the lowest levels of educational achievement, whereas the Iroquoian, Plateau and Pacific area peoples' are relatively well educated, especially if we compare the proportions of functionally illiterate persons.

When official language proficiency levels were compared, a similar trend was identified in that the populations of the Plateau, Pacific, Plains, and Iroquoian areas were virtually all proficient in English or French, whereas in the Mackenzie River area almost 17 percent of the population was not. Analyses of which language people had learned as their mother tongue and which language was being spoken at home revealed a similar trend, as the Iroquoian, Pacific Coast and Plateau areas showed the greatest levels of language loss. In the westernmost areas, 60 percent of the reserve inhabitants usually spoke English at home, compared to only 17 percent in the Algonkian and Mackenzie river culture areas.

Analyses of labour force participation rates revealed a similar pattern as the Iroquoian, Pacific and then Plateau areas had the largest proportions of persons in the labour force, especially men. We also saw that the numbers of women in the labour force were much less than for men, and that there were few differences amongst culture areas or sexes when the number of paid workers were compared to those which are self-employed. One item of note was that the smallest proportion of paid women belonged to the Mackenzie River area, which also has the lowest levels of education and official language proficiency.

The last set of analyses dealt with household and employment income earned by men and women. The Pacific and Plateau Indians had the highest proportions of their populations in the middle and higher income categories, and the lowest proportions in

the lowest income categories. This was in keeping with our expectations from the previous analyses which showed these two areas to have the highest proportions of peoples in the labour force, speaking at least one official language, and with the lowest levels of functionally illiterate persons. The Plains area was identified as the most impoverished in terms of household income, as nearly one-quarter of its households amassed less than $5,000. The remaining three groups fell in between the two extremes, with the Mackenzie River area having the lowest proportion of rich households, i.e., earning between $30,000 to $35,000. One surprising discovery was that the Iroquoian and Algonkian culture areas had very similar household income structures, despite great differences found earlier in levels of education, native language retention, and labour force participation.

The structure of employment income earned by men was similar to that of household income, as again the Pacific and Plateau areas had relatively high proportions of people earning high incomes, and they had the lowest proportions earning less than $5,000. Interestingly, men in the Mackenzie River area were, on the whole, better off than men in the Algonkian or Plains areas, which is not true for households in the Mackenzie River area.

Lastly, we saw that not only were less women in the labour force than were not, but also that the levels of income that women earned were much lower than that of men. The patterns evidenced in household and male employment income are different than those of womens' income, as similar proportions of women in the Pacific and Plateau areas earn low incomes, i.e., less than $3,000, as do women in the Mackenzie River and Plains areas. However, more women in the westernmost areas will have earned high incomes over $12,000.

Chapter VII

FOCUS ON ALGONKIAN AND PACIFIC COAST CULTURE AREAS

7.1 Introduction

In previous analyses, we looked at the various access and culture groups and attempted to identify differences amongst them in terms of indicators such as education, official language proficiency, income levels, etc. These analyses were fruitful in that they did identify significant differences amongst groups of reserves for certain variables, e.g., education; and rather less important differences amongst groups for other variables such as employment and household income levels. These analyses, however, could not explore the relationship between culture group affiliation and accessibility.

Earlier, we had introduced the notion of using culture groups as a less arbitrary regional system of boundaries to separate the reserves of the vast and diverse areas covered in this study into groups sharing similar traits, customs, values, beliefs, or culture. Culture was thought to play an important role in the development of reserves. Furthermore, cultural affiliation was considered to be a factor which may explain some of the differences amongst reserves falling into the same access category. For example, some reserves in the rural category will have higher levels of income or education than other reserves. Cultural differences were thought to constitute one factor which may help to explain why some reserves falling into a particular access category behaved differently than another reserve in the same category.

Two culture areas were selected for comparison in this chapter. These two particular areas were chosen for several reasons. First, the two groups of reserves are the

largest as the Algonkian culture area is comprised of 227 reserves, and the Pacific Coast of 107. The larger sample sizes will help to ensure that the patterns we may deduce from them will be more representative than from the smaller samples, e.g., the Iroquoian culture area which has only six reserves. One reserve in a sample this small could skew the pattern for the entire sample. In addition, these are the only two samples which have enough reserves falling into every access category. This may be seen in the table below.

Table 25: Reserves Classified into Culture Areas, by Access Categories

	Urban	Rural	Remote	Special	Total #	Total %
Algonkian	68	111	8	40	227	42%
Iroquoian	5	1	0	0	6	1%
Mackenzie River	2	8	3	6	19	3%
Plains	34	58	0	0	92	17%
Plateau	25	54	5	1	85	15%
Pacific Coast	61	21	3	22	107	19%
TOTAL %	36%	47%	3%	12%	100%	
TOTAL #	195	253	19	69	536	

FREQUENCY MISSING: 21

Second, these two areas are located far apart. The Algonkian area stretches across most of Eastern Canada right into Alberta, and the Pacific culture area covers the islands and coast of British Columbia. The social and political organization, economies, customs, and traditions which characterize these two cultures areas are extremely different too. The Algonkian area tribes were primarily nomadic with loose systems of political authority, minimal accumulation of material possessions, and had an economy based on hunting and gathering. In comparison, the Pacific Coast culture area tribes were relatively sedentary, had rigid and hierarchical forms of political organization, and their economies were based upon fishing and gathering, trading, and, of course, the potlatch.

The last and perhaps most important reason is that these two culture areas displayed highly dissimilar patterns of Native language retention and levels of education attained. By focussing upon these two groups in the following analyses we may be able to discover some of the reasons why these two culture areas are so distinct today.

The following sets of analyses will examine two culture groups, the Algonkian and the Pacific Coast groups, in terms of the mother tongues spoken and levels of education attained by their populations. Each group has been subdivided into the four access categories. From these analyses, we shall see what the patterns of each variable is for each access category for the two culture groups. These patterns may then be compared to see if they differ from the general patterns identified in the previous analyses.

7.1.1 Mother Tongues Spoken in the Algonkian Culture Area

This culture area is the largest, both in terms of the geographic area covered and the number of reserves included for analysis. The majority of people speak an other, or presumably Native language or English as their mother tongue. The table indicates that very few, or about 3 percent of this population claimed French as their mother tongue.

Differences amongst the access groups claiming French as a mother tongue are minimal, but there is a trend toward decreasing levels of French with decreasing accessibilty; with the exception of the special access category. This most inaccessible category has a higher percentage of French speaker than do the rural and remote categories.

Of greater interest are the patterns of persons claiming English and Native languages as their mother tongue. A clear linear trend is evident from table 26. English as a mother tongue drops off dramatically from 60 percent in the urban, down to 45 percent in the rural, down to only 18 percent in the remote and special access categories. The opposite trend is indicated for the Native languages, which rise from just 35

Table 26: Breakdown of Mother Tongue for Algonkian Culture Area, by Access

	English	French	Other
Urban	59.9%	5.6%	34.4%
Rural	44.4%	2.0%	53.5%
Remote	18.9%	1.3%	79.7%
Special	18.0%	3.8%	78.1%
TOTAL %	40.5%	3.4%	55.9%
TOTAL #	39260	3355	54210

CHI-SQUARE: DF=6 VALUE=12698.620 PROBABILITY=0,000

percent in the urban, up to 54 percent in the rural, up to nearly 80 percent in the remote and special access categories!

These patterns reaffirm our previous findings in the analyses of the access categories. There, we also saw that English as a mother tongue declined linearly with decreasing levels of accessibility, and vice versa for the other mother tongues. Furthermore, this analysis indicates that these trends are especially true for the Algonkian culture group, for the trends are more sharply defined for this group than they were for all reserves in general.

7.1.2 Mother Tongues Spoken in the Pacific Coast Culture Area

The breakdown of mother tongues spoken in the Pacific Coast area provides a striking contrast to that of the Algonkian culture area.

The pattern of English as a mother tongue is uneven from one access category to the next, and no linear trend is evident. The percentage of each access group claiming English drops from a high of 88 percent in the urban, to a low of 57 percent in the rural, and jumps back up to 92 and 84 percent respectively in the remote and special access categories. This indicates that, contrary to our expectations, more people

Table 27: Breakdown of Mother Tongue for Pacific Culture Area, by Access

	English	French	Other
Urban	88.2%	0.8%	10.9%
Rural	56.9%	0.5%	42.5%
Remote	92.0%	0.0%	7.9%
Special	84.6%	0.0%	15.3%
TOTAL %	81.9%	0.5%	17.5%
TOTAL #	17200	110	3685

CHI-SQUARE: DF=6 VALUE=2135.222 PROBABILITY=0.000

learned English first in the remote and special access areas than did in the rural areas. Overall, a very high percentage of people in this culture area learned English first.

The opposite pattern is true for those claiming a mother tongue other than English or French. The largest percentage of people claimed an other, or Native mother tongue, in the rural area, and we would have expected this to be true of the less accessible areas. These results are interesting in that they reveal that accessibility may not be as important a factor influencing language retention in the Pacific Coast culture area as it is in the Algonkian area. The Pacific Coast area is unusual if we compare it to the general trend expressed in earlier analyses of accessibility for all of Canada's reserves.

There, we saw that the general trend was towards decreasing levels of Native language retention as we move from urban to rural and remote and special access categories of reserves. The Pacific Coast culture area differs from the other areas in that it does not display this linear pattern. Instead, we see that even in the reserves supposedly experiencing the least interaction with English-speaking non-Native communities, the loss of native languages is exceptionally high. Factors other than accessibility may be precipitating this language loss.

However, it is important to note two things regarding the accessibility of Pacific Coast reserves. The first is concerned with the definition of the special access category. Special access reserves are those which 'lack year-round access to the nearest regional centres, and may be served instead by ferries, airplanes, or a combination of these with roads not open all year'. The topography of the Pacific Coast culture area can lead us to assume that a relatively high proportion of the special access reserves are classified as such because they require a ferry or airplane to commute to the nearest service centre, and not because they are located a great distance away. Thus, they may be experiencing substantial interaction with outside communities after all. Special access reserves in the Algonkian and Mackenzie River culture areas are more likely to be located at extreme distances from service centres and therefore lack roads that are open all year round.

The second element that must be taken into account is the percentage reserve populations falling into each access category for each culture area. The Algonkian area breakdown is roughly 30 percent of the population in the urban category, 37 percent in the rural, 9 percent in the remote, and 24 percent in the specail access category. In comparison, the Pacific Coast area has 53 percent in the urban, 18 percent in the rural, 5 percent in the remote, and 23 percent in the special access category. The different population percentages falling into each category negates some of the importance of not having a linear trend of Native language retention in the Pacific Coast area. This is because 71 and 67 percent of the reserve populations fall into the urban and rural access categories in the Pacific Coast and Algonkian categories, respectively. Also, only 5 percent of the Pacific Coast areas' population falls into the remote category, and, from the preceding discussion, it may well be that the remote reserves experience the least amount of interaction with non-Native communities as many special access reserves are located close to service centres, but use a combination of forms of transportation.

7.2 Analyses of Levels of Education Attained

The following two-way contingency tables consist of the four access categories by four classes of educational achievement. Previous analyses of educational achievement used six classes, but in this section highschool education with and without a diploma was collapsed into one class, as was university education with or without a degree.

In the previous analyses of education achievement by access categories in section 5.1, we confirmed our hypothesis that levels of education attained decrease with declining levels of accessibility. The same trend may be expected in the separate analyses of the Algonkian and Pacific Coast culture areas.

7.2.1 Educational Achievement in the Algonkian Culture Area

Table 28: Educational Achievement for the Algonkian Culture Area, by Access

	Less than Grade 9	Highschool	Trade Diploma	University
Urban	44.7%	46.2%	4.0%	4.9%
Rural	53.3%	38.3%	2.3%	5.8%
Remote	58.5%	33.1%	1.1%	7.2%
Special	64.5%	29.6%	0.9%	4.9%
TOTAL %	53.6%	38.4%	2.4%	5.4%
TOTAL #	27855	19965	1295	2855

CHI-SQUARE: DF=9 VALUE=1412.874 PROBABILITY=0.000

Table 28 reveals a steady rise in the percentage of persons having less than a grade nine education with declining levels of accessibility: 44 percent of the urban category, to 53 percent of the rural, to 58 percent of the remote, up to 64 percent of the special access category. In keeping with this trend, the percentage of people having attended

highschool diminishes with declining levels of accessibility, from 46 percent of the urban category, to 38 percent of the rural, to 33 percent of the remote, to only 29 percent of the special access category.

Similarly, the minute percentage of persons having a trade certificate decreases with declining accessiblity. It may be recalled that in the first analyses using all reserves, the percentage of persons with university education actually rose slightly in the remote and special access categories. This pattern is also evident for the Algonkian culture area, where 7 percent of the population of the remote category has attended university, and approximately 5 percent of that of all the other access categories.

If this table is compared with table 3.1 showing educational attainment for all reserves by access categories, the proportions of each access category having less than grade nine, or having attended highschool, are very close. This signifies that the levels of educational attainment by the Algonkian culture area is very similar to that of all reserves, on the average.

7.2.2 Educational Achievement of the Pacific Coast Culture Area

Higher levels of educational achievement are expected in all access categories of this area because we saw in our earlier analyses of all culture areas by this variable in table 17 that the Pacific Coast population had significantly higher levels of education than that of all other culture areas except the Plateau. The following table confirms this hypothesis.

