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THIS DISSERTATION HAS BEEN MICROFILMED EXACTLY AS RECEIVED
HOUSEHOLD STRUCTURE IN CANADA:
HISTORICAL AND PROVINCIAL VARIATIONS
AND THEIR CORRELATES

by

Kausar Thomas

Department of Sociology

Submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy

Faculty of Graduate Studies
The University of Western Ontario
London, Ontario
November, 1984

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This thesis 1) employs a new measure of household headship to study the time trends and provincial differentials in household structure in Canada between 1901 and 1981; and 2) analyzes the effects of measures of industrialization/urbanization, income, kin availability and tastes and preferences on the historical and cross-sectional variations in household structure in the Canadian provinces over the 1921 to 1971 period through multiple regression using pooled cross-sectional and time series data.

In the five eastern provinces and in the country as a whole, household structure remained virtually unchanged until the post-World War II years. After World War II household headship increased rapidly. During the first two decades of the century headship levels in British Columbia were extremely low, the lowest in all of Canada. After 1911, headship in British Columbia rose until 1941, increased slightly between 1941 and 1956, and increased sharply between 1956 and 1981. The Prairie provinces, particularly Alberta and Saskatchewan, exhibit very high household headship during the early part of the century. Headship in these two provinces declined until 1931, changed little between 1931 and 1956, and then increased. Trends in Manitoba have been similar to those in Alberta and Saskatchewan, although the levels have been much lower.
Generally, with the exception of British Columbia until 1931, household headship in the West has always been higher than in the rest of Canada. Until 1956, there were few consistent differences between headship levels in the five eastern provinces. After 1956, headship levels in the eastern and western provinces converge. However, since 1956 an East-West gradient has become apparent. Headship is highest in the West, lowest in the Maritimes and intermediate in Central Canada.

In the regression analyses the following variables were used as indicators of 1) industrialization/urbanization: percent urban and the percentage of males employed in agriculture; 2) kin availability: migration and the daughter-mother ratio, the ratio of women aged 35-44 to widowed and divorced women aged 55 and over; 3) tastes and preferences: education, dummy variables for region and a dummy variable for the post-World War II period; and 4) income: personal per capita income adjusted for the consumer price index for Canada. Population density was included as a control variable.

The model produced an $R^2$ value of almost .95. The results suggested that income and tastes and preferences are the major correlates of household structure in the Canadian provinces. Kin availability emerges as a minor determinant of household structure since only one indicator of this factor, migration, had a significant effect on the
dependent variable. Only one measure of industrialization/urbanization, males in agriculture, had an effect on household structure. Its effect, although strong, was in the opposite direction to that expected on the basis of the industrialization/urbanization perspective. Therefore, industrialization and urbanization do not appear to result in a decline in household extension.

Overall the results of this study indicate that there has been substantial variation in household structure in Canada, both historically and cross-sectionally. Furthermore, they suggest that the major factors associated with this variation are income and tastes and preferences.
ACKNOWLEDGEMENTS

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My husband and my parents deserve special thanks. They were very supportive and encouraging throughout one of the roughest times of my student life.

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CHAPTER ONE

Introduction

All human activities involve participation in groups, the single most important human grouping being the family or household (U.N., 1973a:335).

1.1 Background

The formation of households and families is an important process that affects various social, demographic and economic phenomena such as the socialization of the young, inter-generational relations, social isolation of certain age-sex groups, migration, nuptiality, fertility and the demand for housing and other consumer durables (Harrison, 1977; 1981; Kobrin, 1973; 1976b; Wargon, 1979). Since household and family formation is a fundamental aspect of life, changes in this behaviour over time have far-reaching implications. Therefore, it is important that the nature of such alterations be known so that the determinants of household and family structure, as well as the process of change in household and family structure can be specified.

Unfortunately, there appears to be a dearth of studies dealing with such transformations over time. One reason for the absence of historical studies of household and family structure is the lack of adequate data (Goode, 1963;
Laslett, 1972a; U.N., 1973a; Burch, 1980b). Census questions on the relationship between members of a household and the head of the household, by age, sex, and marital status, which provide useful information about household composition, have only recently been included in national censuses and even today are not universal. Older censuses of many countries, including Canada, often only contain information on the number of households and occasionally a classification of households and population by size of household (Burch, 1980b:25).

But neither household size nor the number of households are good measures of household structure or complexity. Neither measure provides any indication of whether extended households or the co-residence of adults are prevalent in a society. Laslett (1972a) found no association between average household size and household complexity in his comparative analysis of household structure in six areas. Wheaton (1975) has suggested that the most important determinant of average household size is the infant mortality rate. Burch (1967; 1970) has demonstrated that household size is highly influenced by the proportion of children in a population. Alternate sources of information on family and household composition, for example comparable survey data on family relationships and kinship networks or family reconstitution from manuscript censuses and parish registers, are not really viable options for those engaged
in broad comparative or historical research (Burch, 1980b: 25; Thomas and Burch, 1983:2).

Such problems led Burch (1980b) and his associates (Burch et al., 1983a) to develop indirectly standardized indexes of household structure, which can be easily computed from data available in most censuses, such as the number of households and a cross-classification of the population by age, sex and marital status. The indexes directly measure household headship, and inversely, household extension or complexity (Thomas and Burch, 1983). The potential importance of the development of such measures for historical research into household and family structure has been aptly described by Parish and Schwartz (1972: 170):

These measures are valuable because they can be used to extend the study of households into areas where the data previously seemed unsuitable. . . . For the nineteenth century, they can relieve us of the tedium involved in reconstructing households from manuscript censuses or parish registers. And, since more areas can be covered, we can appreciate the differences among regions even within a single society.

1.2 Specification of the Problem

The development of such measures is particularly relevant for historical research in the area of household structure in Canada as little is known about past trends and differentials in this nation. Historical studies of
household formation in Canada tend to be one of two types. The first type focus upon trends (Pelletier et al., 1938; Harrison, 1977; Wargen, 1979). Such studies document patterns in household structure in Canada since 1951 in great detail, but because of data unavailability, for dates prior to 1951 they are only able to indicate changes in the number of households and average household size. These studies suggest that since 1951 there has been a marked increase in separate living in Canada. However, they are unable to indicate 1) whether the increase has occurred gradually over the twentieth century or is a post-war phenomenon; and 2) the nature of regional and provincial differentials in household structure in the past.

In the second type of study, data from manuscript censuses is used and household structure in a particular community at a couple of census dates is described in great detail (Katz, 1975; Bradbury, 1979; Gaffield, 1979; Medjuck, 1979). Such studies cannot document long-term trends even in the community in question because of the difficulties in reconstructing households from manuscript censuses or parish registers. Furthermore, little insight into the broad patterns of household structure in Canada in the past is obtained from such studies.

Thus, there are gaps in knowledge about macro-level trends and differentials in household structure in Canada. Furthermore, the correlates of the macro-level changes in
household structure in Canada even since 1951 have yet to be identified.

This study has two main aims. First of all, it employs one of the measures of household complexity developed by Burch (1980b) and his associates (Burch et al., 1983a) in order to describe the time trends and provincial differences in household formation behaviour in Canada between 1901 and 1981. The objective is to determine whether 1) the change in household structure in Canada and its provinces has occurred mainly since 1951 of gradually over the twentieth century; and 2) there are regional and provincial differentials in patterns and trends in household structure.

Second, the study attempts to determine what factors account for the historical and cross-sectional variations in household structure in the Canadian provinces over the 1921 to 1971 period using pooled cross-sectional and time series data. The literature suggests that variations in household structure are due to variations in 1) the levels of industrialization/urbanization; 2) income levels; 3) the availability of kin with whom one might possibly co-reside; and 4) tastes and preferences for various living arrangement alternatives. The relative effects of industrialization/urbanization, income, kin availability and tastes and preferences on the historical and cross-sectional variations in household structure in the Canadian provinces are assessed through multiple regression.
Before proceeding any further the various terms that will be used throughout the thesis should be defined so that the confusion that often arises from loose definitions can be avoided.

1.3 General Definitions

There is often some confusion between the concepts "household" and "family" because they are closely related and because consensus on their definitions is lacking (U.N., 1973a:336; 1973b:5). The U.N. Multilingual Dictionary defines household as "a socioeconomic unit, consisting of individuals who live together" whereas the family is defined "primarily by reference to relationships which pertain to or arise from reproductive processes and which are regulated by law or by custom" (U.N. 1973a:336; 1973b:5). The following definition of household was recommended by the U.N. (1969, paras. 146-147) for the 1970 round of population censuses:

The concept of "household" is based on the arrangements made by persons, individually or in groups, for providing themselves with food or other essentials for living. A household may be either: (a) a one-person household, that is, a person who makes provision for his own food or other essentials for living without combining with any other person to form part of a multi-person household or (b) a multi-person household, that is, a group of two or more persons who make common provision for food or other essentials for living. The persons in the group may pool their incomes and have a common budget to a greater or lesser extent: they may be related or unrelated persons, or a combination of both.

Households usually occupy the whole, part of
or more than one housing unit but they may also be found living in camps, in boarding houses or hotels, or as administrative personnel in institutions, or they may be homeless. Households consisting of extended families which make common provision for food, or of potentially separate households with a common head, resulting from polygamous unions, may occupy more than one housing unit.

In some censuses separate counts are also available for private and collective or institutional households.

Institutional households are usually defined as persons who live together but who do not constitute private households, such as groups of persons living in boarding houses, hotels, schools and colleges with dormitories, correctional and penal establishments, hospitals, mental institutions, military installations, convents, homes for the aged, etc. (U.N., 1959:68).

Generally, a very small percentage of the population lives in collective households, the majority lives in private households (U.N., 1959:68). The private household can be defined as:

an individual unit which may be made up of a single person or a group of persons in accordance with the delimitations of any given definition. The group of persons may or may not be related and may be bound together only in respect of the fulfilment of particular individual needs which are met more practically or economically through the group membership (U.N., 1959:69).

The index used in this study measures household extension or complexity in terms of the co-residence of adults of various types. Accordingly, household complexity in this thesis is defined as "the extent to which adults of all
types tend to double up rather than to head their own households" (Burch, 1980b:29). The measure does not allow one to determine the nature of the relationships or the interaction patterns between members of the household, or between members of the household and outsiders, including kin in other households.

1.4 Significance of Study

As stated earlier, knowledge about past trends and differentials in household structure in Canada and the provinces is limited. This study, because it utilizes a measure that surmounts the data problems encountered by previous researchers, can rectify this situation. In addition, macro-level variation in household complexity both historically and cross-sectionally, is not clearly understood. Because this study attempts to determine the relative effects of a number of factors on macro-level variations in household structure, it will lead to a greater understanding of the correlates of household structure. Such knowledge would assist analysts to predict future trends with greater accuracy and thus enable governments and individuals to be better equipped to deal with the social, demographic and economic changes that often accompany alterations in household structure.
1.5 Plan of Study

In accordance with the two main objectives specified earlier, this thesis is divided into two main parts. The first part focusses upon the description of time trends and provincial differentials in household structure. In order that the patterns and trends found in this study may be interpreted in relation to the findings of previous studies, Chapter Two reviews descriptive studies of household composition. In Chapter Three, the methodology used to compute the measure of household complexity employed in the study is discussed, and the patterns in household structure are presented. The second part of the thesis, Chapters Four through Six, attempts to explain the historical and cross-sectional provincial variations in household structure. Thus Chapter Four reviews the various explanations that have been suggested in literature to account for differentials in household composition. Chapter Five discusses the methodology which is used to test the relative merits of each of these explanations. In Chapter Six the results of the analysis are presented and interpreted, and the implications of the findings for the validity of each of the four explanations are discussed. Chapter Seven offers some concluding remarks.
CHAPTER TWO

Descriptive Studies of Variations in Household Size and Structure

2.1 Traditional View

Until recently, it was commonly believed that households and families in preindustrial societies were large and complex containing not only a couple and their children, but grandparents and other relatives as well (Laslett, 1972a; 1972b; Wheaton, 1975; Nett, 1981; Smith, 1981; Hajnal, 1982). The traditional image of the preindustrial household is aptly portrayed in Goode's (1963:6) description of "the classical family of Western nostalgia". The preponderance of this view is attributable to at least two factors. First of all, there was a failure among social scientists to distinguish between accounts of ideals and those of actual behaviour. The information available to them usually pertained to family ideals, which often were those of familial extension, however, they presumed that it was a description of the type of family in which people actually lived. Second, the effect of demographic, economic and social-psychological constraints on the prevalence of large and complex households was not appreciated (Goode, 1963:xii, 367, 371; Levy, 1965:8-10, 43-54).
By the 1960's, the traditional view of the size and structure of premodern households and families was challenged. The revisionists, on the basis of theoretical and empirical grounds, argued that the majority of the population in all societies past and present has lived in families and households that are small in size and simple in structure (Goode, 1963; Levy, 1965; Burch, 1967; Laslett, 1972a; 1972b). This suggestion has essentially been corroborated by the findings of a number of additional studies (Anderson, 1972; Armstrong, 1972; Berkner, 1972; Blayo, 1972; Dupaquier and Jadot, 1972; Pryor, 1972; Van der Woude, 1972; Katz, 1975; Kertzer, 1978; Bradbury, 1979; Medjuck, 1979).

However, although simple families and households may prevail in most societies, instances of societies where all households and families are of this type have yet to be documented. The conclusion that emerges from the findings of all studies including those of some revisionists, particularly Burch (1967) and Laslett (1972a; 1972b), is that despite the predominance of small and simple households and families, there is still considerable variation in household size and structure, both over time and across societies, a conclusion that is often overlooked by the revisionists.

The purpose of this chapter is to discuss the extent of variation in household size and structure both over time and across societies and to develop a framework within which the
twentieth century trends for Canada and the provinces (to be
described in Chapter Three) may be interpreted. The chapter
begins with a brief review of the studies of the revision-
ists. Next, studies of household size and structure in
various European and North American communities during the
eighteenth and nineteenth centuries are discussed. Third-
twentieth century variations in household size and structure
in the West are presented. Finally, the results of all
these studies are synthesized in order to provide an overall
view of variations in household structure. As this thesis
focuses exclusively on twentieth century variations in
household structure in Canada, it was felt that studies of
variations in non-Western countries should not be reviewed
here as traditional family values in such countries appear
to be quite different from those in the West (Goode, 1963;
Burch, 1967; Hanjal, 1982).

2.2 The Revisionists' View

Goode examined family patterns in five cultural areas
of the world: the West, the Arab countries, India, China
and Japan, and concluded that the family systems in all
areas were moving toward the conjugal type with "fewer
kinship ties with distant relatives and a greater emphasis
on the 'nuclear' family unit of couple and children" (1963:
1). However, Goode cautioned against minimizing the exten-
sion of kin under the conjugal family system as the conjugal
family continues to interact with kin who are linked to some member of the nuclear core. Severance of such ties is likely to lead to a disruption of the nuclear family itself. At the same time, it was suggested that neither should "the ties of the extended family which preceded the modern conjugal family" be exaggerated (Goode, 1963:371). The empirical findings from all five areas indicated that the co-residence of non-nuclear kin was rare in the past. However, in non-Western cultures the ideal indeed was that of familial extension, and when wealth permitted relatives did live in the same household. But even when kin shared a residence, it was only for a short period of time, and familial extension was merely a phase in the developmental process of the family (Goode, 1963:371).