The percentage of persons having less than grade nine rises from 28 percent of the urban class to 37 percent of the rural, to 46 percent of the remote, up to 46 percent of the special access category. Compared to the percentages in the Algonkian culture area, these figures are much lower, indicating that less people in all access categories were considered functionally illiterate.

Table 29: Educational Achievement for Pacific Coast Culture Area, by Access

	Less than Grade 9	Highschool	Trade Diploma	University
Urban	28.1%	56.4%	2.3%	13.0%
Rural	37.5%	53.4%	1.4%	7.5%
Remote	46.2%	48.4%	0.0%	5.3%
Special	45.4%	46.1%	1.5%	6.9%
TOTAL %	34.7%	53.1%	1.9%	10.2%
TOTAL #	4390	6715	240	1300

CHI-SQUARE: DF=9 VALUE=398.606 PROBABILITY=0.000

Similarly, the percentages of people having attended highschool are higher in each access category than was found in the Algonkian culture area. Also, the percentages do not decrease as steeply going from the urban to the special access categories: 56 percent have attended highschool in the former and 46 percent in the latter categories in the Pacific Coast area. These figures show less of an association between access and the level of education achieved than is evident in the Algonkian culture area where 46 percent had attended highschool of the urban category, and only 29 percent of the special access category. From this comparison we may conclude that the Pacific Coast population has achieved higher levels of education in all access categories than have the other culture areas, and especially in comparison to the Algonkian culture area.

The percentages of each access class's population having attended university is also higher than for other classes, e.g., 13 percent of the urban population have attended, compared to only about 5 percent of the Algonkian areas urban class.

These differences may be due in part to the fact that many reserves classified as urban in the Pacific Coast are in fact closer to urban centres and thus perhaps to

schools and universities than are reserves in the Algonkian area. We know that the urban classification encompasses all reserves up to 50 kilometres away from a service centre. A greater proportion of urban reserves along the Pacific Coast are probably much less than 50 kilometres away from a service centre than are urban reserves in the Algonkian, Mackenzie River, or Plains culture areas.

Also, the culture of the Pacific Coast culture area may be more conducive to pursuing an education. This culture area was characterized by a rigidly defined, hierarchical political and social organization more similar to mainstream Canadian culture than that of the Algonkian area tribes. Traditionally, material possessions were both valued and accumulated even so they were given away at potlatches which were viewed almost as social debts to be reciprocated.

The coastal Indians were also not nomadic as were the hunter-gatherer peoples of other culture areas, and thus they may be more comfortable leading a sedentary lifestyle. Also, the Pacific Coast Indians may not have experienced the same devastating degree of cultural upheaval and alienation from their former lifestyles as had the nomadic peoples from the Algonkian, Plains, and Mackenzie River culture areas.

7.3 Summary

The analyses in this chapter were performed in an attempt to clarify the interrelationship between the cultural affiliation of reserves and their level of access to service centres.

A clear linear trend of Native mother tongue retention was identified in the analyses of the Algonkian culture area. Access sample proportions claiming a mother tongue other than English or French rose dramatically with declining levels of accessibility. However, this pattern was not evident for the Pacific Coast culture area, where extremely high access sample proportions claimed English as a mother tongue in the

urban, remote, and special access categories, signifying a high rate of Native language loss. Only in the rural sample did this percentage drop, but even this proportion was much higher than the percentages found in the other cultural areas.

In the Algonkian culture area a trend of decreasing educational achievement with declining levels of accessibility was found to exist. The pattern revealed was a clear linear trend.

A similar pattern was identified for the Pacific Coast area, but this trend was not as exaggerated as it was for the Algonkian area. Differences amongst sample proportions were less pronounced, indicating that the levels of education did not differ as much between the four access samples. In addition, the absolute sample proportions were different indicating that the overall level of educational achievement was higher for all access groups in the Pacific Coast culture area.

Chapter VIII

CONCLUSIONS

Various factors have been suggested as important in the development of Indian reserves in past research. Physical isolation has often been cited as a barrier to reserve development, yet surprisingly little empirical research exists which has investigated this notion. Indian culture is also a factor thought to influence development. The retention of Indian cultures has been regarded as an impediment to reserve development in that many traditional values and beliefs run counter to those found in mainstream Canadian culture. Cultural affiliation may also influence the effects of accessibility to non-native communities upon reserves. If certain cultural groups resist acculturation strongly, then their physical distance to non-native communities may have a negligible impact upon their development.

The goal of this thesis was to examine these two factors in relationship to reserve labor force development. It is an endeavor to identify differences amongst reserves when classified by their accessibility to non-native communities, and by their cultural affiliation. Data representing reserves for all provinces was analyzed. This data was available for the first time in the 1981 census of Canada. Reserves were classified into access and cultural affiliation categories developed by DIAND. Chi-square analyses and two-way contingency tables were used to analyze the data.

The first set of analyses tested the hypothesis that there are no significant differences amongst the four access samples when the labour force indicators were compared. The contingency tables revealed linear trends of declining levels of educational attainment with decreasing levels of accessibility. Inversely, levels of Native language

retention increased with increasing isolation. Although urban reserves have experienced an alarming loss of Native languages, it was seen that many native people continue to speak their languages at home, and to pass them on to their children.

Not surprisingly, roughly twice as many men than women were participating in the labour force. Virtually all were paid workers rather than self-employed, suggesting that very limited opportunities for entrepreneurship exists on reserves. Occupational structures for men and women were found to differ. In addition, these structures varied amongst the four access samples.

Analyses of household incomes revealed that rural and special access samples were the poorest, and that generally all households were much poorer than mainstream Canadian households. Employment income analyses showed that not only were the patterns found different for men and women, but also that women earned far less money than men did. Both men and women in the urban and remote samples earned the highest incomes.

Analyses of the contingency tables and the high chi-square test statistics proved that differences amongst the four access samples were not due merely to chance. Rather, the groups of reserves differ significantly from each other. However, these analyses do not prove a significant correlation between accessibility and differing levels of education, Native language retention, and other indicators.

Significant differences were also found to exist amongst the six culture areas. The Mackenzie River culture area reserves had the lowest levels of educational attainment, and the highest levels of Native language retention. Unfortunately, these two indicators are always in inverse proportion. This area also had the lowest sample proportions of women in the labour force, which may indicate that reserves of this culture area are especially traditionally oriented.

The Pacific Coast, Plateau, and Iroquoian culture areas, in comparison, are characterized by the highest levels of education, Native language loss, and official language proficiency. These areas also had high levels of labour force participation of both men and women. Households and employed men in the Pacific Coast and Plateau areas fared best financially as they had the lowest sample proportions falling into the lowest income categories. Note, however, that this does not hold true for women, indicating that income structures for men and women differ by culture areas as well as by access.

The last set of analyses compared two culture areas in order to see if the breakdown of reserves by accessibility is similar for the Algonkian and Pacific Coast areas, and to explore any relationship between the two factors. These areas were chosen because they contained large numbers of reserves and displayed dissimilar characteristics in previous analyses. Reserves of the Pacific Coast culture area were shown earlier to have very high levels of education, labour force participation, slightly higher income levels, and a severe loss of Native languages. Algonkian culture area reserves were poorer, less educated, had greater proportions of persons out of the labour force, and had significantly higher levels of Native language retention.

Native language retention rose linearly with decreasing levels of accessibility in the Algonkian culture area. This trend is not evident in the case of the Pacific Coast area, where Native language loss was at very high levels for all samples except the rural. Levels of education fell in a linear fashion for both culture areas, but the level was higher overall and the decline less steep for the Pacific Coast area. These results suggest that access to non-native communities plays a less important role in the development of reserves in the Pacific Coast area as there are lesser differences amongst urban, rural, remote and special access reserves there. Part of this may be because a much higher proportion of Pacific Coast reserves are classified as urban or rural, and the special access reserves may be located relatively short distances away from non-native communities, but lack year-round road access.

Another possibility which invites further investigation may be that the Pacific Coast reserves have adapted or even acculturated to a greater degree than have reserves of other culture areas, e.g., the Algonkian. The classification of reserves into culture areas is rough in many senses, one being that we do not know to what extent the traditional cultural affiliation of reserves is still in effect today. It may well be that some areas have retained many more of their values, customs, beliefs, and lifestyles than have others. More sophisticated measures of cultural retention would be required to shed more light on the effects of culture.

Reserves were found to differ significantly from each other when classified into a crude measure of transportation accessibility. This would be interesting to further investigate, but using a more sophisticated system of measuring accessibility. The concept of accessibility could be extended to include less tangible measures, such as the opportunities for work or education available to reserve inhabitants in non-native communities, or the number of vehicles inhabitants have at their disposal to get to these opportunities.

Reserve inhabitants' perceptions of opportunities available to them off-reserve would also be a rewarding avenue to research as these perceptions would doubtless influence their behavior. If these perceptions are negative, then inhabitants may be reluctant to seek education or employment off-reserve, or to migrate out. It may influence their decisions to adapt mainstream Canadian cultural traits as well. This thesis has endeavored to discover more about factors playing a role in reserve development, and to identify new areas to be explored in future research.

Appendix A

CULTURE AREAS OF CANADA

Table 30: Six Culture Areas of Canada

Culture Area	Location	Selected Characteristics	Linguistic Groups Involved
Algonkian	Eastern & Central Woodlands	Economy based on game, fish & wild fruits with consequent migratory life. Highly developed modes of transportation -- canoes, snowshoes, toboggans. Portable dwellings ("wigwams"). Extensive use of birch bark, skin clothing fur robes. Bands in northern (subarctic) area small with little political unity between and leaders chosen according to tasks at hand. Size of bands, political unity, and institutionalization of leadership greater among bands of southern areas.	Algonkian
Iroquoian	South-eastern Ontario	Economy based on agriculture, e.g., corn, beans, squash, tobacco. Permanent villages. Long bark houses. Pottery. Deer skin garments, fur robes. Highly developed political systems.	Iroquoian
Mackenzie River	Mackenzie river system & woodlands north of Churchill River	Economy based on caribou, moose, hare, fish and berries. Caribou or moose skin clothing. Migratory life. Spruce bark canoes, snow-shoes. Summer tents, winter rectangular huts of bark or logs. Political unity minimal among bands. Temporary leaders. Guardian spirit concept.	
Plains	Canadian Prairies	Economy based on prairie buffalo. Adoption of horse. Use of travois. Highly mobile existence. Skin clothing, buffalo robes. Skin tents (tipis). Military societies. Visions induced by fasting and accompanying appearance of spirit guardians. Political unity among bands was seasonal and focused on warfare, religion, and the hunt.	Algonkian Athapaskan Siouan
Plateau	Interior Plateau of	Fishing, hunting, and gathering economy. Migrating salmon caught in wicker cage traps or dip nets.	Salishan Athapaskan Tlingit

	British Columbia & Yukon	Use of edible roots and berries. Skin clothing, fur robes. Variety of dwellings including skin and rush tents, semi-terranean houses, rectangular log and bark huts. Spruce root baskets, rush mats. Tendency to adopt social organization of Pacific Coast culture in western part of area but otherise little formality in social, political, and economic relationships. Guardian spirit concept.	(Tagish) Kootenayan
Pacific Coast	Coast of British Columbia	Reliance on sea foods including salmon and other fish, sea mammals, shell fish, seaweeds. Extensive use of cedar trees for dugout canoes, plank houses, cedar bark clothing, wooden trays, wooden boxes. Goat or dog wool blankets. Highly developed trade with interior Indians and among coastal bands. Stratified society. Sophisticated use of art forms. Winter ceremonies. Potlatch.	Tsimshian Haida Salishan Wakashan

This description is taken from DIAND:
Cultural and Linguistic Affiliation of Indian Bands, 1979.

Appendix B

STATISTICAL TABLES

Table 31: Key to Culture Area and Access Group Codes Used in Tables

Culture Areas

Culture area 1 = Algonkian
Culture area 2 = Iroquoian
Culture area 3 = Mackenzie River
Culture area 4 = Plains
Culture area 5 = Plateau
Culture area 6 = Pacific Coast

Levels of Accessibility
Access group 1 = urban
Access group 2 = rural
Access group 3 = remote
Access group 4 = special access

:sk2 Frequency missing indicates the number of persons not included in analyses because they belong to reserves not assigned a culture area or access code. These reserves were not included in the cell counts.