The constraining effects of mortality upon actual and ideal family structures have been precisely articulated by Levy (1965). In a theoretical essay, Levy suggested that "the general outlines and nature of the actual family structures have been virtually identical in certain strategic respects in all known societies in world history for well over 50 percent of the members of those societies" (1965:41-42). Specifically these "certain strategic respects" refer to: 1) the size of membership, 2) age composition and relationship of the membership through time, 3) composition by sex, 4) generational composition, 5) number of marital pairs, and 6) number of siblings" (Levy, 1965:41, fn.33).
In order to develop his line of argument Levy grouped all present and past societies of the world into the following three categories: 1) societies which lack modern medicine; 2) societies which have highly developed medical technology and are highly modernized in other respects; and 3) transitional societies, these are societies in which some medical technology has been imported but where high levels of modernization have not yet been achieved (1965:45-46). In societies which do not possess modern medicine mortality is sufficiently high so as to effectively limit horizontal or vertical extension even though the ideal may be that of familial extension. Therefore, even though ideals may vary a great deal between societies, because of the mortality conditions, the types of families in which people actually live fluctuate much less from the nuclear family ideal than has been assumed on the basis of examinations of ideal structures alone. In societies with highly developed medical technology horizontal or vertical extension is no longer constrained by mortality, but the nuclear family will again predominate. In such societies changes have occurred which have made the nuclear family the ideal. Ideal structures are very similar across societies of this type and the difference between ideal and actual family types is much smaller than in societies of the first type (Levy, 1965:49-55).

The importation of some medical technology has meant
that in many transitional societies, the type of societies in which the majority of the current world population lives, the demographic limitations to the realization of extended family ideals can now be offset, and the potential for diversity in actual family patterns across societies is high. Variation will be observed to the extent that actual behaviour approximates ideals that call for familial extension beyond the nuclear core (Levy, 1965:49, 55-56). Levy (1965:56) suggested that "paradoxically . . . the actual closure of the gap between ideal and actual family units may itself be one of the major factors creating pressure for a change in the ideal family type — that change always being in the direction of a smaller ideal unit".

Levy's theory essentially represents an application of the Demographic Transition Theory to the study of variation in household and family structure. Rather than focussing upon the relationship between industrialization, mortality rates and fertility rates, as does the traditional Demographic Transition Theory, Levy's proposition posits an association between modernization, mortality levels and family patterns.

Burch (1967) partially tested Levy's hypothesis using information on household size and structure gathered by the United Nations. The test was incomplete in that little information on societies lacking modern medicine was available and because only that part of the proposition dealing
with variation in household size could be tested. It could not be determined whether the variation was due to horizontal or vertical extension. The analysis was undertaken for 54 nations in the 1945-54 period and 64 countries in the 1955-63 period (Burch, 1967:352-353). Household sizes of 3-6 persons were Burch's operationalization of Levy's statement "households of essentially the same size" (Burch, 1967:355).

Distributions of size of private household for both periods revealed that the average in most nations indeed was in the range of 3-6 persons. It was noted that "averages of 10 or more, which one might expect if ideal extended family patterns were being achieved as a matter of course in any of the nations represented" were not observed (Burch, 1967:353). A similar conclusion was reached when the percentage of the population living in households of 3-6 persons was scrutinized, although, in about 40 percent of the countries the percentage of the population living in such households was less than 50 percent in both periods. However, Burch argued that "all of these cases are developing nations . . . and are thus 'transitional' cases rather than exceptions in the framework of Levy's generalizations" (1967:355). In the 1945-54 period, in a number of countries (Ryukyu Islands, Trinidad and Tobago, Malaya, and Mauritius) the reason that less than 50 percent of the population was found living in households of 3 to 6 persons was that large
proportions of the population were living in one-person and institutional households (Burch, 1967:355). However, Burch suggested that "these extreme cases should be examined carefully before being accepted as valid" (1967:356, footnote 20). On the basis of this part of the analysis it was concluded that Levy's theory was essentially supported (Burch, 1967:358). Unfortunately, Burch's (1967:355) view that households containing 3 persons are essentially similar to those with 6 persons is highly questionable. Whereas a household comprised of 6 persons can easily contain three generations, a household of 3 persons is unlikely to. Therefore, Burch's conclusion that Levy's theory is supported by his findings, is also questioned.

In countries where average household size was found to be relatively high (4.5 or greater), census data on relationships between members of a household and the head of the household were examined in order that the components of average household size could be determined. It was found that with the exception of India, in all nations over 80 percent of the total household members belonged to the nuclear family of the head (Burch, 1967:358). The number of relatives other than the spouse and children per household was almost always less than one (Burch, 1967:360). It was suggested that the average number of other relatives per household in India (1.20), a country where the extended family ideal is said to exist, does not appear very large
when compared to Nicaragua (1.15), a nation where no such ideal prevails. However, the number of other relatives per household in both these nations was six times greater than in the United States (Burch, 1967:358-359).

In comparison to the difference in the number of other relatives per household, the variation in household and family size was much smaller. Households and families in the United States were only about half the size of those in India and Nicaragua. Thus the fact that the differential in the size of households and families was much smaller than that in the number of non-nuclear kin per household suggests according to Burch that Levy's proposition "that people in all societies have lived in essentially similar households" may be true in relation to household size but not household composition (Burch, 1967:359). An additional finding was "that other relatives tend to live in the household instead of, rather than in addition to, members of the nuclear family of the head". This tendency apparently explains why household size rarely exceeds 6 persons even in countries where non-nuclear kin are present in the household of the head (Burch, 1967:360).

Perhaps the strongest proponent of the view that households and families have always been small in size and simple in structure is Peter Laslett of the Cambridge Group for the History of Population and Social Structure. In the introduction (Laslett, 1972a) to Household and Family in Past
Time (Laslett and Wall, 1972) and in an article contained in the book (Laslett, 1972b), Laslett has presented evidence that supports his position.

In the article Laslett (1972b) examined mean household size in England from the late sixteenth to the mid-twentieth centuries. For the earlier period, 1574-1821, data from census lists for 100 communities were collected, mean household size for each community was calculated, and then these means were aggregated in order to obtain an overall mean for the entire period. For the 1801-1961 period, data from the published census reports for England and Wales were used. Laslett discovered that average household size had remained relatively constant at about 4.75 persons per household until 1901. Therefore, he argued that in England, "the large joint or extended family seems never to have existed as a common form of the domestic group at any point in time covered by known numerical records" (1972b:126).

The decline in household size began in 1891 but it was only after 1911 that it became precipitous, although it slowed somewhat in the 1951-61 decade. It was suggested that although some of the fluctuation in size over the period could have been due to definitional changes, the transformations that occurred "between the second and the fourth decades of the twentieth century are much more likely to have been wholly due to alterations in the actual composition of the domestic group" (Laslett, 1972b:140).
Although trends in household size and the net reproduction rate were roughly parallel between 1841 and 1881, Laslett suggested that the temptation to conclude that the change in household size might therefore be attributable to variation in demographic factors, with a twenty-year time lag, should be guarded against. The trends in the period after 1920 render such an assumption invalid. Between 1930 and 1960 there was an increase in the net reproduction rate whereas household size continued its descent. Laslett argued that not only did average household size change "little over what is usually called the period of demographic transition" but "that the distribution of households by size may also have stayed about the same until the early decades of the twentieth century" (Laslett, 1972b:141).

Household membership of persons other than the head and his spouse were also examined for communities where the relevant data were available (Laslett, 1972b:144). Servants were present in 28.5 percent of the households. However, out of a total of 5843 households only 626, or 10.1 percent contained resident kin. Furthermore, the percentage of households that contained more than two generations was below 6 percent (Laslett, 1972b:148-153).

Finally, the bivariate correlations between mean household size and ten independent variables were analyzed. The proportions of households of gentry, households headed by married couples; households with servants as well as the
proportion of servants in the population were positively associated with household size, whereas neither the proportion of households with kin, nor the proportion of resident kin in the population exhibited any relationship to size. Surprisingly, the proportion of children in the population was negatively related to household size (Laslett, 1972b: 155-156). The explanation for this anomalous finding was that "servants were simply children who had changed households, from the parental home to the household of a master". Therefore, the larger the proportion of servants in the population, the smaller the proportion of children and the bigger the size of the household (Laslett, 1972b:147). Laslett suggested that the slow response of household size to the demographic transition in England was related to the prevalence of the practice of service, "servants, in fact, may have dampened the operation of birth rates, marriage rates and death rates on mean household size" (1972b:156). It was only after 1911 that the number of servants in the population began to drop continuously (Laslett, 1972b:157).

In the introduction to Household and Family in Past Time (Laslett and Wall, 1972) Laslett (1972a) presented a comparison of household size and structure in Ealing, England in the year 1599, Belgrade, Serbia in 1733/34, Nishinomiya, Japan in 1713, Longuenesse, France in 1778, Bristol, Rhode Island in 1689 and the 100 English communi-
ties in the years 1574-1821. The purpose of the exercise was to determine how closely the patterns in the first five areas approximated those found in the 100 English communities which were employed as a standard (Laslett, 1972a:50-51).

Only in Belgrade and Bristol was mean household size significantly larger than that in the standard, in the other three places it was indistinguishable from that in the 100 English communities (Laslett, 1972a:53). The composition of English and American households with respect to the presence of servants and resident kin was quite different from that in the other places (Laslett, 1972a:56). In the standard, in Ealing and in Bristol the percentages of households with kin were 10.1, 13.0 and 3.0 percent respectively. The corresponding figures for Longuenesse, Belgrade and Nishinomiya respectively were 19.7 percent, 27.0 percent and 53.0 percent (Laslett, 1972a: Table 1.11). Servants were present in 34.2 percent of the households in Ealing, 30.1 percent of those in Bristol, and in 28.5 percent of those in the standard. The proportion of households with servants in Belgrade was roughly similar to that in the English and American societies whereas in Longuenesse (19.7 percent) and Nishinomiya (13.6 percent) it was decidedly lower (Laslett, 1972a: Table 1.12). Laslett (1972a:56) concluded that with the exception of Nishinomiya, the proportion of kin was much smaller and that of servants much larger than expected.
The data on the generational depth of households indicated that outside of the Japanese community, where 30 percent of the households contained three generations, there were few instances of this type of extension. One household in sixteen in England, one out of twelve in Longuenesse, one out of ten in Belgrade and one out of seventy-two in Bristol contained more than two generations (Laslett, 1972a: 58-59). It was suggested that these proportions are much lower than the boundaries which the prevailing mortality conditions would be expected to impose and therefore demographic limitations cannot fully account for these patterns. Rather, "these low proportions must have been the result of choices made in accordance with cultural traditions" (Laslett, 1972a:59).

When households were classified according to type it was evident that the modal category in all areas was the simple family household containing the head, his wife, his children and sometimes servants (Laslett, 1972a:59). However, the proportion of households that were simple family households varied considerably. In Ealing and Longuenesse the proportions of simple family households were 78 and 76 percent respectively, slightly higher than in Belgrade where the proportion was 67 percent. However, in Bristol Rhode Island and in Nishinomiya the proportions were 90 percent and 48 percent, respectively (Laslett, 1972a: Table 1.15).
2.3 Variations in the Eighteenth and Nineteenth Centuries

2.3.1 Western Europe

Hajnal argued that despite the fact that average household size in preindustrial Northwest Europe and India and China is approximately five persons per household, the traditional household formation systems of India and China are very different from those in preindustrial Northwest Europe. He attempted to describe and contrast the household formation systems of these areas (Hajnal, 1982: 449).

Two types of household formation systems, joint and simple were identified. A joint household is one that contains two or more related married couples whereas, a simple household is comprised of one married couple at the most (Hajnal, 1982:451). Under the simple household system very few people are ever members of a joint household, however, under the joint household regime, almost every individual is likely to be a member of a joint household at some point in his or her life. Even under the joint household system, however, the majority of households at any given time will not be joint (Hajnal, 1982:452).

According to Hajnal (1982:452) each household formation system is characterized by the following three rules:

1. Formation rules common to Northwest Europe simple household systems
   A. Late marriage for both sexes . . .
   B. After marriage a couple are in charge of
their household (the husband is the head of household).

C Before marriage young people often circulate between households as servants.

2 Formation rules common to joint household systems

A Earlier marriage for men and rather early marriage for women ...

B A young married couple often start life together either in a household of which an older couple is and remains in charge or in a household of which an unmarried older person (such as a widower or widow) continues to be head. Usually the young wife joins her husband in the household of which he is a member.

C Households with several married couples may split to form two or more households, each containing one or more couples.

Data on relationship to head of household for rural Denmark in 1787/1801 and India in 1951 were presented in order to illustrate the two types of household formation systems. The Danish data revealed that the majority of household members were heads, wives, children and servants. Only about 5 percent of the population were other relatives of the head (Hajnal, 1982:456-57).

Over 93 percent of married men in Denmark headed their own households. It was also suggested that less than 4 percent of households contained more than two married couples and that most men became heads of their own households upon marriage. Mean age at marriage was quite high, 30 to 31 years for men and 26 to 28 years for women (Hajnal, 1982: 458). Furthermore, servants were a common
feature of the Danish household, in 1787/1801 there were 90 servants per 100 households in the sample (Hajnal, 1982:456-58). These features of the Danish household apparently were also displayed in other parts of Northwest Europe (Hajnal, 1982:458).

In India, average household size, the number of heads, wives and children per household was similar to that in Denmark. However, in Indian households the number of male children exceeded the number of female children, whereas in Denmark the numbers were almost equal. The apparent reason for the excess of male over female children in Indian households was that upon marriage daughters moved out of the household of their parents into the household of their in-laws (Hajnal, 1982:459-60).

Indian households contained many more other relatives and a much smaller number of unrelated individuals than Danish households. Age at marriage for both men and women was much lower in India than in Denmark. Whereas almost all married men in Denmark were heading their own households, in India only 64 percent were household heads. Thus the percentage of households containing two or more married couples would be substantially higher (Hajnal, 1982:460).

On the basis of the analysis of data on relationship to head of household it was concluded that (Hajnal, 1982:455):

(1) Populations following joint household systems have much higher proportions of joint households, as one would expect; however, they do not, on that
account, necessarily have larger households on average. (2) Households under the two kinds of formation systems are made up of different sorts of individuals. In joint household systems almost all household members are relatives of the head. There are substantial numbers of such relatives in addition to the wife and children of the household head. (3) In Northwest Europe, on the other hand, the composition of households is different. The numbers of relatives other than the wife and children of the head are small; instead we find substantial numbers of servants and also some other persons called lodgers... who may or may not be related to the head of the household.