Table 32: TABLE OF CULTURE BY EDUCATION

CULTURE EDUCATION

FREQUENCY / EXPECTED / DEVIATION / PERCENT / ROW PCT / COL PCT / CUM COL%	G9_13WC	G9_13WOC	HLS_GR9	TRADECER	UNIW_ODE	UNIWDEGR	TOTAL
1	1960	18005	27855	1295	1935	920	51970
	2431.7	19262.8	25740.2	1183.6	2267.6	1084.1	
	-471.7	-1257.8	2114.8	111.4	-332.6	-164.1	
	2.03	18.64	28.84	1.34	2.00	0.95	53.80
	3.77	34.64	53.60	2.49	3.72	1.77	
	43.36	50.29	58.22	58.86	45.91	45.66	
	43.36	50.29	58.22	58.86	45.91	45.66	53.80
2	300	960	960	130	120	70	2540
	118.8	941.5	1258.0	57.8	110.8	53.0	
	181.2	18.5	-298.0	72.2	9.2	17.0	
	0.31	0.99	0.99	0.13	0.12	0.07	2.63
	11.81	37.80	37.80	5.12	4.72	2.76	
	6.64	2.68	2.01	5.91	2.85	3.47	
	50.00	52.97	60.23	64.77	48.75	49.13	56.43
3	30	385	1245	10	20	30	1720
	80.5	637.5	851.9	39.2	75.0	35.9	
	-50.5	-252.5	393.1	-29.2	-55.0	-5.9	
	0.03	0.40	1.29	0.01	0.02	0.03	1.78
	1.74	22.38	72.38	0.58	1.16	1.74	
	0.66	1.08	2.60	0.45	0.47	1.49	
	50.66	54.04	62.83	65.23	49.23	50.62	58.21
TOTAL	4520	35805	47845	2200	4215	2015	96600
	4.68	37.07	49.53	2.28	4.36	2.09	100.00

(CONTINUED)

TABLE OF CULTURE BY EDUCATION (continued)

CULTURE EDUCATION

	G9_13WC	G9_13WOC	HLS_GR9	TRADECER	UNIW_ODE	UNIWDEGR	TOTAL
FREQUENCY							
EXPECTED							
DEVIATION							
PERCENT							
ROW PCT							
COL PCT							
CUM COL%							
4	615	6940	9995	300	1005	305	19160
	896.5	7101.7	9489.8	436.4	836.0	399.7	
	-281.5	-161.7	505.2	-136.4	169.0	-94.7	
	0.64	7.18	10.35	0.31	1.04	0.32	19.83
	3.21	36.22	52.17	1.57	5.25	1.59	
	13.61	19.38	20.89	13.64	23.84	15.14	
	64.27	73.43	83.72	78.86	73.07	65.76	78.04
5	685	3730	3400	225	390	135	8565
	400.8	3174.6	4242.2	195.1	373.7	178.7	
	284.2	555.4	-842.2	29.9	16.3	-43.7	
	0.71	3.86	3.52	0.23	0.40	0.14	8.87
	8.00	43.55	39.70	2.63	4.55	1.58	
	15.15	10.42	7.11	10.23	9.25	6.70	
	79.42	83.84	90.82	89.09	82.33	72.46	86.91
6	930	5785	4390	240	745	555	12645
	591.7	4686.9	6262.9	288.0	551.7	263.8	
	338.3	1098.1	-1872.9	-48.0	193.3	291.2	
	0.96	5.99	4.54	0.25	0.77	0.57	13.09
	7.35	45.75	34.72	1.90	5.89	4.39	
	20.58	16.16	9.18	10.91	17.67	27.54	
	100.00	100.00	100.00	100.00	100.00	100.00	100.00
TOTAL	4520	35805	47845	2200	4215	2015	96600
	4.68	37.07	49.53	2.28	4.36	2.09	100.00

FREQUENCY MISSING = 3700

Table 33: STATISTICS FOR TABLE OF CULTURE BY EDUCATION

STATISTIC	DF	VALUE	PROB
CHI-SQUARE	25	3359.115	0.000
LIKELIHOOD RATIO CHI-SQUARE	25	3218.411	0.000
MANTEL-HAENSZEL CHI-SQUARE	1	96.155	0.000
PHI		0.186	
CONTINGENCY COEFFICIENT		0.183	
CRAMER'S V		0.083	

EFFECTIVE SAMPLE SIZE = 96600
FREQUENCY MISSING = 3700

Table 34: TABLE OF ACCESS BY EDUCATION

ACCESS EDUCATION

ACCESS / EDUCATION	G9_13WC	G9_13WOC	HLS_GR9	TRADECER	UNIV_ODE	UNIVDEGR	TOTAL
1	2875	17005	16550	1315	2135	880	40760
FREQUENCY	1908.2	15090.1	20230.3	927.3	1753.3	850.8	
EXPECTED	966.8	1914.9	-3680.3	387.7	381.7	29.2	
DEVIATION	2.91	17.23	16.77	1.33	2.16	0.89	41.30
PERCENT	7.05	41.72	40.60	3.23	5.24	2.16	
ROW PCT	62.23	46.54	33.79	58.57	50.29	42.72	
COL PCT	62.23	46.54	33.79	58.57	50.29	42.72	41.30
2	990	13025	19060	690	1460	560	35785
FREQUENCY	1675.3	13248.3	17761.1	814.1	1539.3	747.0	
EXPECTED	-685.3	-223.3	1298.9	-124.1	-79.3	-187.0	
DEVIATION	1.00	13.20	19.31	0.70	1.48	0.57	36.26
PERCENT	2.77	36.40	53.26	1.93	4.08	1.56	
ROW PCT	21.43	35.65	38.91	30.73	34.39	27.18	
COL PCT	83.66	82.20	72.70	89.31	84.69	69.90	77.56
3	250	1785	3410	75	230	190	5940
FREQUENCY	278.1	2199.1	2948.2	135.1	255.5	124.0	
EXPECTED	-28.1	-414.1	461.8	-60.1	-25.5	66.0	
DEVIATION	0.25	1.81	3.46	0.08	0.23	0.19	6.02
PERCENT	4.21	30.05	57.41	1.26	3.87	3.20	
ROW PCT	5.41	4.89	6.96	3.34	5.42	9.22	
COL PCT	89.07	87.08	79.67	92.65	90.11	79.13	83.58
4	505	4720	9960	165	420	430	16200
FREQUENCY	758.4	5997.5	8040.5	368.5	696.9	338.2	
EXPECTED	-253.4	-1277.5	1919.5	-203.5	-276.9	91.8	
DEVIATION	0.51	4.78	10.09	0.17	0.43	0.44	16.42
PERCENT	3.12	29.14	61.48	1.02	2.59	2.65	
ROW PCT	10.93	12.92	20.33	7.35	9.89	20.87	
COL PCT	100.00	100.00	100.00	100.00	100.00	100.00	100.00
TOTAL	4620	36535	48980	2245	4245	2060	98685
	4.68	37.02	49.63	2.27	4.30	2.09	100.00

FREQUENCY MISSING = 1615

Table 35: STATISTICS FOR TABLE OF ACCESS BY EDUCATION

STATISTIC	DF	VALUE	PROB
CHI-SQUARE	15	3377.444	0.000
LIKELIHOOD RATIO CHI-SQUARE	15	3422.457	0.000
MANTEL-HAENSZEL CHI-SQUARE	1	349.836	0.000
PHI		0.185	
CONTINGENCY COEFFICIENT		0.182	
CRAMER'S V		0.107	

EFFECTIVE SAMPLE SIZE = 98685
FREQUENCY MISSING = 1615

Table 36: TABLE OF CULTURE BY OFFICIAL LANGUAGE PROFICIENCY

CULTURE LANGUAGE

FREQUENCY					
EXPECTED					
DEVIATION					
PERCENT					
ROW PCT					
COL PCT					
CUM COL%	OFFLEF	OFFLEO	OFFLFO	OFFLNEF	TOTAL
1	3200	74855	7430	11310	96795
	2556.4	82629.6	4493.5	7115.4	
	643.6	-7774.6	2936.5	4194.6	
	1.80	42.20	4.19	6.38	54.57
	3.31	77.33	7.68	11.68	
	68.30	49.43	90.22	86.73	
	68.30	49.43	90.22	86.73	54.57
2	620	2955	800	15	4390
	115.9	3747.5	203.8	322.7	
	504.1	-792.5	596.2	-307.7	
	0.35	1.67	0.45	0.01	2.47
	14.12	67.31	18.22	0.34	
	13.23	1.95	9.71	0.12	
	81.54	51.38	99.94	86.85	57.04
3	25	2655	0	545	3225
	85.2	2753.0	149.7	237.1	
	-60.2	-98.0	-149.7	307.9	
	0.01	1.50	0.00	0.31	1.82
	0.78	82.33	0.00	16.90	
	0.53	1.75	0.00	4.18	
	82.07	53.14	99.94	91.03	58.86
TOTAL	4685	151430	8235	13040	177390
	2.64	85.37	4.64	7.35	100.00

(CONTINUED)

TABLE OF CULTURE BY OFFICIAL LANGUAGE PROFIENCY(continued)

CULTURE LANGUAGE

FREQUENCY / EXPECTED / DEVIATION / PERCENT / ROW PCT / COL PCT / CUM COL%	OFFLEF	OFFLEO	OFFLFO	OFFLNEF	TOTAL
4	190	36480	5	1005	37680
	995.2	32165.8	1749.2	2769.9	
	-805.2	4314.2	-1744.2	-1764.9	
	0.11	20.56	0.00	0.57	21.24
	0.50	96.82	0.01	2.67	
	4.06	24.09	0.06	7.71	
	86.13	77.23	100.00	98.73	80.10
5	310	13930	0	120	14360
	379.3	12258.5	666.6	1055.6	
	-69.3	1671.5	-666.6	-935.6	
	0.17	7.85	0.00	0.07	8.10
	2.16	97.01	0.00	0.84	
	6.62	9.20	0.00	0.92	
	92.74	86.43	100.00	99.65	88.20
6	340	20555	0	45	20940
	553.0	17875.6	972.1	1539.3	
	-213.0	2679.4	-972.1	-1494.3	
	0.19	11.59	0.00	0.03	11.80
	1.62	98.16	0.00	0.21	
	7.26	13.57	0.00	0.35	
	100.00	100.00	100.00	100.00	100.00
TOTAL	4685	151430	8235	13040	177390
	2.64	85.37	4.64	7.35	100.00

FREQUENCY MISSING = 6760

Table 37: STATISTICS FOR TABLE OF CULTURE BY OFFICIAL LANGUAGE PROFICIENCY

STATISTIC	DF	VALUE	PROB
CHI-SQUARE	15	19014.140	0.000
LIKELIHOOD RATIO CHI-SQUARE	15	22487.903	0.000
MANTEL-HAENSZEL CHI-SQUARE	1	7830.767	0.000
PHI		0.327	
CONTINGENCY COEFFICIENT		0.311	
CRAMER'S V		0.189	

EFFECTIVE SAMPLE SIZE = 177390
FREQUENCY MISSING = 6760

Table 38: TABLE OF ACCESS BY OFFICIAL LANGUAGE PROFICIENCY

ACCESS / LANGUAGE	OFFLEF	OFFLEO	OFFLFO	OFFLNEF	TOTAL
1	2700	62620	5055	1145	71520
	1868.7	60949.5	3427.3	5274.4	
	831.3	1670.5	1627.7	-4129.4	
	1.49	34.59	2.79	0.63	39.51
	3.78	87.56	7.07	1.60	
	57.08	40.59	58.27	8.58	
	57.08	40.59	58.27	8.58	39.51
2	1305	61610	1455	3360	67730
	1769.7	57719.7	3245.7	4994.9	
	-464.7	3890.3	-1790.7	-1634.9	
	0.72	34.03	0.80	1.86	37.41
	1.93	90.96	2.15	4.96	
	27.59	39.94	16.77	25.17	
	84.67	80.53	75.04	33.75	76.92
3	470	8790	145	1880	11285
	294.9	9617.1	540.8	832.2	
	175.1	-827.1	-395.8	1047.8	
	0.26	4.86	0.08	1.04	6.23
	4.16	77.89	1.28	16.66	
	9.94	5.70	1.67	14.08	
	94.61	86.23	76.71	47.83	83.16
4	255	21250	2020	6965	30490
	796.7	25983.7	1461.1	2248.5	
	-541.7	-4733.7	558.9	4716.5	
	0.14	11.74	1.12	3.85	16.84
	0.84	69.69	6.63	22.84	
	5.39	13.77	23.29	52.17	
	100.00	100.00	100.00	100.00	100.00
TOTAL	4730	154270	8675	13350	181025
	2.61	85.22	4.79	7.37	100.00

FREQUENCY MISSING = 3125

Table 39: STATISTICS FOR TABLE OF ACCESS BY OFFICIAL LANGUAGE PROFICIENCY

STATISTIC	DF	VALUE	PROB
CHI-SQUARE	9	19450.254	0.000
LIKELIHOOD RATIO CHI-SQUARE	9	17516.658	0.000
MANTEL-HAENSZEL CHI-SQUARE	1	12959.430	0.000
PHI		0.328	
CONTINGENCY COEFFICIENT		0.311	
CRAMER'S V		0.189	

EFFECTIVE SAMPLE SIZE = 181025
FREQUENCY MISSING = 3125

Table 40: TABLE OF CULTURE BY MOTHER TONGUE

CULTURE MOTHER TONGUE

FREQUENCY / EXPECTED / DEVIATION / PERCENT / ROW PCT / COL PCT / CUM COL%	HLEMT	HLFMT	HLOMT	TOTAL
1	39260	3355	54210	96825
	50008.2	2700.3	44116.5	
	-10748	654.7	10093.5	
	22.12	1.89	30.54	54.55
	40.55	3.47	55.99	
	42.83	67.78	67.03	
	42.83	67.78	67.03	54.55
2	2555	1275	565	4395
	2269.9	122.6	2002.5	
	285.1	1152.4	-1437.5	
	1.44	0.72	0.32	2.48
	58.13	29.01	12.86	
	2.79	25.76	0.70	
	45.61	93.54	67.73	57.03
3	850	0	2380	3230
	1668.2	90.1	1471.7	
	-818.2	-90.1	908.3	
	0.48	0.00	1.34	1.82
	26.32	0.00	73.68	
	0.93	0.00	2.94	
	46.54	93.54	70.68	58.85
TOTAL	91670	4950	80870	177490
	51.65	2.79	45.56	100.00

(CONTINUED)

TABLE OF CULTURE BY MOTHER TONGUE(continued)

CULTURE MOTHER TONGUE

FREQUENCY				
EXPECTED				
DEVIATION				
PERCENT				
ROW PCT				
COL PCT				
CUM COL%	HLEMT	HLFMT	HLOMT	TOTAL
4	20715	65	16910	37690
	19466.1	1051.1	17172.7	
	1248.9	-986.1	-262.7	
	11.67	0.04	9.53	21.23
	54.96	0.17	44.87	
	22.60	1.31	20.91	
	69.14	94.85	91.59	80.08
5	11090	145	3120	14355
	7414.1	400.3	6540.6	
	3675.9	-255.3	-3420.6	
	6.25	0.08	1.76	8.09
	77.26	1.01	21.73	
	12.10	2.93	3.86	
	81.24	97.78	95.44	88.17
6	17200	110	3685	20995
	10843.5	585.5	9566.0	
	6356.5	-475.5	-5881.0	
	9.69	0.06	2.08	11.83
	81.92	0.52	17.55	
	18.76	2.22	4.56	
	100.00	100.00	100.00	100.00
TOTAL	91670	4950	80870	177490
	51.65	2.79	45.56	100.00

FREQUENCY MISSING = 6735

Table 41: STATISTICS FOR TABLE OF CULTURE BY MOTHER TONGUE

STATISTIC	DF	VALUE	PROB
CHI-SQUARE	10	30244.556	0.000
LIKELIHOOD RATIO CHI-SQUARE	10	25265.417	0.000
MANTEL-HAENSZEL CHI-SQUARE	1	13573.643	0.000
PHI		0.413	
CONTINGENCY COEFFICIENT		0.382	
CRAMER'S V		0.292	

EFFECTIVE SAMPLE SIZE = 177490
FREQUENCY MISSING = 6735

Table 42: TABLE OF ACCESS BY MOTHER TONGUE

ACCESS	MOTHER TONGUE			
FREQUENCY				
EXPECTED				
DEVIATION				
PERCENT				
ROW PCT				
COL PCT				
CUM COL%	HLEMT	HLFMT	HLOMT	TOTAL
1	46480	3150	21905	71535
	36808.3	1961.1	32765.6	
	9671.7	1188.9	-10861	
	25.66	1.74	12.09	39.50
	64.98	4.40	30.62	
	49.88	63.44	26.41	
	49.88	63.44	26.41	39.50
2	34120	815	32820	67755
	34863.3	1857.5	31034.3	
	-743.3	-1042.5	1785.7	
	18.84	0.45	18.12	37.41
	50.36	1.20	48.44	
	36.61	16.41	39.56	
	86.49	79.86	65.97	76.91
3	3650	115	7525	11290
	5809.3	309.5	5171.2	
	-2159.3	-194.5	2353.8	
	2.02	0.06	4.15	6.23
	32.33	1.02	66.65	
	3.92	2.32	9.07	
	90.41	82.18	75.04	83.14
4	8940	885	20705	30530
	15709.2	837.0	13983.9	
	-6769.2	48.0	6721.1	
	4.94	0.49	11.43	16.86
	29.28	2.90	67.82	
	9.59	17.82	24.96	
	100.00	100.00	100.00	100.00
TOTAL	93190	4965	82955	181110
	51.45	2.74	45.80	100.00

FREQUENCY MISSING = 3115

Table 43: STATISTICS FOR TABLE OF ACCESS BY MOTHER TONGUE

STATISTIC	DF	VALUE	PROB
CHI-SQUARE	6	15711.937	0.000
LIKELIHOOD RATIO CHI-SQUARE	6	16188.549	0.000
MANTEL-HAENSZEL CHI-SQUARE	1	13624.182	0.000
PHI		0.295	
CONTINGENCY COEFFICIENT		0.283	
CRAMER'S V		0.208	

EFFECTIVE SAMPLE SIZE = 181110
FREQUENCY MISSING = 3115

Table 44: TABLE OF CULTURE BY HOME LANGUAGE

CULTURE HOME LANGUAGE

FREQUENCY / EXPECTED / DEVIATION / PERCENT / ROW PCT / COL PCT / CUM COL%	OMTEHL	OMTFHL	OMTOHL	TOTAL
1	9240	335	43935	53510
	13164.1	254.4	40091.5	
	-3924.1	80.6	3843.5	
	11.56	0.42	54.98	66.96
	17.27	0.63	82.11	
	47.00	88.16	73.38	
	47.00	88.16	73.38	66.96
2	230	35	285	550
	135.3	2.6	412.1	
	94.7	32.4	-127.1	
	0.29	0.04	0.36	0.69
	41.82	6.36	51.82	
	1.17	9.21	0.48	
	48.17	97.37	73.85	67.65
3	405	0	1940	2345
	576.9	11.2	1757.0	
	-171.9	-11.2	183.0	
	0.51	0.00	2.43	2.93
	17.27	0.00	82.73	
	2.06	0.00	3.24	
	50.23	97.37	77.09	70.58
TOTAL	19660	380	59875	79915
	24.60	0.48	74.92	100.00

(CONTINUED)

TABLE OF CULTURE BY HOME LANGUAGE (continued)

CULTURE	HOME LANGUAGE			
FREQUENCY				
EXPECTED				
DEVIATION				
PERCENT				
ROW PCT				
COL PCT				
CUM COL%	OMTEHL	OMTFHL	OMTOHL	TOTAL
4	5810	10	11100	16920
	4162.5	80.5	12677.0	
	1647.5	-70.5	-1577.0	
	7.27	0.01	13.89	21.17
	34.34	0.06	65.60	
	29.55	2.63	18.54	
	79.78	100.00	95.63	91.75
5	1860	0	1210	3070
	755.3	14.6	2300.1	
	1104.7	-14.6	-1090.1	
	2.33	0.00	1.51	3.84
	60.59	0.00	39.41	
	9.46	0.00	2.02	
	89.24	100.00	97.65	95.60
6	2115	0	1405	3520
	866.0	16.7	2637.3	
	1249.0	-16.7	-1232.3	
	2.65	0.00	1.76	4.40
	60.09	0.00	39.91	
	10.76	0.00	2.35	
	100.00	100.00	100.00	100.00
TOTAL	19660	380	59875	79915
	24.60	0.48	74.92	100.00

FREQUENCY MISSING = 3755

Table 45: STATISTICS FOR TABLE OF CULTURE BY HOME LANGUAGE

STATISTIC	DF	VALUE	PROB
CHI-SQUARE	10	7602.917	0.000
LIKELIHOOD RATIO CHI SQUARE	10	6690.927	0.000
MANTEL HAENSZEL CHI SQUARE	1	6004.184	0.000
PHI		0.308	
CONTINGENCY COEFFICIENT		0.295	
CRAMER'S V		0.218	

EFFECTIVE SAMPLE SIZE = 79915
FREQUENCY MISSING = 3755

Table 46: TABLE OF ACCESS BY HOME LANGUAGE

ACCESS	HOME LANGUAGE			
FREQUENCY				
EXPECTED				
DEVIATION				
PERCENT				
ROW PCT				
COL PCT				
CUM COL%	OMTEHL	OMTFHL	OMTOHL	TOTAL
1	8065	305	13270	21640
	5214.7	100.3	16325.0	
	2850.3	204.7	-3055.0	
	9.84	0.37	16.18	26.39
	37.27	1.41	61.32	
	40.81	80.26	21.45	
	40.81	80.26	21.45	26.39
2	8955	45	23400	32400
	7807.6	150.1	24442.2	
	1147.4	-105.1	-1042.2	
	10.92	0.05	28.54	39.51
	27.64	0.14	72.22	
	45.32	11.84	37.83	
	86.13	92.11	59.28	65.90
3	660	10	6785	7455
	1796.5	34.5	5624.0	
	-1136.5	-24.5	1161.0	
	0.80	0.01	8.27	9.09
	8.85	0.13	91.01	
	3.34	2.63	10.97	
	89.47	94.74	70.25	74.99
4	2080	20	18405	20505
	4941.2	95.0	15468.8	
	-2861.2	-75.0	2936.2	
	2.54	0.02	22.45	25.01
	10.14	0.10	89.76	
	10.53	5.26	29.75	
	100.00	100.00	100.00	100.00
TOTAL	19760	380	61860	82000
	24.10	0.46	75.44	100.00

FREQUENCY MISSING = 1670

STATISTICS FOR TABLE OF ACCESS BY HOME LANGUAGE

STATISTIC	DF	VALUE	PROB
CHI-SQUARE	6	6083.663	0.000
LIKELIHOOD RATIO CHI-SQUARE	6	6456.957	0.000
MANTEL-HAENSZEL CHI-SQUARE	1	5233.629	0.000
PHI		0.272	
CONTINGENCY COEFFICIENT		0.263	
CRAMER'S V		0.193	

EFFECTIVE SAMPLE SIZE = 82000
FREQUENCY MISSING = 1670

Table 47: TABLE OF CULTURE BY CLASS

CULTURE CLASS

FREQUENCY / EXPECTED / DEVIATION / PERCENT / ROW PCT / COL PCT / CUM COL%	FPAID	FSELFEMP	MPAID	MSELFEMP	TOTAL
1	6890	120	13235	715	20960
	7008.2	121.9	12991.1	838.7	
	-118.2	-1.9	243.9	-123.7	
	16.36	0.28	31.43	1.70	49.77
	32.87	0.57	63.14	3.41	
	48.93	48.98	50.71	42.43	
	48.93	48.98	50.71	42.43	49.77
2	600	10	870	70	1550
	518.3	9.0	960.7	62.0	
	81.7	1.0	-90.7	8.0	
	1.42	0.02	2.07	0.17	3.68
	38.71	0.65	56.13	4.52	
	4.26	4.08	3.33	4.15	
	53.20	53.06	54.04	46.59	53.46
3	155	0	390	0	545
	182.2	3.2	337.8	21.8	
	-27.2	-3.2	52.2	-21.8	
	0.37	0.00	0.93	0.00	1.29
	28.44	0.00	71.56	0.00	
	1.10	0.00	1.49	0.00	
	54.30	53.06	55.54	46.59	54.75
TOTAL	14080	245	26100	1685	42110
	33.44	0.58	61.98	4.00	100.00

(CONTINUED)

TABLE OF CULTURE BY CLASS (continued)

CULTURE CLASS					
FREQUENCY					
EXPECTED					
DEVIATION					
PERCENT					
ROW PCT					
COL PCT					
CUM COL%	FPAID	FSELFEMP	MPAID	MSELFEMP	TOTAL
4	2480	25	4650	390	7545
	2522.8	43.9	4676.4	301.9	
	-42.8	-18.9	-26.4	88.1	
	5.89	0.06	11.04	0.93	17.92
	32.87	0.33	61.63	5.17	
	17.61	10.20	17.82	23.15	
	71.91	63.27	73.35	69.73	72.67
5	1430	45	2605	220	4300
	1437.8	25.0	2665.2	172.1	
	-7.8	20.0	-60.2	47.9	
	3.40	0.11	6.19	0.52	10.21
	33.26	1.05	60.58	5.12	
	10.16	18.37	9.98	13.06	
	82.07	81.63	83.33	82.79	82.88
6	2525	45	4350	290	7210
	2410.8	41.9	4468.8	288.5	
	114.2	3.1	-118.8	1.5	
	6.00	0.11	10.33	0.69	17.12
	35.02	0.62	60.33	4.02	
	17.93	18.37	16.67	17.21	
	100.00	100.00	100.00	100.00	100.00
TOTAL	14080	245	26100	1685	42110
	33.44	0.58	61.98	4.00	100.00

FREQUENCY MISSING = 1365

Table 48: STATISTICS FOR TABLE OF CULTURE BY CLASS

STATISTIC	DF	VALUE	PROB
CHI SQUARE	15	158.783	0.000
LIKELIHOOD RATIO CHI SQUARE	15	179.253	0.000
MANTEL-HAENSZEL CHI-SQUARE	1	1.369	0.242
PHI		0.061	
CONTINGENCY COEFFICIENT		0.061	
CRAMER'S V		0.035	

EFFECTIVE SAMPLE SIZE = 42110
FREQUENCY MISSING = 1365

Table 49: TABLE OF ACCESS BY CLASS

ACCESS CLASS

FREQUENCY					
EXPECTED					
DEVIATION					
PERCENT					
ROW PCT					
COL PCT					
CUM COL%	FPAID	FSELFEMP	MPAID	MSELFEMP	TOTAL
1	7165	140	12250	865	20420
	6814.6	116.9	12675.1	813.4	
	350.4	23.1	-425.1	51.6	
	16.74	0.33	28.62	2.02	47.70
	35.09	0.69	59.99	4.24	
	50.16	57.14	46.10	50.73	
	50.16	57.14	46.10	50.73	47.70
2	4420	70	9100	570	14160
	4725.5	81.0	8789.4	564.0	
	-305.5	-11.0	310.6	6.0	
	10.33	0.16	21.26	1.33	33.08
	31.21	0.49	64.27	4.03	
	30.94	28.57	34.25	33.43	
	81.10	85.71	80.35	84.16	80.78
3	930	10	1595	155	2690
	897.7	15.4	1669.7	107.1	
	32.3	-5.4	-74.7	47.9	
	2.17	0.02	3.73	0.36	6.28
	34.57	0.37	59.29	5.76	
	6.51	4.08	6.00	9.09	
	87.61	89.80	86.36	93.26	87.07
4	1770	25	3625	115	5535
	1847.2	31.7	3435.7	220.5	
	-77.2	-6.7	189.3	-105.5	
	4.14	0.06	8.47	0.27	12.93
	31.98	0.45	65.49	2.08	
	12.39	10.20	13.64	6.74	
	100.00	100.00	100.00	100.00	100.00
TOTAL	14285	245	26570	1705	42805
	33.37	0.57	62.07	3.98	100.00