Berkner (1972) attempted to demonstrate the existence of a particular type of familial extension, the stem family organization, in the rural Austrian region of Waldviertel in 1763. The term "stem family" refers to the type of familial organization in which all but one of the children leave the parental household upon marriage, however, one child remains in the household after marriage and inherits the family farm (Berkner, 1972:399).

The 1763 census of Waldviertel revealed that only 25 percent of the households contained relatives and thus could be considered to be extended (Berkner, 1972:406). However, Berkner (1972:405) argued that:

Families go through developmental cycles as the individuals who compose them go through their life cycles. A census taken at a given point in time takes a cross-section and gives a static picture of households and families that the historian or sociologist can sort into types. We can count so many extended families, so many nuclear. But rather than being types these may simply be phases in the developmental cycle of a single family organization. There may be a normal series of stages that appear only rarely in a population because they last for only a short period of the
family's cycle or in some cases do not appear at all. From this point of view, the extended family is merely a phase through which most families go.

He attempted to show that the stem family organization was a normal phase in the developmental cycle of households in Waldviertel by examining the household structure of heads of different ages (Berkner, 1972).

Sixty percent of households headed by males aged 18-27 and 45 percent of those headed by men in the 28-37 age group contained parents or unmarried siblings. As the age of the head increased, the proportion of households that contained either parents or unmarried siblings declined rapidly, while the percentage that contained a married son began to increase slowly. Only 3 percent of households of men in the oldest age group (58-90) contained parents or unmarried siblings whereas 12 percent contained married sons (Berkner, 1972:406).

Berkner argued that given the demographic constraints to familial extension during the eighteenth century, the proportion of extended families in Waldviertel, even as revealed by the census, was quite high. He suggested that theoretical calculations had shown that under the demographic conditions of the eighteenth century, only between 27 and 29 percent of families could consist of three generations (Berkner, 1972:407).

An additional constraint to familial extension is economic. Extended families can only exist if there are
sufficient economic resources to support them. In Waldviertel 15 percent of the poor farms and between 34 and 42 percent of the richer farms contained extended families. He argued not only "that aggregate census data indicates only the proportion of stem families in the extended phase at a given time, but that the significance of this proportion cannot be evaluated without taking into account the age structure of the population and the distribution of wealth" (Berkner, 1972:408).

Berkner (1972) also examined the presence of servants and boarders in the households of Waldviertel. In Waldviertel in 1763, 31 percent of households contained servants, 19 percent contained lodgers, and 5 percent contained both (Berkner, 1972:410). The function of servants was to supply labour for the household. Because of the impartible inheritance customs, the amount of land belonging to a family was constant but the supply of labour varied over the developmental cycle of the family. During the early years of marriage, when the parents of the head were too old to work, the children too young to work and brothers and sisters were not likely to be living on the farm, servants were hired to enhance the labour supply. Thus the presence of servants in the household was partially dependent upon the developmental stage of the household (Berkner, 1972: 413-415). However, the presence of lodgers in the household was not related to the development cycle of
the household but appears to have been partly determined by
the availability of space for housing such individuals
(Berkner, 1972:417).

An examination of average size of households headed by
men of different ages indicated that the range of variation
over the developmental cycle was small, between 5.47 and
5.76 persons per household. Berkner argued therefore that
even when the developmental approach is used, household size
emerges as an inadequate measure of household and family
structure. Household size was almost the same at every age
of household head, and therefore failed to reflect the
variations in household composition over the developmental
cycle of the household (Berkner, 1972:417-18).

Change in household size and structure between 1836 and
1861 in the northern French village of Grisy-Suisnes was
examined by Blayo (1972). Over this period, household size
decreased from 3.4 to 3.1 persons, households of sizes 1-3
persons increased from 30 to 47 percent, the proportion of
one-person households almost doubled, and the modal category
of household size changed from 3 to 2 persons. The decrease
in household size was apparently not attributable to a
decline in family size (Blayo, 1972:256).

In both years about 70 percent of the households were
headed by one married couple only. The proportion that
contained only one family head increased from 88 percent in
1836 to 95 percent in 1861, and that of households headed by
widows who lived either alone or with servants increased from 13.9 to 15.6 percent. Over the 1836-1861 period, then, a nuclearization of households appears to have occurred. Blayo argued that it was this phenomenon that brought about the decline in household size (1972:258).

Dupaquier and Jadin (1972) examined household and family structure in three areas of Corsica, France: Nebbio, Bastia and Ajaccio, during the 1769/71 period. Average household size in these areas ranged between 4.2 and 4.4 persons. The majority of households, between 67 and 74 percent, were nuclear family households consisting only of parents and unmarried children or a widowed parent with unmarried children. The proportions containing either married children (3.1 to 5.8 percent) or ascendant kin (5.5 to 7.9 percent) were relatively small. The proportion of frereches, or households of brothers and sisters was between 7.8 and 10.9 percent (Dupaquier and Jadin, 1972: 290-292). In contrast to other areas of Western Europe, servants were uncommon (Dupaquier and Jadin, 1972:297). It was concluded "that the domestic group in Corsica was comparatively modern in character at the time of the birth of Napoleon Bonaparte" (Dupaquier and Jadin, 1972:296).

Household size and structure in the seventeenth and eighteenth centuries in four Dutch provinces, Overijssel, Veluwe, Friesland and Noorderkwartier, and in Laslett's (1972b) sample of 100 preindustrial English communities and
Noorderkwartier, was compared by Van der Woude (1972). Household structure in the four Dutch provinces varied considerably. The proportion of extended family households in Overijssel (20.5 percent) was more than double that in Veluwe and Friesland, and only 3.6 percent of the households in Noorderkwartier contained resident kin. Three-generational households were also more frequent in Overijssel (14 percent) than in Veluwe and Friesland (4 percent). In both Overijssel and Veluwe about one-third of households contained servants compared to 17.6 percent in Noorderkwartier (Van der Woude, 1972).

Average household size in Noorderkwartier and Friesland was 3.7 persons in comparison to 4.3 in Veluwe and 4.8 in Overijssel. From these figures on average household size Van der Woude inferred that nuclear family households were the predominant type in Holland (1972:308).

A comparison of Noorderkwartier and preindustrial England suggested that households in the Dutch province were both smaller in size and less complex in structure than those of preindustrial England. Mean household size in the Dutch province was 3.72 persons compared to 4.75 in preindustrial England (Van der Woude, 1972:309). In England 10 percent of households contained resident kin, and 28.5 percent servants, the corresponding percentages in Noorderkwartier were 3.6 and 17.6 percent (Van der Woude, 1972:313-14).
Even the character of nuclear family households differed between the two areas. The proportion of such households headed by married couples was much higher in England (70 percent) than in Noorderkwartier (57 percent), that of households headed by single persons was much larger in the Dutch province (21 percent) than in England (12 percent), and that of households headed by widowed persons was slightly higher in Noorderkwartier (22 percent) than in England (18 percent) (Van der Woude, 1972:310-11).

It was concluded that "kin ties of the nuclear family were much looser in the western and northern than in the eastern areas" of Holland (Van der Woude, 1972:318).

Furthermore, that the small number of persons per household in Friesland and Noorderkwartier "during the seventeenth and eighteenth centuries is not only exceptional when compared with other Dutch regions, but also in comparison with the mean English and American household sizes at that time" (Van der Woude, 1972:318).

Armstrong (1972) compared household size and structure in York, England in 1851 to that in Laslett's (1972b) 100 preindustrial England communities. Household size in York (4.70) was very similar to that in preindustrial England (4.77) (Armstrong, 1972:206). The proportion of households with servants in York (19.7 percent) was smaller than that in preindustrial England (28.5 percent) whereas the proportion of households containing kin in York (21.6 percent) was
more than double that in preindustrial England (10.1 percent). Between 15 and 21 percent of households in York contained lodgers whereas in preindustrial England there were supposedly few lodgers outside of London (Armstrong, 1972:210-211). It was concluded "that the constancy of mean household size concealed a series of shifts in household composition by 1851" (Armstrong, 1972:214).

Anderson (1972) undertook a comparison of household structure in Laslett's (1972b) 100 preindustrial English communities, Preston, England in 1851, York, England in 1851, a rural English area in 1851, Swansea, England in 1960 and England and Wales in 1966. In all three 1851 samples, the percentage of households that contained relatives was between 22 and 27 percent, considerably higher than in both modern-day and preindustrial England, where it was about 10 percent. The percentage of households with lodgers ranged from 21 and 23 percent in York and Preston, to 10 percent in the rural sample and 3 percent and 1 percent in Swansea and preindustrial England respectively. Data on lodgers for England and Wales in 1966 were not available. Servants were found in 28 and 29 percent of rural and preindustrial households, 0 to 3 percent of households in England and Wales and Swansea, and in 20 percent of households in York. In Preston, 10 percent of households contained servants (Anderson, 1972:220-21).

An examination of the generational depth of households
revealed that two-generational households predominated in all six areas. However, in comparison to other areas, the proportion of one-generational households in England and Wales (43 percent), Swansea (35 percent) and York (33 percent) was much larger. Three generational households were most prevalent in the rural sample, where 14 percent of households were of this type (Anderson, 1972:221-222).

Data on family composition suggested that the proportion of households containing no relatives was highest in Swansea and England and Wales. However, in both Swansea and Preston the proportion of parent/married child households was relatively high (10 percent) in comparison to that in England and Wales (5 percent) and the rural sample (6 percent). Apparently, this form of co-residence was rare in preindustrial England (Anderson, 1972:222-23).

In Preston, over 80 percent of those aged 65 and over who had a living child lived with their children. An examination of the household status of young childless couples in Swansea, Preston and the rural sample indicated that only 57 to 58 percent of those in Swansea and Preston lived apart from their parents, whereas in the rural sample the corresponding percentage was 80 percent. In contrast to Swansea, where the remainder lived mostly with their parents, in Preston half of the remaining group lived as lodgers. On the basis of these findings Anderson concluded that urbanization and industrialization in the cotton towns such as
Preston, had led to an increase in both the co-residence of parents and married children and of young couples with unrelated families (Anderson, 1972:224-25).

2.3.2 North America

Pryor (1972) analyzed change in household and family structure in Rhode Island between 1875 and 1960. Family structure in this state remained virtually stable over this period. The proportions of extended families, multigenerational families, and families containing subfamilies had only declined by 3 percent between 1875 and 1960 (Pryor, 1972:588), suggesting that extended families have always been rare in this state (Pryor, 1972:575).

However, household composition in Rhode Island changed dramatically between these dates. In 1875, about a quarter of all households contained a nonrelative of the head, but in 1960 such persons were present only in 2 percent of households (Pryor, 1972:586). These nonrelatives of course were servants and boarders and lodgers (Pryor, 1972:589).

Household structure in Hamilton, Canada in 1851 and 1861 was studied by Katz (1975). In both years about 80 percent of the households in this city were simple family households consisting of the nuclear family of the head, and sometimes servants. The proportion of households that contained resident kin also changed little during the decade (15 percent in 1851 and 16 percent in 1861). However,
households with servants declined from 30 to 21 percent, and with boarders, from 29 to 20 percent between 1851 and 1861. Average household size also declined, from 5.8 persons in 1851 to 5.3 in 1861 (Katz, 1975:220-24).

Despite the fact that the distribution of households by type remained relatively stable, with the simple household dominating in both years, the composition of individual households in Hamilton altered remarkably. Of linked households, 72 percent of those that had boarders, 71 percent of those that had relatives and 30 percent of those that had servants in 1851, no longer had them in 1861. Between 12 and 16 percent of the households acquired either servants, relatives or boarders and lodgers during the decade (Katz, 1975:225-226).

In Laslett's (1972a:32-35) classification scheme of households, which was also used by Katz (1975), boarders and lodgers are not considered to be members of the household. However, Katz suggested that if the distinction between boarders and kin is eliminated, a different picture about household extension emerges. Of the households that could be linked across the 1851-61 decade, it was found that 32 percent in 1851 and 20 percent in 1861 contained boarders, and 16 percent in the former year and 15 percent in the latter year contained relatives. The proportion of households with a boarder either in 1851 or in 1861 was 43 percent while that with relatives either in 1851 or in 1861
was 26 percent. In 1861 the proportion of households that had either a boarder or a relative was 31 percent while in 1851 it was 42 percent. But 56 percent of the households had either a boarder or a relative in 1851 or in 1861 (Katz, 1975:227). On the basis of these findings, Katz argued that almost all households in Hamilton contained a boarder or a relative at some point during their existence. However, according to Katz these findings do not suggest that the view that simple households are the predominant type should be discarded, but:

Rather, the static model of the household should be transformed into a dynamic model: the simple family household remained the dominant household structure, but it was continually expanding and contracting. At some juncture in their lives the great majority of people most likely dwelled for a time with someone other than their parents, children or spouse. They lived for a while in another household as kin. boarder, or servant, and probably a relative or a hoarder lived for while in their household (Katz, 1975:227-28).

In order to test Berkner's (1972) assertion that household structure varies over the developmental cycle of the household, Katz examined the household structure of heads of various ages. There was little variation in household structure according to age of head, thus Berkner's (1972) argument was not supported. Instead, Katz argued that the findings for Hamilton appear to provide strong support for Laslett's argument "that the simple family household not only was the usual place of residence for the majority of
the population but was, as well, the most common domestic arrangement among both young married couples and elderly people" (1975:244).

Medjuck (1979) studied the variations in household size and structure in Moncton, Canada, between 1851 and 1871. Neither household size nor structure remained stable over this twenty-year period. Household size in Moncton in 1851 was extremely high, 8.49 persons per household. Although it declined from this high level over time, (to 5.95 in 1861 and 6.07 in 1871) it remained high in comparison to that in other parts of North America and Western Europe (Medjuck, 1979:279-80).

The reason that households in Moncton in 1851 were so large is that substantial proportions contained more than one family and boarders and lodgers (Medjuck, 1979:284). In 1851 24.3 percent of the households were multiple-family households, or contained more than one family, and almost 40 percent of the population lived in such households. In comparison to Moncton, only 1.7 percent in 1851 and 2.5 percent in 1861 of households in Hamilton were of this type. By 1861 and 1871 the proportion of multiple-family households in Moncton had declined to 0 and .5 percent respectively (Medjuck, 1979:280-81).

The data for Moncton in 1851 however, do not provide support for the existence of the extended family. Only 11.5 percent of Moncton households in 1851 were extended, a
proportion that is almost identical to that in Hamilton in 1851. Medjuck argued that therefore, "the distinction between Moncton Parish and other studies was not in terms of the preponderance of extended families but rather... in the tendency of families to cohabitate with other families and not with kin" (1979:281).

In Moncton in 1851 over 35 percent of the households contained boarders. But by 1861 this proportion had declined considerably to 8.1 percent (Medjuck, 1979:283). The high incidence of both multiple-family households and households with boarders in 1851 was apparently due to the fact that the economic boom in the shipbuilding industry during the late 1840's attracted many young families and young single men to the city (Medjuck, 1979:281, 283). Rather than establish households of their own, such families and individuals shared the households of others (Medjuck, 1979:283-84).