FREQUENCY MISSING = 670

Table 50: STATISTICS FOR TABLE OF ACCESS BY CLASS

STATISTIC	DF	VALUE	PROB
CHI SQUARE	9	165.710	0.000
LIKELIHOOD RATIO CHI-SQUARE	9	174.068	0.000
MANTEL-HAENSZEL CHI-SQUARE	1	13.763	0.000
PHI		0.062	
CONTINGENCY COEFFICIENT		0.062	
CRAMER'S V		0.036	

EFFECTIVE SAMPLE SIZE = 42805
FREQUENCY MISSING = 670

Table 51: TABLE OF CULTURE BY LABOUR

CULTURE LABOUR

FREQUENCY					
EXPECTED					
DEVIATION					
PERCENT					
ROW PCT					
COL PCT					
CUM COL%	FINLABF	FNOTINLF	MINLABF	MNOTINLF	TOTAL
1	7580	20375	14535	15245	57735
	8116.3	19818.0	15389.0	14411.7	
	-536.3	557.0	-854.0	833.3	
	7.03	18.90	13.48	14.14	53.56
	13.13	35.29	25.18	26.41	
	50.02	55.06	50.58	56.65	
	50.02	55.06	50.58	56.65	53.56
2	640	910	995	590	3135
	440.7	1076.1	835.6	782.6	
	199.3	-166.1	159.4	-192.6	
	0.59	0.84	0.92	0.55	2.91
	20.41	29.03	31.74	18.82	
	4.22	2.46	3.46	2.19	
	54.24	57.52	54.05	58.84	56.46
3	155	660	400	560	1775
	249.5	609.3	473.1	443.1	
	-94.5	50.7	-73.1	116.9	
	0.14	0.61	0.37	0.52	1.65
	8.73	37.18	22.54	31.55	
	1.02	1.78	1.39	2.08	
	55.26	59.30	55.44	60.93	58.11
TOTAL	15155	37005	28735	26910	107805
	14.06	34.33	26.65	24.96	100.00

(CONTINUED)

Table 52: TABLE OF CULTURE BY LABOUR

CULTURE LABOUR

FREQUENCY |					
EXPECTED |					
DEVIATION |					
PERCENT |					
ROW PCT |					
COL PCT |					
CUM COL% |	FINLABF	FNOTINLF	MINLABF	MNOTINLF	TOTAL
4	2660	7565	5260	5410	20895
	2937.4	7172.4	5569.5	5215.8	
	-277.4	392.6	-309.5	194.2	
	2.47	7.02	4.88	5.02	19.38
	12.73	36.20	25.17	25.89	
	17.55	20.44	18.31	20.10	
	72.81	79.75	73.74	81.03	77.49
5	1475	3285	2865	2175	9800
	1377.7	3363.9	2612.2	2446.3	
	97.3	-78.9	252.8	-271.3	
	1.37	3.05	2.66	2.02	9.09
	15.05	33.52	29.23	22.19	
	9.73	8.88	9.97	8.08	
	82.55	88.62	83.71	89.11	86.58
6	2645	4210	4680	2930	14465
	2033.5	4965.2	3855.6	3610.7	
	611.5	-755.2	824.4	-680.7	
	2.45	3.91	4.34	2.72	13.42
	18.29	29.10	32.35	20.26	
	17.45	11.38	16.29	10.89	
	100.00	100.00	100.00	100.00	100.00
TOTAL	15155	37005	28735	26910	107805
	14.06	34.33	26.65	24.96	100.00

FREQUENCY MISSING = 4040

Table 53: STATISTICS FOR TABLE OF CULTURE BY LABOUR

STATISTIC	DF	VALUE	PROB
CHI-SQUARE	15	1161.189	0.000
LIKELIHOOD RATIO CHI SQUARE	15	1147.352	0.000
MANTEL-HAENSZEL CHI SQUARE	1	89.805	0.000
PHI		0.104	
CONTINGENCY COEFFICIENT		0.104	
CRAMER'S V		0.060	

FREQUENCY MISSING = 4040 EFFECTIVE SAMPLE SIZE = 10780

Table 54: TABLE OF ACCESS BY LABOUR

ACCESS LABOUR

FREQUENCY / EXPECTED / DEVIATION / PERCENT / ROW PCT / COL PCT / CUM COL%	FINLABF	FNOTINLF	MINLABF	MNOTINLF	TOTAL
1	7655	15375	13540	10375	46945
	6561.4	16141.1	12476.4	11766.1	
	1093.6	-766.1	1063.6	-1391.1	
	6.96	13.97	12.30	9.43	42.66
	16.31	32.75	28.84	22.10	
	49.77	40.64	46.30	37.62	
	49.77	40.64	46.30	37.62	42.66
2	4855	13865	10075	10390	39185
	5476.8	13473.0	10414.1	9821.2	
	-621.8	392.0	-339.1	568.8	
	4.41	12.60	9.16	9.44	35.61
	12.39	35.38	25.71	26.52	
	31.57	36.65	34.45	37.67	
	81.34	77.28	80.75	75.29	78.27
3	1000	2235	1765	1625	6625
	926.0	2277.9	1760.7	1660.5	
	74.0	-42.9	4.3	-35.5	
	0.91	2.03	1.60	1.48	6.02
	15.09	33.74	26.64	24.53	
	6.50	5.91	6.04	5.89	
	87.84	83.19	86.78	81.18	84.29
4	1870	6360	3865	5190	17285
	2415.9	5943.1	4593.8	4332.2	
	-545.9	416.9	-728.8	857.8	
	1.70	5.78	3.51	4.72	15.71
	10.82	36.79	22.36	30.03	
	12.16	16.81	13.22	18.82	
	100.00	100.00	100.00	100.00	100.00
TOTAL	15380	37835	29245	27580	110040
	13.98	34.38	26.58	25.06	100.00

FREQUENCY MISSING = 1805

Table 55: STATISTICS FOR TABLE OF ACCESS BY LABOUR

STATISTIC	DF	VALUE	PROB
CHI-SQUARE	9	1045.293	0.000
LIKELIHOOD RATIO CHI-SQUARE	9	1049.316	0.000
MANTEL-HAENSZEL CHI-SQUARE	1	264.986	0.000
PHI		0.097	
CONTINGENCY COEFFICIENT		0.097	
CRAMER'S V		0.056	

FREQUENCY MISSING = 1805 EFFECTIVE SAMPLE SIZE = 110040

Table 56: TABLE OF CULTURE BY MALE OCCUPATIONAL STRUCTURE

CULTURE MALE OCCUPATIONAL STRUCTURE

FREQUENCY / EXPECTED / DEVIATION / PERCENT / ROW PCT / COL PCT / CUM COL%	ADMIN	MPRIMARY	PROF	SECONDAR	TECHPROC	TOTAL
1	2220	2430	1385	6765	1755	14555
	1998.4	2831.7	1437.0	6706.2	1581.7	
	221.6	-401.7	-52.0	58.8	173.3	
	7.61	8.33	4.75	23.19	6.02	49.90
	15.25	16.70	9.52	46.48	12.06	
	55.43	42.82	48.09	50.33	55.36	
	55.43	42.82	48.09	50.33	55.36	49.90
2	180	105	105	480	85	955
	131.1	185.8	94.3	440.0	103.8	
	48.9	-80.8	10.7	40.0	-18.8	
	0.62	0.36	0.36	1.65	0.29	3.27
	18.85	10.99	10.99	50.26	8.90	
	4.49	1.85	3.65	3.57	2.68	
	59.93	44.67	51.74	53.91	58.04	53.17
3	65	65	55	195	40	420
	57.7	81.7	41.5	193.5	45.6	
	7.3	-16.7	13.5	1.5	-5.6	
	0.22	0.22	0.19	0.67	0.14	1.44
	15.48	15.48	13.10	46.43	9.52	
	1.62	1.15	1.91	1.45	1.26	
	61.55	45.81	53.65	55.36	59.31	54.61
TOTAL	4005	5675	2880	13440	3170	29170
	13.73	19.45	9.87	46.07	10.87	100.00

(CONTINUED)

Table 57: TABLE OF CULTURE BY MALE OCCUPATIONAL STRUCTURE

CULTURE MALE OCCUPATIONAL STRUCTURE

FREQUENCY / EXPECTED / DEVIATION / PERCENT / ROW PCT / COL PCT / CUM COL%	ADMIN	MPRIMARY	PROF	SECONDAR	TECHPROC	TOTAL
4	610	1120	580	2565	300	5175
	710.5	1006.8	510.9	2384.4	562.4	
	-100.5	113.2	69.1	180.6	-262.4	
	2.09	3.84	1.99	8.79	1.03	17.74
	11.79	21.64	11.21	49.57	5.80	
	15.23	19.74	20.14	19.08	9.46	
	76.78	65.55	73.78	74.44	68.77	72.05
5	280	565	280	1530	420	3075
	422.2	598.2	303.6	1416.8	334.2	
	-142.2	-33.2	-23.6	113.2	85.8	
	0.96	1.94	0.96	5.25	1.44	10.54
	9.11	18.37	9.11	49.76	13.66	
	6.99	9.96	9.72	11.48	13.25	
	83.77	75.51	83.51	85.83	82.02	82.89
6	650	1390	475	1905	570	4990
	685.1	970.8	492.7	2299.1	542.3	
	-35.1	419.2	-17.7	-394.1	27.7	
	2.23	4.77	1.63	6.53	1.95	17.11
	13.03	27.86	9.52	38.18	11.42	
	16.23	24.49	16.49	14.17	17.98	
	100.00	100.00	100.00	100.00	100.00	100.00
TOTAL	4005	5675	2880	13440	3170	29170
	13.73	19.45	9.87	46.07	10.87	100.00

FREQUENCY MISSING = 965

Table 58: STATISTICS FOR TABLE OF CULTURE BY MALE OCCUPATIONAL STRUCTURE

STATISTIC	DF	VALUE	PROB
CHI-SQUARE	20	681.490	0.000
LIKELIHOOD RATIO CHI-SQUARE	20	699.734	0.000
MANTEL-HAENSZEL CHI-SQUARE	1	17.284	0.000
PHI		0.153	
CONTINGENCY COEFFICIENT		0.151	
CRAMER'S V		0.076	

FREQUENCY MISSING = 965 EFFECTIVE SAMPLE SIZE = 29170

Table 59: TABLE OF ACCESS BY MALE OCCUPATIONAL STRUCTURE

ACCESS MALE OCCUPATIONAL STRUCTURE

FREQUENCY EXPECTED DEVIATION PERCENT ROW PCT COL PCT CUM COL%	ADMIN	MPRIMARY	PROF	SECONDAR	TECHPROC	TOTAL
1	1960	2395	1185	6830	1495	13865
	1900.2	2709.0	1369.7	6378.6	1507.6	
	59.8	-314.0	-184.7	451.4	-12.6	
	6.61	8.07	4.00	23.03	5.04	46.75
	14.14	17.27	8.55	49.26	10.78	
	48.22	41.33	40.44	50.05	46.36	
	48.22	41.33	40.44	50.05	46.36	46.75
2	1110	2305	1025	4575	1080	10095
	1383.6	1972.4	997.2	4644.2	1097.7	
	-273.6	332.6	27.8	-69.2	-17.7	
	3.74	7.77	3.46	15.42	3.64	34.04
	11.00	22.83	10.15	45.32	10.70	
	27.31	39.78	34.98	33.53	33.49	
	75.52	81.10	75.43	81.58	79.84	80.78
3	305	370	210	715	210	1810
	248.1	353.6	178.8	832.7	196.8	
	56.9	16.4	31.2	-117.7	13.2	
	1.03	1.25	0.71	2.41	0.71	6.10
	16.85	20.44	11.60	39.50	11.60	
	7.50	6.38	7.17	5.24	6.51	
	83.03	87.49	82.59	88.82	86.36	86.88
4	690	725	510	1525	440	3890
	533.1	760.0	384.3	1789.6	423.0	
	156.9	-35.0	125.7	-264.6	17.0	
	2.33	2.44	1.72	5.14	1.48	13.12
	17.74	18.64	13.11	39.20	11.41	
	16.97	12.51	17.41	11.18	13.64	
	100.00	100.00	100.00	100.00	100.00	100.00
TOTAL	4065	5795	2930	13645	3225	29660
	13.71	19.54	9.88	46.00	10.87	100.00

FREQUENCY MISSING = 475

Table 60: STATISTICS FOR TABLE OF ACCESS BY MALE OCCUPATIONAL STRUCTURE

STATISTIC	DF	VALUE	PROB
CHI SQUARE	12	372.976	0.000
LIKELIHOOD RATIO CHI-SQUARE	12	369.871	0.000
MANTEL HAENSZEL CHI-SQUARE	1	70.877	0.000
PHI		0.112	
CONTINGENCY COEFFICIENT		0.111	
CRAMER'S V		0.065	