Although simple households were the predominant type in both 1851 and 1861, 64 percent of those in the former year and 82 percent of those in the latter year were of this type. Medjuck argued therefore that the household is a malleable unit, which expands and contracts in response to various factors (Medjuck, 1979:281). It was concluded that in Moncton in 1851 "the stability of household structure was markedly affected by rapid economic growth" and that "the precise economic conditions of the community are an
extremely important determinant of household structure" (Medjuck, 1979:283).

Bradbury (1979) described household structure in two Montreal wards, Sainte Anne and Saint Jacques in 1871. Bradbury suggested that a substantial proportion of the population of Montreal at this time was poor and economic need may have led many families to share their living space with others (1979:90-91).

Household structure in these two Montreal wards was closely related to the family life cycle (Bradbury, 1979:91). About half of young married couples shared households with others, usually with unrelated families and couples. But as families grew in size, sharing living quarters with other families or couples became difficult because of overcrowding, and only 20 percent of the families shared their living space with other families or couples. Those that did not share with other families lived in their own households and usually took in boarders. As children left home, families again began to share their living space, especially with married children (Bradbury, 1979:92).

In comparison to many other communities, the proportion of simply family households was low in these two Montreal wards. Only 56.4 percent of households in Saint Jacques and 63 percent in Sainte Anne were of this type (Bradbury, 1979:92). Bradbury concluded that the high rates of co-residence in Montreal were peculiar to that city. One
possible explanation that was suggested for this phenomenon was the familial orientation of the French-Canadian culture (Bradbury, 1979:94).

2.4 Twentieth Century Variations

Several studies have focussed upon twentieth century changes in household structure (Pelletier et al., 1938; Glick, 1957; Beréford and Rivlin, 1966; Kobrin, 1973; 1976a; 1976b; Carliner, 1975; Beaugot, 1977; Harrison, 1977; 1981; Wargon, 1979; Michael et al., 1980; Smith, 1981; Burch et al., 1983b; Martin and Cutler, 1983; Roussel, 1984; Sweet, 1984). However, as the major purpose of a number of these studies (Beresford and Rivlin, 1966; Carliner, 1975; Kobrin, 1976a; Michael et al., 1980; Harrison, 1981; Burch et al., 1983b) has been to derive explanations for the changes rather to describe them, they have been included in Chapter Four and will not be reviewed here. Instead, only those studies that are heavily descriptive will be discussed in this section.

An early census monograph, The Canadian Family (Pelletier et al., 1938), provides some insight into the historical trends in household formation in Canada up to 1931. In 1851 the average number of persons per household was 6.18, by 1861 it had risen to 6.29, the highest ever attained. Immigration, which generally tends to lower average household size because it consists mostly of
individuals and incomplete families, was high during the decade. This paradox was explained by indicating that by the end of the decade immigration had virtually stopped and that by 1861 the immigrants who had arrived during the mid-1850's "had had time to change from individuals into families and from incomplete into complete families" (Pelletier et al., 1938:42).

Average household size began to decline from 1871 onwards, although the amount of the decline tended to be irregular, being small in some decades and large in others. By 1871 household size was down to 5.6. The decrease between 1861 and 1871 was attributed to the smaller percentage growth in the population (12.8 percent) compared to that in households (26.6 percent) over the decade. The settlement of new areas in Ontario and Quebec during the period was viewed as being partially responsible for the rapid growth in the number of households since such population movements tend to lead to a break-up of existing households (Pelletier et al., 1938:42).

By 1881, household size had experienced another drop to 5.33. It was suggested that the explanation for this decrease was similar to that for the 1861-71 decade. An additional reason for the decline was the inclusion of Manitoba and British Columbia in the figures for Canada. The average number of persons per household in 1881 was 4.73 and 4.65 in British Columbia and Manitoba respectively. It
was suggested that the lower household size in these provinces in comparison to Canada was related to the nature of immigration to frontier-type areas which consists mainly of single persons and small families. By 1931 the average size of the household in Canada was down to 4.55. It was suggested that the fall in household size over the 1871-1931 period was due to declining fertility, population aging, a rise in proportion of the married population, and increasing urbanization. The irregularity of the decline from decade to decade was explained in terms of the variations in the intensity or direction of population movement (Pelletier et al., 1938:42-44).

Trends in average household size in the five eastern provinces between 1871 and 1931 were also examined. With the exception of Quebec in 1891 and 1911, household size in each province registered a drop at each census. Ontario had smaller households than Canada and the other eastern provinces at each date. Quebec experienced the smallest and Prince Edward the largest decline in household size over the 1871-1931 period (Pelletier et al., 1938:47-48).

More recent trends in household structure in Canada are discussed by Wargon (1979). For each of the four intercensal periods between 1931 and 1971 the growth in the number of households exceeded the growth in both the total and household populations (Wargon, 1979:32-37). Consequently, average household size decreased from 4.4 in
1931 to 4.0 in 1951, altered little over the 1951-61 period and then dropped to 3.5 in 1971 (Wargon, 1979:40).

The number of both family and non-family households increased between 1951 and 1971. However, because of the rapid growth in non-family households, the percentage of total households that were family households declined from 88.7 percent in 1951 to 81.7 percent in 1971, whereas that of non-family households increased from 11.3 percent to 18.3 percent. Among family households, the percentage of one-family households increased while both the number and the percentage of multiple family households decreased. The proportion of total households that were one-person and multi-person non-family households increased between 1951 and 1971. In 1951 7.4 percent of all households contained only one person, by 1971 this proportion had risen to 13.4 percent. Wargon noted that the increment between 1961 and 1971 was twice the size of that which occurred between 1951 and 1961 (Wargon, 1979:51-62). Multi-person non-family households increased their share of total households slightly, from 3.9 percent in 1951 to 4.9 percent in 1971.

Concomitant with these trends, headship rates for each age/sex group increased between 1956 and 1971. The proportion of the total household population consisting of household heads, wives and children rose from 87 percent in 1956 to 91 percent in 1971 (Wargon, 1979:62-74).

Distributions of household heads by age and sex
indicated that older females and young persons of both sexes were largely responsible for the formation of non-family households (Wargon, 1979:58). The increase in the propensity of these individuals to live alone is attributed to such factors as: "an improved economic situation; health, housing and financial benefits and initiatives provided by governments and other agencies; the availability of small housing units; not needing to contribute to the family household; the increase in separation and divorce among the young, and possibly the postponement of marriage or the beginnings of non-marriage (or both) by young women" (Wargon, 1979:21-22). An additional reason for the increased tendency of older women to live alone was also suggested, "it may be that elderly females have chosen to live alone because their families no longer need them or no longer have room for them, and possibly because they believe they have some years left to live a life of their own" (Wargon, 1979:22). Wargon's (1979:20) general conclusion was that:

... the undoubling of families and of individuals from families has resulted in the increasing identification of the nuclear family with the household. At the same time, the growth of non-family households reveals that household formation no longer depends on family formation, to the degree that it did in times past.

In a 1971 Census Profile Study Harrison (1977) also analyzed the variations in household size and structure in
Canada between 1951 and 1971. Most of the analyses and results were similar to those of Wargon (1979) and need not be repeated here. However, unlike Wargon (1979), Harrison (1977) also presented data on the regional variations in household size and structure.

At every census between 1951 and 1971 households in British Columbia were, on average, the smallest of any of the Canadian regions. The average size of households in this province varied between a low of 3.2 in 1971 to a high of 3.4 in 1956 and 1961. In 1951 the largest households were to be found in Quebec. In 1956 average household size in the Maritimes and Quebec was identical (4.4 persons per household) and households in both these regions were the largest in Canada. Since 1961, however, average household size in the Maritimes has exceeded that in other regions. In both 1951 and 1956, after British Columbia, the smallest households were to be found in the Prairies. But since 1961, household size in the Prairies has been identical to that in Ontario, thus both these regions now share the rank of having the smallest households in Canada after British Columbia. Over time, household size in all regions has declined. The magnitude of the decline has been largest for Quebec, from 4.6 in 1951 to 3.7 in 1971, and smallest for British Columbia (Harrison, 1977:21-22).

An examination of the distribution of households by type suggested that with the exception of the Maritimes, the
proportion of households that were one-family households decreased between 1951 and 1971 in all regions. In the Maritimes the proportion of these types of households remained virtually unchanged. The proportion of multiple-family households declined at every census in every region while that of one-person households increased. The proportions of multiple-family households throughout the 1951 to 1971 period were highest in Ontario and the Maritimes and the smallest in the two Western Canadian regions. Throughout the 1951 to 1971 period one-person households have been more common in British Columbia and the Prairies than in the other parts of Canada. In 1971 the proportion of one-person households was the lowest in the Maritimes (Harrison, 1977: 52-54).

Beaujot provided standardized general headship rates for the adult populations (ages 15 and over) of Canada and the provinces for 1951, 1961 and 1971 (1977: Table 5). The rates were standardized "in accordance with Canada's population in 1971 by marital status, age, and sex" (Beaujot, 1977: Table 5, footnote 1). For the country as a whole the adult headship rate increased from 34.1 in 1951 to 39.9 in 1971 (Beaujot, 1977: Table 5).

In 1951 household headship was lowest in Newfoundland and Ontario, and highest in Alberta and Saskatchewan. In both 1961 and 1971 an East-West gradient was evident, with headship being highest in the Prairies and British Columbia,
lowest in the Maritimes and Intermediate in Central Canada. In addition, after 1954 the headship rates in the different provinces of the three major regions also appeared to converge somewhat. Over time, headship rates in each province increased (Beaujot, 1977: Table 5).

A discussion of the historical trends in household size and structure in the United States is contained in a U.S. census monograph by Glick (1957). In 1790 the modal size of the household was 5.0 persons, by 1950 it had reached a low of 2.0. However, average household size increased between 1953 and 1955 (Glick, 1957:21-22). No doubt this rise in the average number of persons per household reflects the postwar baby boom in the United States.

Using data both from the census and the Current Population Survey, Glick (1957) examined changes in the household relationships of the population between 1910 and 1954. The proportion of the population classified as head or wife of head rose between 1910 and 1954. The relative increase in the number of heads was attributed to the declining average household size until 1950. The percentage of relatives other than the wife declined until 1950 and increased between 1950 and 1954, whereas that of nonrelatives of the head declined gradually up to 1940 and then decreased sharply. The number of lodgers and resident employees in 1954 was 3/5 of that in 1940 (Glick, 1957:10-13).

These general patterns were explained in terms of demo-
graphic factors such as fertility, nuptiality, population aging and the improved economic situation of the elderly (Glick, 1957:10-12). The major explanation for the decline in the number of nonrelatives was that "the average number of rooms in dwelling units built in the 1940's was smaller than that for units built before 1940, and the average number of children per household rose between 1950 and 1954; such factors tend to make less room available for lodgers in the 1950's than in the 1940's and earlier" (Glick, 1957:13).

Changes in household headship rates in the United States between 1940 and 1970 were examined by Kobrin (1973). The household headship rate for males aged 20-74 increased by 22 percent and that for females aged 20-74 by 58 percent between 1940 and 1970 (Kobrin, 1973:794).

The proportion of household heads who were primary individuals (those who live alone or with unrelated individuals) increased from 9.4 percent in 1940 to 13.5 percent in 1960. Increases in the number of primary individuals among women occurred mostly at the older ages, and among men at the youngest and the oldest ages. The major change between 1960 and 1970 was the increase in the number of female household heads. One out of seven women in 1940 and one out of five women in 1970 were household heads (Kobrin, 1973:795-96). Kobrin suggested that "the predominant source of the change was the explosion of female primary individuals" (1973:796).
An analysis of changes in household structure in the United States between 1970 and 1980 is provided by Sweet (1984). Between 1970 and 1980 the number of households in the United States increased by 25.8 percent while the household population rose by 10.2 percent. At the same time the average size of household declined from 3.18 to 2.75 persons (Sweet, 1984:129). The majority of the increase in the number of households (55 percent) was due to the growth in the number of non-family households (Sweet, 1984:132).

Furthermore, the growth in the number of non-family households (76 percent) far exceeded the growth in family households (14 percent). Similarly, the increase in the number of one-parent households (86 percent) was much greater than that in households of married couples (8 percent). One-person non-family households headed by men increased by 96 percent and those headed by women, by 52 percent. Multi-person non-family households increased by 167 percent, Sweet suggested that a large proportion of this increase was due to the rising proportions of young unmarried couples living together (Sweet, 1984:131-32). Headship rates by age, sex and marital status among the unmarried population also increased considerably between 1970 and 1980. The largest changes occurred among single males and females in the 25-54 age group and among elderly widowed individuals (Sweet, 1984:134-35).

Sweet suggested that the rapid increase in the number
of households was due to a number of important social trends: delayed marriages among young people; increased marital dissolution; stability and perhaps decline in the remarriage rate; mortality declines among the elderly; declines in co-residence and increases in household headship; and changes in the age composition (1984:138-39).

Smith (1981) described changes in the living arrangements of the elderly in the United States between 1880 and 1975. In both 1880 and 1900, about 61 percent of older people in the United States lived with their children. By 1951, the proportion had declined to 33 percent and by 1975 to 14 percent (Smith 1981: Table 5.2). Thus household structure of the elderly in the United States changed substantially during the twentieth century. Smith suggested that "the twentieth-century timing is consistent with the other major discontinuities in the history of old people -- the rising fraction of the aged in the total population, the decline in the rates of labour force participation by older men, and the development of welfare policies such as social security" (1981:102).

Household formation trends in other parts of the Western world in recent decades have been similar to those in Canada and the United States. Roussel (1984) studied the changes in living alone between 1960/61 and 1980/81 in several Western nations: West Germany, Austria, Norway, the Netherlands, Sweden, Switzerland, the United States and
Canada. With the exception of Austria, where the number of one-person households increased by about 53 percent, in most countries the number of such households grew by over 100 percent. In the United States, Switzerland and Canada the percentage increases in the number of one-person households were extremely high, 164 percent, 217 percent and 295 percent, respectively (Roussel, 1984:997-98).

Furthermore, the growth in the number of one-person households has far exceeded that in either the total population or the total number of households. Indeed, West Germany experienced no growth in population between 1970/71 and 1980/81 whereas the number of one-person households rose by almost 40 percent. In all countries, even the growth in the total number of households exceeded the increase in the total population (Roussel, 1984:998-999).

In many countries the growth in the number of one-person households was largely responsible for the growth in the total number of households. For example, in Austria, Sweden, Switzerland, Norway and West Germany, 79, 70, 65, 58 and 56 percent, respectively, of the growth in the total number of households was due to the increase in the number of one-person households. In the Netherlands, Canada and the United States the proportions were lower, 30, 34 and 45 percent, respectively, but still substantial (Roussel, 1984:999).

In the 1978 to 1981 period the proportion of all house-
holds that were one-person units ranged between a low of 18 percent in the Netherlands (1978) to a high of 33 percent in Sweden (1980). More than 10 percent of the population of Sweden, Switzerland and West Germany in 1980/81 lived in such households (Roussel, 1984:999-1000).

An examination of one-person headship rates of the unmarried population by sex and marital status suggested that the tendency to live alone among all sex-marital status categories has increased in most countries. There was, however, a decline in the rates for the divorced of both sexes and for widowed males in France between 1975 and 1981, and for single females in West Germany between 1972 and 1981. In general, the widowed were most likely to live alone and the single the least likely to do so (Roussel, 1984:1006).

Martin and Cutler (1983) examined the twentieth century changes in the household structure of the Japanese. Since 1920, the proportion of households that are composed of either a married couple and their children or of a single parent and children (conjugal or nuclear households), has increased substantially, from 54 percent in 1920 to 63.5 percent in 1970. The proportion of single-person households has also risen markedly, from 4.7 percent in 1960 to 15.8 percent in 1980 (Martin and Cutler, 1983:634-35).

The ideal family structure of Japan was the stem organization consisting of two married couples of different
generations or a single parent and married child living in the same dwelling. Between 1960 and 1980 the proportion of households that do not conform to this ideal has increased from 64.9 to 79.2 percent (Martin and Cutler, 1983: 634-635).

Concurrent with declining co-residence in Japan, decreases in mortality levels have occurred. With mortality decline, the probability of the co-survival of three generations has increased from .22 in 1940 to .66 in 1960 and .84 in 1980. Thus, "the prospects for three generations being able to live together in the same household" have increased substantially (Martin and Cutler, 1984:643). However, the actual decline in such co-residence suggests that "there must have been a change in the behaviour of the Japanese with regard to their decisions about parents living with adult offspring and grandchildren" (Martin and Cutler, 1984:644).

Kobrin (1976b) proposed that a life cycle approach to family membership should be used in order to understand the increases in primary individuals. In the United States the major change in living arrangements in recent decades has been the increase in primary individuals. The fact that the increases have occurred mostly among elderly women and young males suggests that not only are more and more people living outside of kin relationships, but also "that living with a family is becoming a discrete life cycle event of the
childhood and marriage years" (Kobrin, 1976b:233). Kobrin suggested that if these trends continue, "the nuclear family will come to occupy an increasingly marginal position" (1976b:234).

2.5 Conclusion

The findings of the studies summarized in this chapter lead to a number of interesting conclusions regarding the variations in household and family structure. Studies of household structure in the eighteenth and nineteenth centuries provide strong support for the argument of the revisionists that the majority of people in most societies have lived in small households comprised mainly of the nuclear family of the head and sometimes servants. There is little evidence to prove that familial extension was ever the established norm in most Western nations.

However, there are two additional conclusions that emerge from the studies presented in this chapter. First, it is evident that the proportions of households that were simple family households in the past varied considerably across societies. For example, in Bristol, Rhode Island 90 percent of the households in 1689 were of this type (Laslett, 1972a: Table 1.15) compared to only 64 percent of those in Moncton, New Brunswick in 1851 (Medjuck, 1979:281), a difference of 26 percentage points.

Second, when attempting to determine the evolution of
households and families over time, the distinction between familial extension and household extension needs to be made. Familial extension can be defined simply in terms of the co-residence of kin, or the presence in the household of non-nuclear relatives of the head. However, household extension refers to the presence of all non-nuclear adults in the household, kin as well as servants and boarders and lodgers. When viewed this way, the conclusion that extended families were rare in the past is in no way altered.

However, evidence suggests that household extension has declined dramatically over time. This point is most clearly illustrated in Pryor's (1972) study of change in household and family structure in Rhode Island between 1875 and 1960. Pryor found little change in familial extension but considerable change in household extension over time. Whereas in 1875 about 24 percent of all households contained non-relatives, in 1960 such persons were present in only 2 percent of the households (Pryor, 1972:586). These non-relatives of course were servants and boarders and lodgers (Pryor, 1972:589).

Servants were a common feature of households in most societies in the past. In fact, servants were so common that those who have studied household structure in the past rarely regard these persons as altering the basic nature of the household. For example, in almost all studies of
eighteenth and nineteenth century household structure, households comprised only of a nuclear family, and households that contain a nuclear family and servants, are both defined as simple family households. Laslett has suggested that in England it was only after 1911 that the number of servants began to decline continuously and it was not until the middle of this century that servants virtually disappeared from the household (1972b: 157; 1977:112).

Boarders were also quite prevalent in the past. It has been estimated that up to about 1930 the percentage of urban households in the United States that contained boarders and lodgers was between 15-20 percent. Despite the increased tendency of families to take in boarders during the Depression, the practice began to decline in the 1930's. The proportion of all households that contained boarders declined from 11.4 percent in 1930 to 9.0 percent in 1940 (Modell and Hareven, 1973). Glick suggested that in the United States the proportion of the population that were nonrelatives of the head decreased sharply after 1940. The number of lodgers and resident employees in 1954 was 3/5 of that in 1940 (Glick, 1957:10-13). By 1960 only 2 percent of the households in Rhode Island contained nonrelatives of the head (Pryor, 1972:586). The almost complete exclusion of boarders and lodgers and servants from the household in the second half of the twentieth century suggests that household extension has declined considerably over time.
Concomitant with the removal of nonrelatives from the household, a number of additional changes in household structure have occurred during the twentieth century, particularly after 1950. Nuclear families consisting of parents and minor children are even more likely to be living in a household that contains no one else, than they were in 1951. The proportion of households that contain more than one family has also declined substantially (Wargon, 1979). At the same time, households that contain only one-person have increased tremendously (Harrison, 1977; 1981; Kobrin, 1973; 1976a; 1976b; Martin and Cutler, 1983; Sweet, 1984; Roussel, 1984).

Unfortunately, despite the number of studies that have addressed the issue of variations in household structure, a number of gaps in knowledge about such variations in Canada during the twentieth century remain. For example, evidence suggests that household structure in the late twentieth century is very different from that in the late nineteenth century and that it altered radically after 1951, but little is known about the nature of the trends between 1901 and 1951. Furthermore, there is little information on regional and provincial differentials during the first half of the century. These gaps in knowledge of course arise from the unavailability of data. However, because this study employs a new measure of household structure that surmounts these data problems, it should be possible to fill in some of
these gaps.

In the next chapter, first the methodology used to compute the index of overall headship is discussed. Then the trends in household headship in Canada and the provinces over the 1901 to 1981 period are presented.
CHAPTER THREE

Methodology and Data Sources for Measures of Household Headship

3.1 Methodology

3.1.1 Introduction

In the first part of this chapter the measures of household headship developed by Burch and his associates are presented (Burch, 1980b; Burch et al., 1983a), and the uses and limitations of these indexes are considered. The second part of this chapter describes the data used to compute \( I^H \), the measure of household headship used in the study, and discusses the various problems that arose in relation to the Canadian data. The time trends and provincial differentials in \( I^H \) are presented in the third section of this chapter.

Although measures of household complexity that are easily computed from census data have been previously suggested, in general they have not been evaluated empirically or analytically and validated for general use (Burch, 1980b: 25-27; Burch et al., 1983a: 34-35). One such measure, average number of adults per household, sometimes used in studies of household complexity, has been shown to be influenced by the age and sex composition of the adult
population. The correlation between an unstandardized ratio of adults per household and a measure directly standardized for age and sex was only +0.62, indicating the need for standardization for at least age and sex (Burch, 1980b:32). As a result, two indirectly standardized measures of household complexity, \( L_H \) and \( L'_H \), have been developed (Burch, 1980b; Burch et al., 1983a). These can be computed from data available in almost all censuses, the number of households and a cross-classification of the population by age, sex and marital status, \( L'_H \) is utilized in this study in order to study the trends in household composition in Canada and the Provinces between 1901 and 1981.

3.1.2 Indexes of Overall Headship

The index \( L_H \) is standardized for age and sex and \( L'_H \) is standardized for marital status as well as for age and sex (Burch, 1980b; Burch et al., 1983a). These two indexes:

measure the tendency of adults in a population to form separate households rather than to share households with others. Thus, the higher the index, the greater the tendency toward separate living. \( L'_H \) measures this tendency net of marital status.

\( L_H \) and \( L'_H \) may also be thought of as inverse measures of household extension -- the higher the headship rate, the lower the number of adults per household. Thus, populations characterized as having an extended family/household system would tend to have low values of \( L_H \) and \( L'_H \), and vice versa (Thomas and Burch, 1983:12).
I_H represents the ratio of the actual number of households in a population to the number that would be expected if each age-sex group in the population under study experienced the age-sex-specific headship rates of the standard population. The formula for this index is as follows (Burch et al., 1983a):

\[
I_H = \frac{\hat{H}}{\hat{H}} = \frac{\sum_{i=1}^{n} H_{i} w_i}{\sum_{i=1}^{n} H_{i} m_i} \quad (3.1)
\]

where:
- \( I_H \) = index of overall headship
- \( H \) = actual number of households
- \( \hat{H} \) = expected number of households
- \( H_{i} \) = standard headship rate for women in the ith age group
- \( H_{i} \) = standard headship rate for men in the ith age group
- \( w_i \) = number of women in the ith age group
- \( m_i \) = number of men in the ith age group

Burch et al. suggest that since the actual number of households is influenced by the age-sex-marital status-specific headship rates and the composition of the population by age, sex and marital status, "variation in \( I_H \) may be due to differences or changes in marital composition as well as to differences or changes in household formation."
behaviour within age-sex-marital status categories" (1983a:16). Therefore, I'H, an analogue of IH which standardizes for marital status as well as for age and sex, has been formulated. Like IH, it is the ratio of actual to expected households. However, in the calculation of I'H the expected number of households is obtained by applying the age-sex-marital status-specific headship rates of the standard population to the number of people in each age-sex-marital status group in the actual population. The formula for I'H, which is simply an extension of the formula for IH (equation 3.1), is as follows:

\[
I'H = \frac{\hat{H}}{\sum \sum \hat{H} w + \sum \sum \hat{H} m}
\]

(3.2)

"with the summation over i for n age groups . . . and the summation over j for m marital status categories (., . . . single; married; widowed; divorced and separated)" (Burch et al., 1983a:18). Since I'H is also refined for marital status, it is the index of household complexity used in this thesis.

The indexes are similar to Coale's (1969) index of overall fertility and are analogous to a standardized mortality ratio (Burch et al., 1983a:6). Like other indirectly standardized measures, IH and I'H should be regarded as substitutes for more detailed information on household
composition (Burch, 1980a:5; Burch et al., 1983a:5). And although they are not perfect substitutes, they "may reveal something important about residential patterns for populations where more detailed information are lacking" (Burch, 1980a:5).

3.1.3 Uses and Limitations of the Indexes

The major advantages of $l_H$ and $l'_H$ are that they are standardized for age and sex, and age, sex and marital status respectively, "and can be computed with minimal demographic data . . . and thus can be computed for populations, whether present or past, whose censuses lack more detailed information on household structure, particularly a classification of the population by relationship to household head by age and sex" (Burch, 1980a:1). In describing the potential substantive importance of his measures, Burch (1980b:27) quotes Parish and Schwartz (1972:170):

These measures are valuable because they can be used to extend the study of households into areas where the data previously seemed unsuitable. For the nineteenth century, they can relieve us of the tedium involved in reconstructing households from manuscript censuses or parish registers. And, since more areas can be covered, we can appreciate the differences among regions even within a single society.

Aside from their advantages, some possible limitations of these indexes also need to be discussed.

1) Burch (1980b:33) found the variation in $l_H$ values across his sample of thirty-three nations to be quite small;
the provincial and national series of $I'_{H}$ for Canada display a similar restricted range of values. From a statistical perspective this implies "that small absolute errors, or changes due to choice of standards, can have large relative effects on the variations in the index" (Burch, 1980b:33).

However, Burch and his associates (1983a) did test the sensitivity of their results to the choice of standard by computing $I_{H}$ using rates from Japan (1965), Argentina (1960), Sweden (1960) and Guadeloupe (1961) and $I'_{H}$ with rates from Sweden (1960) and Japan (1965). The headship patterns in these countries are quite different from each other. The sensitivity tests were conducted for their international series (75 nations), the U.S. states in 1970, and the U.S. states in 1900. Their results indicated that generally the correlations between the $I_{H}$ and $I'_{H}$ values obtained using the four different sets of standard rates were quite high, 0.90 or greater, the few correlations that were lower than this value involved the countries with extreme patterns of headship, Argentina or Guadeloupe (Burch et al., 1983a:27-28). Therefore, as long as non-extreme standard rates are employed, the choice of standard will have only a minor effect on variations in the index.

2) The indexes are based on data for "census households, that is, groups of co-resident persons" (Burch, 1980a:3). Some researchers, for example Wheaton (1975) and Berkner
(1972; 1975) have questioned the value of such data. They have argued that data of this type do not allow one to discern kinship ties and kinship systems as they extend beyond the household. Furthermore, Berkner (1972:732) has suggested that with census type information the family ideals of a society cannot be determined.

However, it can be argued that studies that use census type data provide a great deal of information on broad comparative or historical patterns and trends and because of this are valuable in their own right even if they do neglect such issues as outlined by Berkner and Wheaton. A study cannot be expected to document every aspect of the phenomenon in question. Complete relevant information is often unavailable, and even if it is available, the task of organizing such information in order to discern general patterns and trends and to establish a link between these and the broader aspects of household structure is a large one in its own right. Studies that do provide information on kinship systems and family ideals are often confined to descriptions of one small geographic area and thus they in turn are unable to provide an indication of general trends or patterns. Surely, the pursuit of both types of research is valuable, and, in conjunction can lead to a greater understanding of a particular phenomenon than might be achieved if every study tried to cover all aspects of the subject.

Thus the view taken here is "that co-residence . . . is an
important social-psychological phenomenon in its own right, and... the large body of census materials dealing with it are worthy of systematic analysis, -- not because they will tell us everything about family and household structure, but because they can tell us something, often for populations where other data are lacking" (Burch, 1980a:4).

3) "Concepts and procedures used for delimiting households may not be comparable from one time and place to another" (Burch, 1980a:4). Burch and his associates (Burch, 1980a; 1980b; Burch et al., 1983a; 1983b) have tended to "assume that... data on number of households generally are comparable from one time and place to another" (Burch et al., 1983a:4). However, no such priori assumptions can be made in regard to the Canadian data since changes in the definition of household are known to have occurred. The nature of these definitional changes, and their implications for values of I'H will be discussed in a subsequent section (see section 3.2.2 below).