FREQUENCY MISSING = 475 EFFECTIVE SAMPLE SIZE = 29660

Table 61: TABLE OF CULTURE BY FEMALE OCCUPATIONAL STRUCTURE

CULTURE FEMALE OCCUPATIONAL STRUCTURE

FREQUENCY / EXPECTED / DEVIATION / PERCENT / ROW PCT / COL PCT / CUM COL%	ADMIN	PPRIMARY	PROF	SECONDAR	TECHPROC	TOTAL
1	3620	205	1825	615	720	6985
	3594.7	226.3	1669.6	637.7	856.7	
	25.3	-21.3	155.4	-22.7	-136.7	
	25.23	1.43	12.72	4.29	5.02	48.68
	51.83	2.93	26.13	8.80	10.31	
	49.02	44.09	53.21	46.95	40.91	
	49.02	44.09	53.21	46.95	40.91	48.68
2	245	10	115	145	80	595
	306.2	19.3	142.2	54.3	73.0	
	-61.2	-9.3	-27.2	90.7	7.0	
	1.71	0.07	0.80	1.01	0.56	4.15
	41.18	1.68	19.33	24.37	13.45	
	3.32	2.15	3.35	11.07	4.55	
	52.34	46.24	56.56	58.02	45.45	52.82
3	90	5	45	25	20	185
	95.2	6.0	44.2	16.9	22.7	
	-5.2	-1.0	0.8	8.1	-2.7	
	0.63	0.03	0.31	0.17	0.14	1.29
	48.65	2.70	24.32	13.51	10.81	
	1.22	1.08	1.31	1.91	1.14	
	53.55	47.31	57.87	59.92	46.59	54.11
TOTAL	7385	465	3430	1310	1760	14350
	51.46	3.24	23.90	9.13	12.26	100.00

(CONTINUED)

TABLE OF CULTURE BY FEMALE OCCUPATIONAL STRUCTURE (continued)

CULTURE FEMALE OCCUPATIONAL STRUCTURE

FREQUENCY EXPECTED DEVIATION PERCENT ROW PCT COL PCT CUM COL%	ADMIN	PPRIMARY	PROF	SECONDAR	TECHPROC	TOTAL
4	1195	95	610	335	345	2580
	1327.8	83.6	616.7	235.5	316.4	
	-132.8	11.4	-6.7	99.5	28.6	
	8.31	0.66	4.25	2.33	2.40	17.98
	46.32	3.68	23.64	12.98	13.37	
	16.18	20.43	17.78	25.57	19.60	
	69.74	67.74	75.66	85.50	66.19	72.09
5	845	75	290	110	150	1470
	756.5	47.6	351.4	134.2	180.3	
	88.5	27.4	-61.4	-24.2	-30.3	
	5.89	0.52	2.02	0.77	1.05	10.24
	57.48	5.10	19.73	7.48	10.20	
	11.44	16.13	8.45	8.40	8.52	
	81.18	83.87	84.11	93.89	74.72	82.33
6	1390	75	545	80	445	2535
	1304.6	82.1	605.9	231.4	310.9	
	85.4	-7.1	-60.9	-151.4	134.1	
	9.69	0.52	3.80	0.56	3.10	17.67
	54.83	2.96	21.50	3.16	17.55	
	18.82	16.13	15.89	6.11	25.28	
	100.00	100.00	100.00	100.00	100.00	100.00
TOTAL	7385	465	3430	1310	1760	14350
	51.46	3.24	23.90	9.13	12.26	100.00

FREQUENCY MISSING = 475

Table 62: STATISTICS FOR TABLE OF CULTURE BY FEMALE OCCUPATIONAL STRUCTURE

STATISTIC	DF	VALUE	PROB
CHI-SQUARE	20	492.909	0.000
LIKELIHOOD RATIO CHI-SQUARE	20	468.546	0.000
MANTEL-HAENSZEL CHI-SQUARE	1	0.087	0.767
PHI		0.185	
CONTINGENCY COEFFICIENT		0.182	
CRAMER'S V		0.093	

FREQUENCY MISSING = 475 EFFECTIVE SAMPLE SIZE = 14350

Table 63: TABLE OF ACCESS BY FEMALE OCCUPATIONAL STRUCTURE

ACCESS FEMALE OCCUPATIONAL STRUCTURE

FREQUENCY / EXPECTED / DEVIATION / PERCENT / ROW PCT / COL PCT / CUM COL%	ADMIN	FPRIMARY	PROF	SECONDAR	TECHPROC	TOTAL
1	4020	270	1350	810	815	7265
	3749.6	231.7	1736.5	660.2	886.9	
	270.4	38.3	-386.5	149.8	-71.9	
	27.57	1.85	9.26	5.56	5.59	49.83
	55.33	3.72	18.58	11.15	11.22	
	53.42	58.06	38.74	61.13	45.79	
	53.42	58.06	38.74	61.13	45.79	49.83
2	2130	135	1255	430	645	4595
	2371.6	146.5	1098.3	417.6	561.0	
	-241.6	-11.5	156.7	12.4	84.0	
	14.61	0.93	8.61	2.95	4.42	31.52
	46.35	2.94	27.31	9.36	14.04	
	28.31	29.03	36.01	32.45	36.24	
	81.73	87.10	74.75	93.58	82.02	81.34
3	515	20	330	35	95	995
	513.5	31.7	237.8	90.4	121.5	
	1.5	-11.7	92.2	-55.4	-26.5	
	3.53	0.14	2.26	0.24	0.65	6.82
	51.76	2.01	33.17	3.52	9.55	
	6.84	4.30	9.47	2.64	5.34	
	88.57	91.40	84.22	96.23	87.36	88.17
4	860	40	550	50	225	1725
	890.3	55.0	412.3	156.8	210.6	
	-30.3	-15.0	137.7	-106.8	14.4	
	5.90	0.27	3.77	0.34	1.54	11.83
	49.86	2.32	31.88	2.90	13.04	
	11.43	8.60	15.78	3.77	12.64	
	100.00	100.00	100.00	100.00	100.00	100.00
TOTAL	7525	465	3485	1325	1780	14580
	51.61	3.19	23.90	9.09	12.21	100.00

FREQUENCY MISSING = 245

Table 64: STATISTICS FOR TABLE OF ACCESS BY FEMALE OCCUPATIONAL STRUCTURE

STATISTIC	DF	VALUE	PROB
CHI-SQUARE	12	417.097	0.000
LIKELIHOOD RATIO CHI SQUARE	12	450.954	0.000
MANTEL-HAENSZEL CHI-SQUARE	1	7.019	0.008
PHI		0.169	
CONTINGENCY COEFFICIENT		0.167	
CRAMER'S V		0.098	

FREQUENCY MISSING = 245 EFFECTIVE SAMPLE SIZE = 14580

Table 65: TABLE OF CULTURE BY MALE EMPLOYMENT INCOME

CULTURE MALE EMPLOYMENT INCOME

FREQUENCY EXPECTED DEVIATION PERCENT ROW PCT COL PCT CUM COL%	MEI_4	MEI10_14	MEI15_19	MEI20_	MEI5_9	TOTAL
1	6490	2135	1395	1460	2750	14230
	5782.0	2153.7	1474.5	2029.2	2790.5	
	708.0	-18.7	-79.5	-569.2	-40.5	
	25.82	8.49	5.55	5.81	10.94	56.60
	45.61	15.00	9.80	10.26	19.33	
	63.53	56.11	53.55	40.73	55.78	
	63.53	56.11	53.55	40.73	55.78	56.60
2	315	165	110	160	225	975
	396.2	147.6	101.0	139.0	191.2	
	-81.2	17.4	9.0	21.0	33.8	
	1.25	0.66	0.44	0.64	0.89	3.88
	32.31	16.92	11.28	16.41	23.08	
	3.08	4.34	4.22	4.46	4.56	
	66.62	60.45	57.77	45.19	60.34	60.48
3	75	30	40	30	45	220
	89.4	33.3	22.9	31.4	43.1	
	-14.4	-3.3	17.2	-1.4	1.9	
	0.30	0.12	0.16	0.12	0.18	0.88
	34.09	13.64	18.18	13.64	20.45	
	0.73	0.79	1.54	0.84	0.91	
	67.35	61.24	59.31	46.03	61.26	61.36
TOTAL	10215	3805	2605	3585	4930	25140
	40.63	15.14	10.36	14.26	19.61	100.00

(CONTINUED)

TABLE OF CULTURE BY MALE EMPLOYMENT INCOME (continued)

CULTURE MALE EMPLOYMENT INCOME

FREQUENCY EXPECTED DEVIATION PERCENT ROW PCT COL PCT CUM COL%	ME1_4	ME10_14	ME15_19	ME20	ME15_9	TOTAL
4	1890	640	405	610	950	4495
	1826.4	680.3	465.8	641.0	881.5	
	63.6	-40.3	-60.8	31.0	68.5	
	7.52	2.55	1.61	2.43	3.78	17.88
	42.05	14.24	9.01	13.57	21.13	
	18.50	16.82	15.55	17.02	19.27	
	85.85	78.06	74.86	63.04	80.53	79.24
5	530	270	245	380	370	1795
	729.4	271.7	186.0	256.0	352.0	
	-199.4	-1.7	59.0	124.0	18.0	
	2.11	1.07	0.97	1.51	1.47	7.14
	29.53	15.04	13.65	21.17	20.61	
	5.19	7.10	9.40	10.60	7.51	
	91.04	85.15	84.26	73.64	88.03	86.38
6	915	565	410	945	590	3425
	1391.7	518.4	354.9	488.4	671.6	
	-476.7	46.6	55.1	456.6	-81.6	
	3.64	2.25	1.63	3.76	2.35	13.62
	26.72	16.50	11.97	27.59	17.23	
	8.96	14.85	15.74	26.36	11.97	
	100.00	100.00	100.00	100.00	100.00	100.00
TOTAL	10215	3805	2605	3585	4930	25140
	40.63	15.14	10.36	14.26	19.61	100.00

FREQUENCY MISSING = 860

Table 66: STATISTICS FOR TABLE OF CULTURE BY MALE EMPLOYMENT INCOME

STATISTIC	DF	VALUE	PROB
CHI SQUARE	20	1062.165	0.000
LIKELIHOOD RATIO CHI-SQUARE	20	1001.283	0.000
MANTEL-HAENSZEL CHI-SQUARE	1	307.442	0.000
PHI		0.206	
CONTINGENCY COEFFICIENT		0.201	
CRAMER'S V		0.103	

FREQUENCY MISSING = 860 EFFECTIVE SAMPLE SIZE = 25140

Table 67: TABLE OF ACCESS BY MALE EMPLOYMENT INCOME

ACCESS MALE EMPLOYMENT INCOME

FREQUENCY / EXPECTED / DEVIATION / PERCENT / ROW PCT / COL PCT / CUM COL%	ME1_4	ME10_14	ME15_19	ME20_	ME5_9	TOTAL
1	3955	1885	1535	2215	2065	11655
	4735.8	1770.8	1201.1	1672.8	2274.5	
	-780.8	114.2	333.9	542.2	-209.5	
	15.47	7.37	6.00	8.66	8.08	45.58
	33.93	16.17	13.17	19.00	17.72	
	38.07	48.52	58.25	60.35	41.38	
	38.07	48.52	58.25	60.35	41.38	45.58
2	3515	1085	585	805	1735	7725
	3138.9	1173.7	796.1	1108.8	1507.5	
	376.1	-88.7	-211.1	-303.8	227.5	
	13.75	4.24	2.29	3.15	6.79	30.21
	45.50	14.05	7.57	10.42	22.46	
	33.83	27.93	22.20	21.93	34.77	
	71.90	76.45	80.46	82.29	76.15	75.79
3	725	305	165	220	330	1745
	709.1	265.1	179.8	250.5	340.5	
	15.9	39.9	-14.8	-30.5	-10.5	
	2.84	1.19	0.65	0.86	1.29	6.82
	41.55	17.48	9.46	12.61	18.91	
	6.98	7.85	6.26	5.99	6.61	
	78.87	84.30	86.72	88.28	82.77	82.62
4	2195	610	350	430	860	4445
	1806.2	675.4	458.1	638.0	867.4	
	388.8	-65.4	-108.1	-208.0	-7.4	
	8.58	2.39	1.37	1.68	3.36	17.38
	49.38	13.72	7.87	9.67	19.35	
	21.13	15.70	13.28	11.72	17.23	
	100.00	100.00	100.00	100.00	100.00	100.00
TOTAL	10390	3885	2635	3670	4990	25570
	40.63	15.19	10.31	14.35	19.52	100.00

FREQUENCY MISSING = 430

Table 68: STATISTICS FOR TABLE OF ACCESS BY MALE EMPLOYMENT INCOME

STATISTIC	DF	VALUE	PROB
CHI SQUARE	12	844.235	0.000
LIKELIHOOD RATIO CHI SQUARE	12	845.744	0.000
MANTEL-HAENSZEL CHI SQUARE	1	162.167	0.000
PHI		0.182	
CONTINGENCY COEFFICIENT		0.179	
CRAMER'S V		0.105	