4) Both I_H and I_H' are general measures of "the tendency of adults in a population to head their own households rather than to live in households headed by other adults" (Burch et al., 1983a:11). Variation in these indexes across time and space may be due to societal differences in the extent to which a) unmarried children continue to live in the parental home; b) young married couples tend to live in the same residence as the parents of either spouse; c)
spouses or quasi-spouses tend to co-reside; d) unmarried
individuals, for example aunts, nephews, etc., tend to live
with relatives rather than alone; e) elderly parents tend to
live with their grown children; f) domestic service and
boarding and lodging are prevalent in a society (Burch et
al., 1983a:11-12); and g) adults live with non-relatives,
for example as room-mates, rather than alone. Thus, while
differences in I_H and I'H across societies can inform us
of the propensity of adults in different societies to live
together rather than apart, they provide no indication as to
whether the nature of relationships among those who co-
reside also vary from one place to another. For example, it
is quite possible for I_H and I'H values of a country
where the co-residence of elderly parents with their adult
children is common to be identical with those of a country
where boarding and lodging are prevalent. However, an exam-
ination of relevant literature may provide some indication
as to which types of co-residence are most prevalent in a
particular society.

5) I_H and I'H reflect "the behaviour of adults of all
ages, both sexes, and all marital status categories" (Burch
et al., 1983a:12). Therefore, it is possible that some of
these categories have a greater impact on the variation of
the indexes than others. For the series of thirty-three
nations examined by Burch (1980b) the correlations between,
group were moderately high \((r = +0.50 \text{ to } +0.70)\), and the correlation between \(l_1\) and the unweighted sum of rates of all age-sex groups was +0.87, suggesting "that the index does not reflect primarily the behaviour of one or a few age-sex categories, but rather a more general pattern of adult household formation behaviour" (Burch et al., 1983a: 12).

6) When the direct method is used to calculate standardized rates or indexes for several given populations the specific rates for each of these populations are weighted by the same composition, that of the standard population. This means that for a series of given populations for which directly standardized measures are being computed, population composition is held constant and the directly standardized rate or index of each of these given populations is directly comparable to that of any other given population. However, when the indirect method is utilized to compute standardized measures for a set of given populations the specific rates for the standard population are weighted by the population composition of each of these given populations. Consequently, since composition is not held constant, as it is in direct standardization, strictly speaking the indirectly standardized rates or indexes for a set of given populations are not comparable (Yule, 1934; Kitagawa, 1964; Shryock and Siegel et al., 1975). Therefore, Yule (1934:9) argues that "the method is not fully a method of standardization at all,
but is only safe for the comparison of single pairs of populations. Although the use of indirectly standardized measures for broad comparative purposes has been questioned, I feel safe in making such comparisons for two main reasons. First of all, the correlation between $I_H$ and a measure of adults per household directly standardized for age and sex for a series of thirty-three nations was found to be -0.92, whereas the correlation between the directly standardized measure and an unstandardized ratio of adults per household was only +0.62. These results indicate that in the absence of more adequate data which would allow us to calculate directly standardized measures of household composition, "the index of overall headship can serve as an inverse measure of household complexity"... with "a measureable gain in accuracy over the unstandardized form" (Burch, 1980b:33). Secondly, the results that are obtained using $I_H$ and $I'_H$ are in accordance with the findings of previous studies and theoretical expectations. For example, several studies (Beresford and Rivlin, 1966; Carliner, 1975; Michael et al., 1980) suggest that household headship in the United States increased rapidly in the post-war period. Trends in $I_H$ and $I'_H$ in the United States and Canada since the beginning of this century are in keeping with this view (Burch et al., 1983b; Thomas and Burch, 1983). In addition, based on what is known about the family patterns of various
countries, we would expect that nations that adhere to the
traditional extended family form, for example India and
Japan, would have relatively low values of $I_H$ whereas
countries like Sweden and West Germany, where the nuclear
family pattern has been in existence for some time, would
have high values. These expectations are in fact confirmed
(see Burch, 1980b).

7) The choice of a standard composition in the case of
direct standardization and standard rates in the case of
indirect standardization is arbitrary (Barclay, 1958:165).
Generally, in both indirect and direct standardization
different results will be obtained when different standards
are employed (Barclay, 1958:165; Shryock and Siegel et al.,
1975:419, 421-422). In fact it is also possible that the
direction of the difference between populations under
comparison may even be reversed (Shryock and Siegel et al.,
1975:419, 421-422). "The choice of standard is likely to
have a greater effect, or at least an uncertain effect, with
the 'indirect' method, because this method relies more
heavily on the hypothetical information drawn from the
standard population" (Barclay, 1958:165).

In their work Burch and his associates (1983a; 1983b)
use rates from Sweden 1960 as standard. However, they do
test the sensitivity of their results to the choice of
standard by also computing $I_H$ using rates from Japan
(1965), Argentina (1960) and Guadeloupe (1961) and $I'_H$
with rates from Japan (1965). The headship patterns in these countries are quite different from each other and from those in Sweden. Headship rates for single, widowed, and divorced females are low in Japan, rates for females are unusually high in Guadeloupe, and in Argentina female rates are unusually low compared to male rates. The sensitivity tests were conducted for an international series (75 nations), the U.S. states in 1970, and the U.S. states in 1900. The results indicated that generally the correlations between the $I_H$ and $I'_H$ values obtained using the four different sets of standard rates were quite high, 0.90 or greater, the few correlations that were lower than this value involved the countries with extreme patterns of headship, Argentina or Guadeloupe. The lowest correlations were between $I_H$ calculated using rates from Guadeloupe and $I_H$ obtained using Argentinian rates. It was concluded that for an international comparison any non-extreme set of rates may be utilized, however, if particular nations or regions that are believed to have unique patterns of headship are being studied, rates selected as standard should reflect this (Burch, et al., 1983a:27-28).

Since the present research focuses exclusively on Canada and the provinces, it seems appropriate that the standard rates used in calculating $I'_H$ should come from either the national population of Canada or one of the provincial populations for one of the census years under
examination. The rates from the national population in 1961 were selected. It makes most sense to use the rates for the national population rather from one of the provincial populations 1) because the national population provides a more convenient reference point in relation to which the values of the Provinces can be judged; and 2) because provincial differences in headship, which in some cases are quite large, make it difficult to choose a set of rates from one of the provinces that is not extreme in respect to the rates from some other province. The only provinces with non-extreme rates are Ontario and Quebec, however, as stated earlier, it seems best to judge the level of headship of all the provinces in relation to that of the whole of Canada rather than to that in one of these two provinces.

Since it has been suggested (Beresford and Rivlin, 1966; Carliner, 1975; Michael et al., 1980; Burch et al., 1983b; Thomas and Burch, 1983) that the level of household headship was virtually stable until the post-war period, and accelerated thereafter, to have selected rates from either end of the period under examination (1901-1981) would have meant that the standard would have been extreme in relation to the rates of the other period. The year 1961 was selected because it appeared to be the year where headship rates would fall somewhere in between the high headship rates of the recent decades and the low headship rates of pre-war years. In any case, headship rates by age, sex and
marital status for Canada are not available until 1956 (Loken, 1973: Appendix 3).

3.2 Data and Sources

3.2.1 Introduction

The data used to compute the index of overall headship standardized for age, sex and marital status for Canada and the provinces consist of the number of households and the cross-classifications of the population into two sex categories (male and female), six age groups (15-24, 25-34, 35-44, 45-54, 55-64 and 65+), and four marital status categories (single, married including separated, widowed and divorced). The headship rates employed as standard are those of the national population of Canada for the year 1961.

The index has been calculated for the national population of Canada and for all provinces, with the exception of Newfoundland, for all decennial and quinquennial censuses between 1901 and 1981. The required data were all obtained from the various volumes of the population censuses of Canada. The exact sources of data are provided in Appendix 1.

Despite the fact that there is now available a technique which makes it possible to study household formation in Canada and its provinces over time with minimal data, several problems were still encountered in the attempt to
undertake such a task. Any type of historical research has
to confront problems of inconsistent definitions, boundary
changes and the unavailability of data, and unfortunately
this research was no exception. Before the national and
provincial trends in I'H are presented, these problems
need to be discussed.

3.2.2. Conceptual Issues in Regard to Household Data

Census definitions of the household are usually based
either on the household-housing unit (or housing unit), or
the housekeeping unit concepts (U.N., 1973b:6). If the
housing unit concept is used, "in order to be considered a
household, a group of persons must share the same housing
unit, that is, live under the same roof", however, according
to the housekeeping unit approach, "living in the same hous-
ing unit and having common provisions for essential living
needs, particularly food" are both required (U.N., 1973b:6,
footnote 74). Although there are fewer problems during data
collection if the housing unit rather than the housekeeping
unit concept is used, the housing unit approach "does not
provide information for the direct analysis of two or more
separate housekeeping groups sharing the same dwelling"

The definitions of the household employed in the
Canadian censuses have not remained constant over time. In
the 1901, 1911, 1921 and the 1941 censuses, the household
was defined in accordance with the housekeeping unit concept, however, in 1931 and then from 1951 onwards the housing unit approach was applied (Loken, 1973:4). However, this non-comparability of definitions in itself is not really a sufficient basis for arguing against the attempt to conduct any type of historical research into households. Rather, the implications of the change for various types of analyses need to be articulated.

If the housing unit approach is used then fewer households will be identified than if the housekeeping unit concept had been employed (U.N., 1959:69). The \( l^\cdot H \) values for Canada and the provinces were calculated by taking the ratio of actual to expected households. Expected households were obtained by applying the headship rates for Canada 1961, which were based on the housing unit approach, to the distribution of the population by age, sex and marital status. This implies that for census years 1901, 1911, 1921 and 1941, where the actual number of households was based on the housekeeping unit concept, \( l^\cdot H \) values will be higher than if the housing unit approach had been used. This is due to the fact that the expected number of households, since it is based on the housing unit approach will be lower in relation to the actual number of households (which are based on the housekeeping unit concept).

In relation to the Canadian data, this implies that the definitional changes are unlikely to lead to a gross
misinterpretation of the actual trends. Rather, because of the inflation in the $l'H$ values for 1901, 1911, 1921 and 1941, the change that actually did occur during the post-war period will appear small in relation to patterns during the early period. It is impossible to determine what the degree of overestimation for 1901, 1911, 1921 and 1941 is, however. In the 1941 population census the household was defined according to the housekeeping unit approach, however, in the 1941 housing census the housing unit approach was used. It was thought that if $l'H$ were computed using household figures from both censuses, a rough estimate of the overestimation could be obtained. However, this was not possible. In the housing census, only data for private households are given, whereas in the population census the figures for Canada and the provinces refer only to total households (private and collective). In any case, Loken (1973:4) indicates that the data in the housing censuses were collected on a sample basis, and although this is not a justification for their exclusion, "there is insufficient information to evaluate the data from the housing samples and, therefore, to establish their reliability".

3.2.3 Additional Problems

Aside from the inconsistency in definitions, some other problems were also encountered with the household data. First of all, until 1931, data for private and collective or
institutional households were not separated and the numbers of households for these census years refer to total households (Loken, 1973:25). And although collective households form a very small percentage of total households, for example, in 1971 and 1976 .29 and .23 percent of all Canadian households respectively were collective households, it is not possible to subtract out these collective households from total households. From another perspective one can argue that in the calculation of $\lambda'$, these collective households should in fact be included in the figure for actual households. The population living in such households is included in the denominator when $\lambda'$ is calculated because it is impossible to obtain age/sex/marital status distributions for those who live in such arrangements and subtract them from those of the total population. Since the population living in collective households forms a part of the denominator, it seems more consistent that the numerator, which is actual households, should also relate to this population, rather than only to those who live in private households.

Second, the 1901 and 1911 censuses give only the number of houses, not households.

Third, the boundaries of Alberta and Saskatchewan were defined in 1905 and those of Ontario, Quebec and Manitoba were redefined in 1912. And even if the number of households had been available in the 1901 and 1911 censuses, for
these provinces the data would have been inconsistent with
the data for the other years. So what was needed was not
only data on the number of households for 1901 and 1911 but
rather data which took into account these boundary changes.

A special tabulation provided in the 1966 census met
most of these requirements. It provided the total number of
households for Canada and the Provinces for the years 1901
to 1966 inclusive. In addition to the number of households,
population figures were also provided. A comparison of the
population figures for 1901 and 1911 given in this table
with those given in the original census volumes and a large
volume which provides historical statistics for Canada
(Leacy, 1983), led to the conclusion that the figures in
this table for Alberta and Saskatchewan for 1901 and
Ontario, Quebec and Manitoba for 1911 referred to the
present boundaries. Since the population figures had been
adjusted for boundary changes, it seemed safe to assume that
this was also true for the household counts, and the
decision was made to use the household data from this table
for all the years for which it was given. For 1971 and 1976
figures for both private and collective households were
obtained from the 1971 and 1976 censuses and then added to
provide a count of total households. At the time of this
writing figures for collective households were not yet
available for 1981, so the number of households for this
year refers only to private households.
There were also a few problems with the age-sex-marital status data. In the 1911 census neither age-sex-marital status nor age-sex distributions were available. In the 1901 census only a cross-classification of the population by age and sex is provided, however these figures relate to provincial boundaries as they were in 1901 and not as they are today.

The 1921 census contains an age-sex distribution for both 1901 and 1911 and an age-sex-marital status distribution for 1911. Before the data for 1901 and 1911 from the 1921 census could be used, it had to be determined whether they referred to the current or previous boundaries for Ontario, Quebec, Manitoba, Alberta and Saskatchewan. A comparison of the figures for population aged fifteen and above for Ontario, Quebec and Manitoba given in the 1911 census with those for 1911 given in the 1921 census table of the population by age, sex, and marital status indicated that the 1921 figures had been adjusted to refer to the present boundaries. A similar conclusion was reached when the 1901 age-sex data for Alberta and Saskatchewan given in the 1901 census were compared to those in the 1921 census. For 1911 the data from the 1921 census were utilized in the computation of $I_{1H}$.

However, with 1901 the problem of obtaining a breakdown of the population by marital status as well as age and sex remained. Age-sex-marital status distributions for 1901 had
to be estimated from the age-sex distributions for 1901 and the age-sex-marital status data for 1911 (both of which were published along with the 1921 census). The proportion of an age-sex group in each marital status category in 1911 was obtained, and these proportions were then multiplied by the number of people in an age-sex group in 1901 in order to obtain the number of people in each age-sex-marital status category in 1901. For all other years the age-sex-marital status data came from the relevant census volumes for each year.

Unfortunately, the population figures for Ontario, Quebec and Manitoba for 1901 given in the 1966 tabulation from which the number of households was obtained were in relation to the boundaries as they existed in 1901. Similarly, the age/sex distributions for these provinces for 1901 (on which estimates of the age/sex/marital status distributions for 1901 were partially based) given in the 1921 census refer to previous boundaries. Furthermore, data for these provinces for 1901 in relation to present boundaries seem to be unavailable.