FREQUENCY MISSING = 430 EFFECTIVE SAMPLE SIZE = 25570

Table 69: TABLE OF ACCESS BY FEMALE EMPLOYMENT INCOME

ACCESS FEMALE EMPLOYMENT INCOME

FREQUENCY / EXPECTED / DEVIATION / PERCENT / ROW PCT / COL PCT / CUM COL%	FE1_2	FE12	FE13_7	FE18_11	TOTAL
1	2810	1300	1940	1070	7110
	2942.1	1271.4	1837.5	1059.0	
	-132.1	28.6	92.5	11.0	
	19.08	9.24	13.72	7.61	50.55
	39.52	18.28	27.14	15.05	
	48.28	51.69	53.09	51.07	
	48.28	51.69	53.09	51.07	50.55
2	1795	595	960	650	4000
	1655.2	715.1	1034.8	595.8	
	139.8	120.3	-74.8	54.2	
	12.76	4.23	6.83	4.62	28.44
	44.88	14.88	24.00	16.25	
	30.84	23.66	26.41	31.03	
	79.12	75.35	79.50	82.10	78.99
3	335	260	240	140	975
	403.4	174.3	252.0	145.2	
	-68.4	85.7	-12.0	-5.2	
	2.38	1.85	1.71	1.00	6.93
	34.36	26.67	24.62	14.36	
	5.76	10.34	6.60	6.68	
	84.88	85.69	86.11	88.78	85.92
4	880	360	505	235	1980
	819.3	354.0	511.7	294.9	
	60.7	6.0	-6.7	-59.9	
	6.26	2.56	3.59	1.67	14.08
	44.44	18.18	25.51	11.87	
	15.12	14.31	13.89	11.22	
	100.00	100.00	100.00	100.00	100.00
TOTAL	5820	2515	3645	2095	14065
	41.38	17.88	25.84	14.90	100.00

FREQUENCY MISSING = 225

Table 70: STATISTICS FOR TABLE OF ACCESS BY FEMALE EMPLOYMENT INCOME

STATISTIC	DF	VALUE	PROB
CHI SQUARE	9	124.879	0.000
LIKELIHOOD RATIO CHI SQUARE	9	121.762	0.000
MANTEL HAENSZEL CHI SQUARE	1	16.907	0.000
PHI		0.094	
CONTINGENCY COEFFICIENT		0.094	
CRAMER'S V		0.054	

EFFECTIVE SAMPLE SIZE = 14065
FREQUENCY MISSING = 225

Table 71: TABLE OF CULTURE BY FEMALE EMPLOYMENT INCOME

CULTURE FEMALE EMPLOYMENT INCOME

FREQUENCY
EXPECTED
DEVIATION
PERCENT
ROW PCT
COL PCT
CUM COL% | FEI 2 | FEI 12 | FEI 3_7 | FEI 8_11 | TOTAL

1	1295	1245	1760	1040	5340
	3040.7	1316.8	1893.2	1089.4	
	-254.3	-71.8	-133.2	-49.4	
	23.74	8.97	12.68	7.49	52.88
	44.89	16.96	23.98	14.17	
	57.30	50.00	49.16	50.49	
	57.30	50.00	49.16	50.49	52.88
2	270	105	135	145	655
	271.4	117.5	168.9	97.2	
	-1.4	-12.5	-33.9	47.8	
	1.95	0.76	0.97	1.04	4.72
	41.22	16.03	20.61	22.14	
	4.70	4.22	3.77	7.04	
	62.00	54.22	52.94	57.52	57.60
3	35	15	25	20	95
	39.4	17.0	24.5	14.1	
	-4.4	-2.0	0.5	5.9	
	0.25	0.11	0.18	0.14	0.68
	36.84	15.79	26.32	21.05	
	0.61	0.60	0.70	0.97	
	62.61	54.82	53.63	58.50	58.29
TOTAL	5750	2490	3580	2060	13880
	41.43	17.94	25.79	14.84	100.00

(CONTINUED)

TABLE OF CULTURE BY FEMALE EMPLOYMENT INCOME (continued)

CULTURE FEMALE EMPLOYMENT INCOME

FREQUENCY EXPECTED DEVIATION PERCENT ROW PCT COL PCT CUM COL%	FEI 2	FEI12	FEI3 7	FEI8_11	TOTAL
4	945	435	720	455	2555
	1058.4	458.4	659.0	379.2	
	-113.4	-23.4	61.0	75.8	
	6.81	3.13	5.19	3.28	18.41
	36.99	17.03	28.18	17.81	
	16.43	17.47	20.11	22.09	
	79.04	72.29	73.74	80.58	76.69
5	410	225	345	150	1130
	468.1	202.7	291.5	167.7	
	-58.1	22.3	53.5	-17.7	
	2.95	1.62	2.49	1.08	8.14
	36.28	19.91	30.53	13.27	
	7.13	9.04	9.64	7.28	
	86.17	81.33	83.38	87.86	84.83
6	795	465	595	250	2105
	872.0	377.6	542.9	312.4	
	-77.0	87.4	52.1	-62.4	
	5.73	3.35	4.29	1.80	15.17
	37.77	22.09	28.27	11.88	
	13.83	18.67	16.62	12.14	
	100.00	100.00	100.00	100.00	100.00
TOTAL	5750	2490	3580	2060	13880
	41.43	17.94	25.79	14.84	100.00

FREQUENCY MISSING = 410

Table 72: STATISTICS FOR TABLE OF CULTURE BY FEMALE EMPLOYMENT INCOME

STATISTIC	DF	VALUE	PROB
CHI-SQUARE	15	171.639	0.000
LIKELIHOOD RATIO CHI SQUARE	15	167.318	0.000
MANTEL HAENSZEL CHI SQUARE	1	28.752	0.000
PHI		0.111	
CONTINGENCY COEFFICIENT		0.111	
CRAMER'S V		0.064	

FREQUENCY MISSING = 410 EFFECTIVE SAMPLE SIZE = 13080

Table 73: TABLE OF CULTURE BY PRIVATE HOUSEHOLD INCOME

CULTURE PRIVATE HOUSEHOLD INCOME

FREQUENCY EXPECTED DEVIATION PERCENT ROW PCT COL PCT CUM COL%	PTE_5	PTE10_14	PTE15_19	PTE20_24	PTE25_29	PTE30_39	PTE5_9	TOTAL
1	3435	3390	2255	1535	970	975	4400	16960
	3242.8	3317.4	2232.6	1678.8	1061.8	1176.6	4250.0	
	192.2	72.6	22.4	-143.8	-91.8	-201.6	150.0	
	11.62	11.47	7.63	5.19	3.28	3.30	14.89	57.39
	20.25	19.99	13.30	9.05	5.72	5.75	25.94	
	60.80	58.65	57.97	52.48	52.43	47.56	59.42	
	60.80	58.65	57.97	52.48	52.43	47.56	59.42	57.39
2	255	215	155	110	60	100	285	1180
	225.6	230.8	155.3	116.8	73.9	81.9	295.7	
	29.4	-15.8	-0.3	-6.8	-13.9	18.1	-10.7	
	0.86	0.73	0.52	0.37	0.20	0.34	0.96	3.99
	21.61	18.22	13.14	9.32	5.08	8.47	24.15	
	4.51	3.72	3.98	3.76	3.24	4.88	3.85	
	65.31	62.37	61.95	56.24	55.68	52.44	63.27	61.39
3	45	45	45	30	25	5	65	260
	49.7	50.9	34.2	25.7	16.3	18.0	65.2	
	-4.7	-5.9	10.8	4.3	8.7	-13.0	-0.2	
	0.15	0.15	0.15	0.10	0.08	0.02	0.22	0.88
	17.31	17.31	17.31	11.54	9.62	1.92	25.00	
	0.80	0.78	1.16	1.03	1.35	0.24	0.88	
	66.11	63.15	63.11	57.26	57.03	52.68	64.15	62.27
TOTAL	5650	5780	3890	2925	1850	2050	7405	29550
	19.12	19.56	13.16	9.90	6.26	6.94	25.06	100.00

(CONTINUED)

TABLE OF CULTURE BY PRIVATE HOUSEHOLD INCOME (CONTINUED)

CULTURE PRIVATE HOUSEHOLD INCOME

FREQUENCY EXPECTED DEVIATION PERCENT ROW PCT COL PCT CUM COL%	PTE_5	PTE10_14	PTE15_19	PTE20_24	PTE25_29	PTE30_39	PTE40_9	TOTAL
4	1320	1055	655	405	110	140	1440	5025
	1056.4	1080.7	727.3	546.9	345.9	383.4	1384.5	
	263.6	-25.7	-72.3	141.9	-35.9	-43.4	55.5	
	4.47	3.57	2.22	1.37	1.05	1.15	4.87	18.70
	23.89	19.10	11.86	7.33	5.61	6.15	26.06	
	23.36	18.25	16.84	13.85	16.76	16.59	19.45	
	89.47	81.40	79.95	71.11	71.78	69.27	84.59	80.96
5	260	405	355	345	145	180	640	2130
	445.5	455.7	306.7	230.6	145.9	161.6	583.9	
	185.5	-50.7	48.3	114.4	-0.9	18.4	56.1	
	0.88	1.37	1.20	1.17	0.49	0.61	2.17	7.89
	11.16	17.38	15.24	14.81	6.22	7.73	27.47	
	4.60	7.01	9.13	11.79	7.84	8.78	8.64	
	94.07	88.41	89.07	82.91	81.62	78.05	92.24	88.85
6	335	670	425	500	340	450	575	3295
	630.0	644.5	433.8	326.2	206.4	228.6	825.7	
	295.0	25.5	-8.8	173.8	133.7	221.4	250.7	
	1.13	2.27	1.44	1.69	1.15	1.52	1.95	11.15
	10.17	20.33	12.90	15.17	10.32	13.66	17.45	
	5.93	11.59	10.93	17.09	18.38	21.95	7.77	
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
TOTAL	5650	5780	3890	2925	1850	2050	7405	29550
	19.12	19.56	13.16	9.90	6.26	6.94	25.06	100.00

FREQUENCY MISSING = 1015

Table 74: STATISTICS FOR TABLE OF CULTURE BY PRIVATE HOUSEHOLD INCOME

STATISTIC	DF	VALUE	PROB
CHI SQUARE	30	990.083	0.000
LIKELIHOOD RATIO CHI-SQUARE	30	963.042	0.000
MANTEL HAENSZEL CHI-SQUARE	1	39.216	0.000
PHI		0.183	
CONTINGENCY COEFFICIENT		0.180	
CRAMER'S V		0.082	

FREQUENCY MISSING = 1015 EFFECTIVE SAMPLE SIZE = 29550

Table 75: TABLE OF ACCESS BY PRIVATE HOUSEHOLD INCOME

ACCESS PRIVATE HOUSEHOLD INCOME

FREQUENCY / EXPECTED / DEVIATION / PERCENT / ROW PCT / COL PCT / CUM COL%	PTE 5	PTE10 14	PTE15 19	PTE20 24	PTE25 29	PTE30 39	PTE5 9	TOTAL
1	2315	2605	1895	1580	1025	1230	4185	14835
	2640.0	2695.2	1811.4	1371.8	870.0	962.1	3484.6	
	325.0	-90.2	83.6	208.2	155.0	267.9	700.4	
	7.70	8.67	6.31	5.26	3.41	4.09	10.60	46.03
	16.73	18.83	13.70	11.42	7.41	8.89	21.02	
	40.37	44.49	48.16	53.02	54.23	58.85	42.07	
	40.37	44.49	48.16	53.02	54.23	58.85	42.07	46.03
2	2090	1885	1190	805	445	445	2615	9475
	1808.0	1845.8	1240.5	939.5	595.8	658.9	2386.5	
	282.0	39.2	-50.5	134.5	-150.8	211.9	228.5	
	6.95	6.27	3.96	2.68	1.48	1.48	8.70	31.51
	22.06	19.89	12.56	8.50	4.70	4.70	27.60	
	36.44	32.19	40.24	27.01	23.54	21.29	34.54	
	76.81	76.69	78.40	80.03	77.78	80.14	76.62	77.56
3	340	355	225	190	125	180	400	1815
	346.3	353.6	237.6	180.0	114.1	126.2	457.1	
	-6.3	1.4	-12.6	10.0	10.9	53.8	-57.1	
	1.13	1.18	0.75	0.63	0.42	0.60	1.33	6.04
	18.73	19.56	12.40	10.47	6.89	9.92	22.04	
	5.93	6.06	5.72	6.38	6.61	8.61	5.28	
	82.74	82.75	84.12	86.41	84.39	88.76	81.90	83.68
4	990	1010	625	405	295	235	1470	4830
	940.7	960.4	645.5	488.8	310.0	342.8	1241.7	
	49.3	49.6	-20.5	-83.8	-15.0	-107.8	128.3	
	3.29	3.36	2.08	1.35	0.98	0.78	4.56	16.49
	20.08	20.49	12.68	8.22	5.98	4.77	27.79	
	17.26	17.25	15.88	13.59	15.61	11.24	18.10	
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
TOTAL	5735	5855	3935	2980	1890	2090	7570	30055
	19.08	19.48	13.09	9.92	6.29	6.95	25.19	100.00

FREQUENCY MISSING = 510

Table 76: STATISTICS FOR TABLE OF ACCESS BY PRIVATE HOUSEHOLD INCOME

STATISTIC	DF	VALUE	PROB
CHI-SQUARE	18	502.605	0.000
LIKELIHOOD RATIO CHI-SQUARE	18	509.208	0.000
MANTEL-HAENSZEL CHI-SQUARE	1	5.803	0.016
PHI		0.129	
CONTINGENCY COEFFICIENT		0.128	
CRAMER'S V		0.075	