In order to determine the extent to which data for these provinces for 1901 which was not adjusted for the 1912 boundary changes would underestimate the figures had they been adjusted, a comparison of population figures that took the 1912 boundary changes into account and those that did not take these changes into account was undertaken for
1911. This comparison revealed that population figures for 1911 which were not adjusted for the boundary extensions of 1912 underestimated the figures that were adjusted by 0.16 percent for Ontario, 0.15 percent for Quebec and 1.25 percent for Manitoba. Since the unadjusted figures for 1911 only slightly underestimated the adjusted data for all three provinces in 1911 it seems safe to assume that the degree of underestimation for 1901 is of a similar magnitude. Since the error for the total population figures was probably small it seems highly unlikely that it would have been large for the number of households or the age/sex distributions and hence the age/sex/marital status distributions. I feel quite confident that the resulting \( I''H \) values are extremely close to what they might have been if data for 1901 that took the boundary changes of 1912 into account had been available. The next section of this chapter presents the trends in \( I''H \) for Canada and the provinces from 1901 to 1981.

3.3. Trends in \( I''H \)

The purpose of this section is to present the trends and patterns in \( I''H \) in Canada and the provinces between 1901 and 1981. \( I''H \) was calculated for Canada and all provinces, except Newfoundland, for all decennial and quinquennial censuses between 1901 and 1981 inclusive. The actual national and provincial values of \( I''H \) are presented
In Table 1 while the time trends are graphically depicted in Figures 1, 2 and 3. Each figure presents the trends in each province of each of the three major Canadian regions and for Canada as a whole. Although the presentation is mainly descriptive at this point, some explanations for unique patterns are suggested. Trends in the ratio of households to population, the inverse of average household size, are shown in Table 2 but will not be discussed here (see pages 93 to 100 for tables and figures).

From all three figures it is evident that after experiencing a slight decline between 1901 and 1911, household headship in this nation remained virtually unchanged until 1956. From 1956 onwards there has been a rapid increase in household headship in Canada. The figures in Table 1 reveal that the fluctuations in $h$ between 1901 and 1951 are minor indeed when compared to the alterations in the period between 1956 and 1981. Interestingly, the rate of increase in household formation did not decline between 1976 and 1981 despite the downturn in the Canadian economy during the late 1970's.

Substantively, these trends imply that the tendency of adults to form their own households has increased while that to share residences or to double-up has decreased dramatically since 1956. Although extended families may never have been common in the past, it is clear that household extension has declined substantially in the last 25 years.
and that living alone has risen. Increasingly, adult Canadians are choosing to live either with members of their nuclear family only, or, if they do not belong to a nuclear family, alone, with no one else in the household. Specifically, the increase in $1'_{H}$ represents such varied phenomena as the decline in the propensity of 1) adults to live as boarders, lodgers and resident employees; 2) young married couples to live with their parents; 3) young unmarried adult children to live in the household of parents; 4) elderly parents to reside with their adult children; 5) spouses or common-law husbands and wives to live together; 6) unmarried adults to live with relatives; and 7) non-related adults to share a residence (Burch et al., 1983:11-12).

Unfortunately, the index cannot inform us as to which one of these was the most salient factor in bringing about the decline in household extension in Canada. However, several studies reviewed in Chapter Two (Glick, 1957; Anderson, 1972; Armstrong, 1972; Berkner, 1972; Laslett, 1972a; 1972b; Pryor, 1972; Modell and Hareven, 1973; Kobrin, 1976a; 1976b; Katz, 1975; Medjuck, 1979; Harrison, 1977; 1981; Wargon, 1979; Smith, 1981; Martin and Cutler, 1983; Roussel, 1984; Sweet, 1984) suggest that the most important factors in the increase in $1'_{H}$ in Canada at the national level are: 1) declines in the tendency of adults to live as servants and boarders and lodgers; 2) decreases in the
tendency of elderly parents, especially widowed women, to live with adult children; and 3) decreases in the co-residence of young unmarried adult children with parents. However, increases in the proportions of multi-person non-family households in recent decades (Wargon, 1979; Harrison, 1977; Sweet, 1984) suggest that the tendency of unrelated individuals to share residences has increased. Thus trends in this type of co-residence are opposite to those in $I'_H$.

The significance of this change for the everyday life of Canadians is evident in the following quote from Kobrin and Goldscheider (1982:103):

Extended household structure implies family ties and relationships that are fundamentally different from nuclear household structures. Household units that are extended beyond the nuclear family are associated with more extensive interaction patterns, greater control over individual resources, and a different family preference structure than are nuclear households. While the absence of household extension does not necessarily mean the lack of other forms of family dominance or interaction, issues associated with privacy, independence, and companionship, as well as attitudes and values regarding broader family responsibilities and obligations, should be related to household structure and living arrangements.

The trends for Canada as a whole mask some interesting regional and provincial variations. The trends in Figure 1 reveal that the pattern of constancy in $I'_H$ up to a certain date and subsequent rapid increase is essentially replicated in each of the three Maritime Provinces. However, the
Increase in headship in these provinces begins in 1941 rather than in 1956 as for Canada as a whole. Until 1931, household headship in New Brunswick was lower than in Nova Scotia and Prince Edward Island. But between 1931 and 1966 the differences between the provinces are inconsistent. After 1966 a clear pattern emerges, with household headship being highest in Nova Scotia and lowest in Prince Edward Island; however, the differences are small. Although household headship in each Maritime province is generally below the national level, with the exception of the 1951-56 period, the magnitude of the difference fluctuates depending on the province and the date. However, between 1971 and 1981 the trends in each of these provinces are parallel to those of the nation as a whole, though the levels are lower.

Figure 2 displays the trends for Canada, Quebec and Ontario. Except for the higher headship levels in Ontario in 1921, 1931 and 1941, there are few consistent differences in household complexity between Ontario and Quebec. Even in 1921, 1931 and 1941 the differences are relatively small. The general similarity of \( l'_{H} \) in Quebec and Ontario is very interesting given the differential characteristics often attributed to French and English-Canadian families historically. For example, the French-Canadian family in earlier times has been suggested to have had "high fertility, extended structure, cohesive organization and an other-worldly focus" whereas "the English-Canadian family is
assumed to historically exhibit average fertility, nuclear composition, detached interpersonal relationships, and a strong material focus" (Gaffield, 1979:48). The results from the present analysis suggest that at least a part of the stereotypical image of the French-Canadian family historically is invalid for the twentieth century. In his analysis of household structure among English and French-Canadian families in rural Ontario in the 1851-71 period, Gaffield (1979:53) found no cultural difference either. After 1956 all differences in household complexity between Ontario and Quebec essentially disappear, and the trends in these provinces after 1961 are virtually identical to the national average.

The trends in the Western provinces are presented in Figure 3. British Columbia displays extremely low household headship during the first two decades of the century, particularly in 1911. After 1911, it rises until 1941, remains relatively stable between 1941 and 1956, and then increases sharply between 1956 and 1981. The low rates for British Columbia during the early period are most probably attributable to the nature of immigration to the province. During the Gold Rush of the 1850's and the building of the Canadian Pacific Railway in the 1880's many Chinese males immigrated to British Columbia. Seventeen thousand Chinese males were brought to Canada during the building of the railway alone. It was believed that once the railway was
built, these men would return to their homeland. Instead, many chose to remain in Canada. Furthermore, despite such barriers as head taxes, Chinese immigration to Canada during the late nineteenth and early twentieth centuries continued (Somerset, 1980:5).

The importance of the Chinese immigration to British Columbia for household formation arises from the fact that out of economic necessity, the Chinese often had to live together in communal households (Somerset, 1980:7). This practice would lead to low rates of household headship in the province.

In contrast to British Columbia, the other three Western provinces, particularly Alberta and Saskatchewan exhibit extremely high levels of household headship during the early part of the period, much higher than the national average. Headship in these two Prairie provinces declines until 1931, changes little between 1931 and 1956 and then increases rapidly. The trends in Manitoba are similar to those in the other Prairie provinces although the levels of headship are much lower until about 1971.

Easterlin (1974) has argued that the lower fertility of older established areas in comparison to the newly settled areas of the United States in 1860 was related to the declining availability of land in the older areas. The higher headship rates of the Prairie provinces during the earlier part of the century can also be attributed to land
availability. As a result of the desire for the settlement of the West on the part of the government and the Canadian Pacific Railway, land in these provinces was made available to settlers at a relatively low cost. The new settlers would have found it easy to set up households and homesteads separate from other people. The reason for the substantially lower headship in Manitoba in comparison to Alberta and Saskatchewan probably has to do with the fact that settlement in Manitoba began earlier and by the turn of the century most of the free homesteads in Manitoba had been taken (MacLeod, 1967:211-231).

An additional reason for the high household headship in the Prairies in the early period is that during the pre-World War I period immigration to Canada from the United States, Britain and Continental Europe was high. Many of these newcomers, as well as native-born Canadians, were migrating to the West (MacLeod, 1967:265-269). Since many, if not most people in the Prairie provinces would be migrants, they would have few relatives in these places with whom they could share a residence. The simultaneous existence of migration and land availability most likely accounts for the extremely high household headship in Alberta and Saskatchewan during the early decades of the twentieth century.

Over time household headship in the four Western provinces converges. A comparison of Figure 1, 2 and 3
reveals that with the exception of British Columbia until 1931, household formation in the West has always been greater than in the remainder of Canada. Until about 1956, the patterns in the Maritime provinces do not stand apart from those in Central Canada. After 1956, although levels of household headship in the four western and five eastern provinces appear to have converged considerably in comparison to the earlier differentials, a clear East-West gradient is evident. The West displays the highest levels of separate living and the Maritimes the highest levels of co-residence. In one way the regional differences in 1981 are even more apparent than in the earlier part of the twentieth century as the variation among the provinces of each region narrows considerably over time, while the differential between regions remains or appears.

In conclusion, it is evident that there has been considerable variation in household structure in Canada and the provinces, both cross-sectionally and historically, during the twentieth century. Since $I'_H$ is standardized for age, sex and marital status, fluctuations in the composition of the population, which affect household formation (Kobrin, 1973; 1976a; Beajot, 1977; Beajot and Bland, 1978; Harrison, 1977; 1981; Sweet, 1984) cannot be held responsible for these cross-sectional and historical variations in $I'_H$. Rather, the trends and patterns reflect the differential behavioural tendencies of Canadians from
different provinces and different time periods to live apart from other people. Four explanations for variations in household composition have been suggested in the literature and will be reviewed in the next chapter. The remainder of this thesis focusses on explaining the cross-sectional and historical variations in L' in the Canadian provinces.
Table 1. $I^*_H$ for Canada and Provinces, 1901-1981

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<td>1.22</td>
<td>1.16</td>
<td>1.08</td>
<td>1.05</td>
<td>1.03</td>
<td>1.04</td>
<td>1.04</td>
<td>1.06</td>
<td>1.10</td>
<td>1.13</td>
<td>1.19</td>
<td>1.25</td>
</tr>
<tr>
<td>BRITISH COLUMBIA</td>
<td>.91</td>
<td>.82</td>
<td>.90</td>
<td>.95</td>
<td>.98</td>
<td>.99</td>
<td>1.00</td>
<td>1.04</td>
<td>1.09</td>
<td>1.12</td>
<td>1.19</td>
<td>1.23</td>
</tr>
</tbody>
</table>

1 Includes Newfoundland from 1951 and Yukon and Northwest Territories from 1956.

2 Figures for Ontario, Quebec and Manitoba for 1901 are not adjusted for the Boundaries Extension Act of 1912.
### Table 2. Ratio of Households to Population for Canada and Provinces, 1901-1981

<table>
<thead>
<tr>
<th>Year</th>
<th>Canada</th>
<th>Prince Edward Island</th>
<th>Nova Scotia</th>
<th>New Brunswick</th>
<th>Quebec</th>
<th>Ontario</th>
<th>Manitoba</th>
<th>Saskatchewan</th>
<th>Alberta</th>
<th>British Columbia</th>
</tr>
</thead>
<tbody>
<tr>
<td>1901</td>
<td>0.199</td>
<td>0.196</td>
<td>0.194</td>
<td>0.182</td>
<td>0.186</td>
<td>0.208</td>
<td>0.200</td>
<td>0.209</td>
<td>0.225</td>
<td>0.215</td>
</tr>
<tr>
<td>1911</td>
<td>0.206</td>
<td>0.212</td>
<td>0.200</td>
<td>0.196</td>
<td>0.185</td>
<td>0.216</td>
<td>0.198</td>
<td>0.245</td>
<td>0.241</td>
<td>0.203</td>
</tr>
<tr>
<td>1921</td>
<td>0.216</td>
<td>0.214</td>
<td>0.208</td>
<td>0.198</td>
<td>0.187</td>
<td>0.232</td>
<td>0.211</td>
<td>0.245</td>
<td>0.240</td>
<td>0.248</td>
</tr>
<tr>
<td>1931</td>
<td>0.220</td>
<td>0.214</td>
<td>0.213</td>
<td>0.207</td>
<td>0.188</td>
<td>0.238</td>
<td>0.214</td>
<td>0.223</td>
<td>0.239</td>
<td>0.263</td>
</tr>
<tr>
<td>1941</td>
<td>0.236</td>
<td>0.215</td>
<td>0.222</td>
<td>0.222</td>
<td>0.199</td>
<td>0.256</td>
<td>0.242</td>
<td>0.240</td>
<td>0.253</td>
<td>0.289</td>
</tr>
<tr>
<td>1951</td>
<td>0.245</td>
<td>0.229</td>
<td>0.233</td>
<td>0.221</td>
<td>0.213</td>
<td>0.257</td>
<td>0.261</td>
<td>0.267</td>
<td>0.268</td>
<td>0.289</td>
</tr>
<tr>
<td>1956</td>
<td>0.246</td>
<td>0.229</td>
<td>0.235</td>
<td>0.228</td>
<td>0.218</td>
<td>0.259</td>
<td>0.261</td>
<td>0.267</td>
<td>0.264</td>
<td>0.291</td>
</tr>
<tr>
<td>1961</td>
<td>0.251</td>
<td>0.234</td>
<td>0.239</td>
<td>0.228</td>
<td>0.220</td>
<td>0.264</td>
<td>0.261</td>
<td>0.274</td>
<td>0.264</td>
<td>0.284</td>
</tr>
<tr>
<td>1966</td>
<td>0.260</td>
<td>0.234</td>
<td>0.246</td>
<td>0.230</td>
<td>0.228</td>
<td>0.270</td>
<td>0.270</td>
<td>0.274</td>
<td>0.270</td>
<td>0.284</td>
</tr>
<tr>
<td>1971</td>
<td>0.281</td>
<td>0.251</td>
<td>0.246</td>
<td>0.251</td>
<td>0.241</td>
<td>0.290</td>
<td>0.270</td>
<td>0.290</td>
<td>0.286</td>
<td>0.291</td>
</tr>
<tr>
<td>1976</td>
<td>0.312</td>
<td>0.280</td>
<td>0.294</td>
<td>0.270</td>
<td>0.267</td>
<td>0.319</td>
<td>0.293</td>
<td>0.317</td>
<td>0.314</td>
<td>0.307</td>
</tr>
<tr>
<td>1981</td>
<td>0.340</td>
<td>0.307</td>
<td>0.322</td>
<td>0.322</td>
<td>0.304</td>
<td>0.344</td>
<td>0.322</td>
<td>0.344</td>
<td>0.339</td>
<td>0.363</td>
</tr>
</tbody>
</table>

1. Includes Newfoundland from 1951 and Yukon and Northwest Territories from 1956.
2. Figures for Ontario, Quebec and Manitoba for 1901 are not adjusted for the Boundaries Extension Act of 1912.
Figure 1. I' for Canada, Prince Edward Island, Nova Scotia and New Brunswick, 1901-1981.
Figure 2. I'H for Canada, Quebec and Ontario, 1901-1981
Figure 3. I'H for Canada, Manitoba, Saskatchewan, Alberta and British Columbia, 1901-1981.
CHAPTER FOUR

Explanations of Variations in Household and Family
Size and Structure

4.1. Introduction

Nineteenth century theories of familial change appear to have embodied the moral stances of their proponents (Laslett, 1972a:4). The evolutionary theorists, strongly influenced by Darwin, wanted to explain differences in familial patterns both cross-culturally and historically. They argued that as man had developed so had the form of the family in which he lived, from the primeval or semi-animal horde to monogamy. But when empirical research failed to reveal a relationship between level of technological development and familial type, these theories were rejected (Goode, 1963:3; Laslett, 1972a:4-5).