FREQUENCY MISSING = 510 EFFECTIVE SAMPLE SIZE = 30055

Table 77: TABLE OF ACCESS BY EDUCATION FOR ALGONKIAN CULTURE GROUP

ACCESS EDUCATION

FREQUENCY
EXPECTED
DEVIATION
PERCENT
ROW PCT
COL PCT

CUM COL%	HIGHSCHL	HLS_GRD	TRADECER	UNIVERSY	TOTAL
1	7685	7445	675	830	16635
	6390.6	8916.1	414.5	913.9	
	1294.4	-1471.1	260.5	-83.9	
	14.79	14.33	1.30	1.60	32.01
	46.20	44.76	4.06	4.99	
	38.49	26.73	52.12	29.07	
	38.49	26.73	52.12	29.07	32.01
2	7300	10160	455	1120	19035
	7312.6	10202.4	474.3	1045.7	
	-12.6	-42.4	-19.3	74.3	
	14.05	19.55	0.88	2.16	36.63
	38.35	53.38	2.39	5.88	
	36.56	36.47	35.14	39.23	
	75.06	63.20	87.26	68.30	68.64
3	1470	2600	50	320	4440
	1705.7	2379.8	110.6	243.9	
	-235.7	220.2	-60.6	76.1	
	2.83	5.00	0.10	0.62	8.54
	33.11	58.56	1.13	7.21	
	7.36	9.33	3.86	11.21	
	82.42	72.54	91.12	79.51	77.18
4	3510	7650	115	585	11860
	4556.2	6356.8	295.5	651.5	
	-1046.2	1293.2	-180.5	-66.5	
	6.75	14.72	0.22	1.13	22.82
	29.60	64.50	0.97	4.93	
	17.58	27.46	8.88	20.49	
	100.00	100.00	100.00	100.00	100.00
TOTAL	19965	27855	1295	2855	51970
	38.42	53.60	2.49	5.49	100.00

Table 78: STATISTICS FOR TABLE OF ACCESS BY EDUCATION FOR ALGONKIAN AREA

STATISTIC	DF	VALUE	PROB
CHI SQUARE	9	1412.674	0.000
LIKELIHOOD RATIO CHI SQUARE	9	1431.142	0.000
MANTEL HAENSZEL CHI SQUARE	1	239.843	0.000
PHI		0.165	
CONTINGENCY COEFFICIENT		0.163	
CRAMER'S V		0.095	

SAMPLE SIZE = 51970

Table 79: TABLE OF ACCESS BY EDUCATION FOR PACIFIC COAST CULTURE AREA

ACCESS EDUCATION

FREQUENCY / EXPECTED / DEVIATION / PERCENT / ROW PCT / COL PCT / N COL%	HIGHSCHL	HLS_GRD	TRADECER	UNIVERSY	TOTAL
1	3900	1945	165	900	6910
	3669.5	2399.0	131.2	710.4	
	230.5	-454.0	33.8	189.6	
	30.84	15.38	1.30	7.12	54.65
	56.44	28.15	2.39	13.02	
	58.08	44.31	68.75	69.23	
	58.08	44.31	68.75	69.23	54.65
2	1130	795	40	160	2115
	1123.1	734.3	40.1	217.4	
	6.9	60.7	-10.1	-57.4	
	8.94	6.29	0.24	1.27	16.73
	53.43	37.59	1.42	7.57	
	16.83	18.11	12.50	12.31	
	74.91	62.41	81.25	81.54	71.37
3	320	305	0	35	660
	350.5	229.1	12.5	67.9	
	-30.5	75.9	-12.5	-32.9	
	2.53	2.41	0.00	0.28	5.22
	48.48	46.21	0.00	5.30	
	4.77	6.95	0.00	2.69	
	79.67	69.36	81.25	84.23	76.59
4	1365	1345	45	205	2960
	1571.9	1027.6	56.2	304.3	
	-206.9	317.4	-11.2	-99.3	
	10.79	10.64	0.36	1.62	23.41
	46.11	45.44	1.52	6.93	
	20.33	30.64	18.75	15.77	
	100.00	100.00	100.00	100.00	100.00
TOTAL	6715	4390	240	1300	12645
	53.10	34.72	1.90	10.28	100.00

Table 80: STATISTICS FOR TABLE OF ACCESS BY EDUCATION FOR PACIFIC AREA

STATISTIC	DF	VALUE	PROB
CHI-SQUARE	9	398.606	0.000
LIKELIHOOD RATIO CHI-SQUARE	9	411.917	0.000
MANTEL-HAENSZEL CHI-SQUARE	1	1.313	0.069
PHI		0.178	
CONTINGENCY COEFFICIENT		0.175	
CRAMER'S V		0.103	

SAMPLE SIZE = 12645

Table 81: TABLE OF ACCESS BY MOTHER TONGUE FOR THE PACIFIC CULTURE AREA

ACCESS MOTHER TONGUE

FREQUENCY				
EXPECTED				
DEVIATION				
PERCENT				
ROW PCT				
COL PCT				
CUM COL%	HLENT	HLFNT	HLOMT	TOTAL
1	9870	90	1220	11180
	9159.1	58.6	1962.3	
	710.9	31.4	-742.3	
	47.01	0.43	5.81	53.25
	88.28	0.81	10.91	
	57.38	81.82	33.11	
	57.38	81.82	33.11	53.25
2	2190	20	1635	3845
	3150.0	20.1	674.9	
	-960.0	-0.1	960.1	
	10.43	0.10	7.79	18.31
	56.96	0.52	42.52	
	12.73	18.18	44.37	
	70.12	100.00	77.48	71.56
3	1045	0	90	1135
	929.8	5.9	199.2	
	115.2	-5.9	-109.2	
	4.98	0.00	0.43	5.41
	92.07	0.00	7.93	
	6.08	0.00	2.44	
	76.19	100.00	79.92	76.97
4	4095	0	740	4835
	3961.0	25.3	848.6	
	134.0	-25.3	-108.6	
	19.50	0.00	3.52	23.03
	84.69	0.00	15.31	
	23.81	0.00	20.08	
	100.00	100.00	100.00	100.00
TOTAL	17200	110	3685	20995
	81.92	0.52	17.55	100.00

Table 82: STATISTICS FOR TABLE OF ACCESS BY MOTHER TONGUE FOR PACIFIC AREA

STATISTIC	DF	VALUE	PROB
CHI-SQUARE	6	2135.222	0.000
LIKELIHOOD RATIO CHI-SQUARE	6	1865.051	0.000
MANTEL-HAENSZEL CHI-SQUARE	1	30.102	0.000
PHI		0.319	
CONTINGENCY COEFFICIENT		0.304	
CRAMER'S V		0.226	

SAMPLE SIZE = 20995

Table 83: TABLE OF ACCESS BY MOTHER TONGUE FOR ALGONKIAN CULTURE AREA

ACCESS MOTHER TONGUE

FREQUENCY / EXPECTED / DEVIATION / PERCENT / ROW PCT / COL PCT / CUMCOL%	HLENT	HLFNT	HLONT	TOTAL
1	17345	1620	9980	28945
	11736.4	1002.9	16205.6	
	5608.6	617.1	6225.6	
	17.91	1.67	10.31	29.89
	59.92	5.60	34.48	
	44.18	48.29	18.41	
	44.18	48.29	18.41	29.89
2	16125	735	19395	36255
	14700.5	1256.2	20298.3	
	1424.5	-521.2	-903.3	
	16.65	0.76	20.03	37.44
	44.48	2.03	53.50	
	41.07	21.91	35.78	
	85.25	70.19	54.19	67.34
3	1625	215	6830	8570
	3474.9	297.0	4798.1	
	-1849.9	-182.0	2031.9	
	1.68	0.12	7.05	8.85
	18.96	1.34	79.70	
	4.14	3.43	12.60	
	89.39	73.62	66.79	76.19
4	4165	885	18005	23055
	9348.2	798.9	12907.9	
	-5183.2	86.1	5097.1	
	4.30	0.91	18.60	23.81
	18.07	3.84	78.10	
	10.61	26.38	33.21	
	100.00	100.00	100.00	100.00
TOTAL	39260	3355	54210	96825
	40.55	3.47	55.99	100.00

Table 84: STATISTICS FOR TABLE OF ACCESS BY MOTHER TONGUE FOR ALGONKIAN

STATISTIC	DF	VALUE	PROB
CHI-SQUARE	6	12698.620	0.000
LIKELIHOOD RATIO CHI-SQUARE	6	13422.691	0.000
MANTEL-HAENSZEL CHI-SQUARE	1	11373.299	0.000
PHI		0.362	
CONTINGENCY COEFFICIENT		0.341	
CRAMER'S V		0.256	

SAMPLE SIZE = 96825

Appendix C

KEY TO ABBREVIATIONS OF INDICATORS USED IN ANALYSES

Table 85: Abbreviations

#	CODE	NAME
	MOTHER TONGUE:	
1	HLEMT	English
2	HLFMT	French
3	HLOMT	Other language
	OFFICIAL LANGUAGE PROFICIENCY:	
4	OFFLEO	English only
5	OFFLFO	French only
6	OFFLEF	Both English and French
7	OFFLNEF	Neither French nor English
	HIGHEST LEVEL OF EDUCATION:	
8	HLS_GR9	Less than grade 9
9	G9_13WOC	Grades 9 to 13 without certificate
10	G9_13WC	Grades 9 to 13 with certificate
11	TRADECER	Trades certificate or diploma
12	OEDUW_OC	Other non-certificate education
13	OEDUWCER	Other education with certificate
14	UNIW_ODE	University without degree
15	UNIWDEGR	University with degree
	LABOUR FORCE ACTIVITY:	
16	MEMPLOYD	Males in labour force and employed
17	MUNEMPLY	Males in labour force and unemployed
18	MNOTINLF	Males not in the labour force
19	MWOR8180	Males not in L.F. but worked in 1980 or 1981
20	MPR15_24	Participation rate of males aged 15 to 24
21	MPR25_	Participation rate of males over 25
22	FEMPLOYD	Females in the labour force and employed
23	FUNEMPLY	Females in the labour force and unemployed
24	FNOTINLF	Females not in the labour force
25	FWOR8180	Females not in L.F. but worked in 1980 or 81
26	FPR15_24	Participation rate of females aged 15 to 24
27	FPR25_	Participation rate of females over 25
	OCCUPATION GROUPS FOR MALES IN THE LABOUR FORCE:	
28	MOCCN_a	Males not in any occupation class
29	MMANAGER	Managerial, administrative and related
30	MTEACH	Teaching and related occupations
31	MHEALTH	Occupations in medicine and health
32	MTECHNO	Technological, social, religious, artistic
33	MCLERK	Clerical and related occupations
34	MSALES	Sales occupations
35	MSERVICE	Service occupations
36	MPRIMARY	Primary occupations

37	MPROCESS	Processing occupations
38	MMACHINE	Machining, product fabricating, and repair
39	MCONSTRU	Construction trades occupations
40	MTRANSPO	Transport equipment operating
41	MOTHER	Other occupations (includes traditional)

OCCUPATION GROUPS FOR FEMALES IN LABOUR FORCE

42	FOCCN_A	Females not in any occupation class
43	FMANAGER	Managerial, administrative and related
44	FTEACH	Teaching and related occupations
45	FHEALTH	Occupations in medicine and health
46	FTECHNO	Technological, social, religious, artistic
47	FCLERK	Clerical and related occupations
48	FSALES	Sales occupations
49	FSERVICE	Service occupations
50	FPRIMARY	Primary occupations
51	FPROCESS	Processing occupations
52	FMACHINE	Machining, product fabrication and repair
53	FOTHER	Other occupations (including traditional)

INDUSTRY DIVISIONS FOR BOTH SEXES:

54	INDNOTAP	Industry classes not applicable
55	IPRIMARY	Primary industries
56	IMANU	Manufacturing industries
57	ICONSTRU	Construction industry
58	ITRANSPO	Transportation, communication & utilities
59	ITRADE	Trade
60	IFINANCE	Finance, insurance and real estate
61	ICOMMUN	Community, business & personal services
62	IPUBADMN	Public administration and defence

CLASS OF WORKER

63	MPAID	Paid male workers
64	MSELFEMP	Self-employed male workers
65	FPAID	Paid female workers
66	FSELFEMP	Self-employed female workers

EMPLOYMENT INCOME FOR MALES

67	MEI1_2	Under $2,000
68	MEI2_4	$2,000 to $4,999
69	MEI5_9	$5,000 to $9,999
70	MEI10_11	$10,000 to $11,999
71	MEI12_14	$12,000 to $14,999
72	MEI15_17	$15,000 to $17,999
73	MEI18_19	$18,000 to $19,999
74	MEI20_24	$20,000 to $24,999
75	MEI_25_	$25,000 and over

EMPLOYMENT INCOME FOR FEMALES

76	FEI_1	Under $1,000
77	FEI1_1_9	$1,000 to $1,999
78	FEI2_2_9	$2,000 to $2,999
79	FEI3_4	$3,000 to $4,999
80	FEI5_7	$5,000 to $7,999
81	FEI8_9	$8,000 to $9,999
82	FEI10_11	$10,000 to $11,999
83	FEI12_14	$12,000 to $14,999
84	FEI_15_	$15,000 and over

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