Le Play, concerned about the rapid social change occurring in Europe as a result of the individualist legislation of the post-Revolutionary era and of industrialization, also proposed a theory of familial change over time. He suggested that there were three types of familial organizations: 1) the patriarchal family; 2) the stem family; and 3) the unstable family. In the patriarchal family, male and sometimes female offspring continued to reside in the parental
household after marriage (Laslett, 1972a:16; Parish and Schwartz, 1972:154-55). Under the stem family organization only one child remained in the household after marriage and inherited the family farm. The others usually departed and established families elsewhere and were compensated for their share of the inheritance; or, they remained single and continued to live on the farm (Berkner, 1972:399-400; Laslett, 1972a:16; Parish and Schwartz, 1972:154-55). The third type of family was essentially composed of the nuclear unit of the husband, wife and their children. The children left the parental home when they reached adulthood. The family disintegrated at the death of—the parents, when the property was distributed to the children (Laslett, 1972a:17; Parish and Schwartz, 1972:154-55).

Both the patriarchal and stem types were "stable in structure and faithful to the family line" while the former was also faithful to tradition (Laslett, 1972a:16). As society underwent transformations the patriarchal family was replaced by the stem family. But Le Play did not yet view this familial change as undesirable. The unstable family, however, took the place of the stem family "when bad customs and laws undermined patriarchal authority and led to property division at each succession" (Laslett, 1972a:17). This familial transition was viewed as leading to "instability, decay and the decline of the nation" (Laslett, 1972a:17). This chapter examines some of the more recent explana-
tions for variations in household and family structure.

4.2 The Industrialization/Urbanization Explanation

One popular explanation, based on classical sociological theory, suggests that historical, cross-cultural, and cross-sectional variations in household and family structure are due to variations in the levels of industrialization and urbanization (Goode, 1963; Burch, 1967; Laslett, 1972a; Kertzer, 1978; Medjuck, 1979; Smith, 1981; Cherlin, 1983). The hypothesis suggests that "within societies . . . extended families are more prevalent in rural than in urban areas; cross-culturally, that extended families are more prevalent in under-developed than in developed societies" (Burch, 1967:347). Historically, it associates the decline of extended families and households and the rise of the nuclear unit with the processes of industrialization and urbanization (Goode, 1963; Burch, 1967; Laslett, 1972a; Kertzer, 1978; Medjuck, 1979; Smith, 1981; Cherlin, 1983).

Medjuck (1979:276) has suggested that the functionalist lists were the strongest proponents of the view that industrialization and family nuclearization were linked. His excellent synopsis of their arguments is worth summarizing here. According to Medjuck (1979:276-77), these theorists argued that before industrialization the family performed seven functions. As a result of the major technological innovations that accompanied the Industrial Revolution, the
functions of the family also underwent a transformation and a concomitant alteration in family structure occurred.

The function of the family during industrialization was to provide support for its members against this new social order, a system based on rational, impersonal and universalistic criteria. The individual could escape from this world within the sanctuary of the family, and the nuclear family could provide this haven. In addition, the nuclear family was better able to provide the particular form of socialization necessary to promote the values of this new, rational, industrial society -- affective neutrality, achievement and, above all, individualism. The extended family, therefore, being no longer functional, disintegrated (Medjuck, 1979:277).

One of the earliest attempts to specify the nature of the relationship between industrialization and urbanization and family nuclearization was made by Goode (1963). Goode concluded that all five of the cultural areas which he studied were experiencing industrialization and that their family systems were also moving towards the conjugal family system (Goode, 1963:368). He suggested that although the family systems in all societies were affected by industrialization and urbanization, the amount of change in the family unit is not a simple function of these two factors either alone, or in conjunction. Rather, the theoretical relationship between industrialization and family nuclearization is not clear. The empirical findings indicated that the familial changes which had occurred had been much more rapid than could have been predicted on the basis of Industrialization (Goode, 1963:369).
Although ideological variables, for example the ideology of the nuclear family, were seen as playing an important role in the process of familial change, it was argued that "the ideology of the conjugal system would have only a minimal effect if each newly emerging system did not furnish some independent base for implementing the new choices implicit in the ideology" (Goode, 1963:369). Therefore, five avenues through which the process of industrialization can undermine the traditional family system were identified (Goode, 1963:369-70):

1) Industrialization requires geographic mobility thereby reducing the quantity and quality of kin contact.
2) Industrialization leads to differential social mobility between members of a kinship group "thus creating discrepancies in styles of life, taste, income, etc., and making contact somewhat less easy and pleasant".
3) In urban-industrial societies various agencies and organizations deal with the problems that in the past were handled by the kin network, and therefore the importance of the corporate kin groupings has diminished.
4) The value structure underlying industrialization emphasizes achievement rather than ascription. Relatives have few rewards to offer an individual and therefore cannot maintain control over him. At the same time, with industrialization an individual can be successful on his own account and need not consult his kin regarding important decisions.
5) Because of the job specialization feature of industrialization it is unlikely that kin can obtain jobs for each other and therefore cannot maintain control over each other.

Results of empirical studies have challenged the notion that there is a simple linear relationship between industrialization and family nuclearization and led to qualifications of the original hypothesis. Some of the studies reviewed in Chapter Two suggest that even in preindustrial societies most households and families are small in size and relatively simple in structure, suggesting therefore that industrialization/urbanization and familial change are not related in a simple linear fashion (Burch, 1967; Blayo, 1972; Dupaquier and Jadin, 1972; Laslett, 1972a; 1972b; Van der Woude, 1972).

Studies that have examined household structure during the early phases of industrialization and urbanization have either found no change in household size and structure, or, suggest that household structure may become more complex during the early period of industrialization/urbanization (Burch, 1967; Anderson, 1972; Paydarfar, 1975; Kertzer, 1978). Paydarfar (1975) examined the relationship between modernization and household size in 13 Iranian provinces in 1956 and 1966 using census data. A composite index consisting of indicators of levels of education, urbanization and industrialization was employed as a measure of modernization. The results indicated no significant
relationship between modernization and household size in either year. It was suggested that high fertility, the presence of servants and the fact that modernization was still in its early stages in Iran account for the fact that household size in the more modernized provinces did not differ from that in those which were less developed.

An analysis of the change in household composition in Bertalla, Italy during the period of early industrialization and urbanization (1880-1910) was provided by Kertzer (1978). Data from the annual parish censuses conducted by the parish priest were used. The results indicated very little change in household structure between 1880 and 1910 (Kertzer, 1978).

Kertzer suggested that a simple rural/urban or agricultural/industrial dichotomy is inappropriate for understanding household and familial change. Rather, "household structure may reflect less such lines of division than it reflects access to the means of production" (Kertzer, 1978: 15). In areas where farmers own their land or sharecropping is prevalent, the household, as the unit of production, will be motivated to maximize production. Such conditions will be conducive to the formation of large and complex households. But if the relationship to the means of production consists of wage labor then "the household is not the unit of production, and the pressure toward the formation of complex households may be absent" (Kertzer, 1978:15).
When household structure of urban wage labourers, farm wage labourers and sharecroppers and farm renters in Bertalia in 1910 was compared, this thesis was essentially borne out. The difference in the percentage of complex households among urban wage labourers (26 percent) and farm wage labourers (34 percent) was slight. Among sharecroppers and farm renters the prevalence of complex household (72 percent) was much higher than among wage labourers, urban or agricultural (Kertzer, 1978:15-16).

Kertzer argued that in Bertalia, over the 1880 to 1910 period, the relationship to the means of production changed little (1978:15). There was only a slight decline between 1880 and 1910 in the proportion of agricultural households where the household formed the basic unit of production (from 13% in 1880 to 7% in 1910). Therefore "such a shift would not be expected in itself to produce a great impact on the pattern of household composition of the entire parish" (Kertzer, 1978:16).

Additional explanations for the failure of household structure to become less complex with increasing industrialization and urbanization were also suggested. First, housing availability does not appear to have kept pace with demand over the 1880-1910 period. Second, whereas young people living in rural areas often had to leave home to find employment, this was not so in the urban areas. A young urbanite could find employment where he/she lived and
continue to reside in the parental household (Kertzer, 1978:17-18). Third, despite the increased geographic mobility of the population during the early phase of urbanization and industrialization, a reduction in the proportion of complex family households did not occur because complete families were migrating and "many of the migrant families entered the parish as complex structures and/or joined kinsmen in Bertalia to constitute complex-family households" (Kertzer, 1978:19-20).

In his international analysis of household size and structure, Burch (1967) noted that in general small average household sizes were a characteristic of modern industrialized nations rather than of contemporary underdeveloped countries. However, his data suggested that at even earlier stages of development household size might have fallen somewhere between these extremes, in other words that the contemporary under-developed nations were in the early stages of modernization and that their household size had increased with the onset of industrialization and urbanization. He suggested that this could occur simply because the average number of surviving children would increase (Burch, 1967:360). When fertility began to decline household size would also decrease (Burch, 1967:361).

In most of the developing countries which he examined "average household size and the size of the nuclear family component" were larger in the rural areas in comparison to
urban areas (Burch, 1967:361). However, no consistent relationship between urbanization and the average number of other relatives per household was found. In some nations, for example Venezuela, the number of other relatives per household in urban areas was larger than in rural areas.

It was concluded "that the non-nuclear component of the family may not uniformly decrease in urban areas of developing nations" and that "this fact calls for some modification of prevailing views about the 'breakdown of the extended family' in the face of modernization" (Burch, 1967:362-63). One modification of the traditional view which was suggested was that there may be "a transitional phase of development during which the urban family is temporarily and in some respects more extended than the rural family" (Burch, 1967:363).

Similarly, Anderson (1972) has concluded that urbanization and industrialization in Preston, England in 1851 led to an increase in the co-residence of parents and married children and that of young, married couples with unrelated families (1972:225). This conclusion was based on the greater prevalence of these types of living arrangements in Preston in 1851 than in preindustrial and modern-day England and Wales (Anderson, 1972).

Apparently, the reason why the co-residence of old people with their children was generally rare during the nineteenth century and preindustrial times is that these
societies were poor. After people had provided for members of their own nuclear family there was little left over to provide for anyone else, particularly an older person who could contribute little in return. If one did not take the elderly individual in, the Guardians ensured that the old person did not die of want and his/her standard of living probably would be no lower than if the relatives had taken them in (Anderson, 1972:229).

He argued however, that in the nineteenth century cotton towns, poverty was a little less severe and lasted for a shorter period than in preindustrial times and other nineteenth century towns. Therefore, if one took in an elderly relative, the drain on resources would not be as great. But more importantly, in the cotton towns the family income could actually be increased by taking in elderly relatives. The relative could provide child care and perform domestic services while the wife worked (Anderson, 1972:229-30). "In this way the mother could have child and home looked after better, and probably more cheaply, than by hiring someone to do so, and the income she brought in kept the relative and gave a considerable surplus to the family budget" (Anderson, 1972:230). If the wife was not employed the old persons could perform similar services for neighbors who were, and thus earn their keep (Anderson, 1972:230). Anderson (1972:230) concluded that "it is, then, perhaps not surprising that few old people lived alone".
Anderson (1972) also presented data to support his special interpretation. In Preston, 11 percent of the households whose standard of living was 20 standard deviations above the poverty line contained relatives who could not support themselves, whereas only 2 percent of households with a standard of living within 4 standard deviations of the poverty line did. In addition, "households with children under ten where the wife worked were three times as likely to have had a co-residing grandmother" (Anderson, 1972:231). Apparently, sometimes people took in nonrelatives free of charge in order to obtain such services, or had their parents come from the rural areas to live with them (Anderson, 1972:231-32).

Smith (1981) has suggested that it was the transition from industrial to post-industrial rather than from pre-industrial to industrial that led to familial change. In addition, he has argued that data for the United States do not support the curvilinear hypothesis suggested by Anderson.

Multivariate cross-sectional analyses of the determinants of household structure at the micro and macro level have sometimes included measures of urbanization as an explanatory variable (Chevan and Korson, 1975; Michael et al., 1980; Burch et al., 1983; Pampel, 1983; Wister and Burch, 1983). The findings from these studies have been inconsistent in regard to the relationship between urbaniza-
tion and living arrangements.

In their study of the determinants of the cross-state variations in living alone among elderly widows and young singles in the United States in 1970, Michael et al., (1980) found no significant association between urbanization and living alone. Similarly, Wister and Burch (1983) did not find urban/rural residence to be related to the household status of elderly Canadian women.

In contrast, Cheván and Korson's (1975) multiple classification analysis of living arrangements of widows in the United States and Israel suggested that urbanization and the living alone among widows in Israel were related (beta = .061). However, urbanization was less important in explaining the variations in the living arrangements of widows in the United States (beta = .015). The magnitude of the relationship in both countries is very small.

In his analysis of living arrangements of adults aged 25 and over, Pampel (1983) pooled the data from the Public Use Samples of the 1960 and 1970 censuses of the United States and the Current Population Survey of 1976. Measures of urbanization, however, were only available in the PUS data. Analysis revealed that the relationship between urbanization and living arrangements was significant. Pampel (1983), however, did not report the value of the coefficient and therefore the strength of the relationship cannot be determined. Burch et al. (1983b) analyzed the
cross-sectional relationship between $I'_H$ and several independent variables in the individual states of the United States in the years 1900, 1920, 1940 and 1970. Their results indicated that only in 1970 was there a significant, positive relationship ($\beta = .33$) between urbanization and $I'_H$.

In conclusion, then, it appears that the relationship between household structure and industrialization and urbanization, either historically or cross-sectionally, is not entirely clear at the micro or macro-level. However, the findings certainly do not support the hypothesis of a simple, linear inverse relationship. Studies of household structure in preindustrial societies indicate that most households and families tend to be small in size and simple in structure, suggesting therefore that industrialization/urbanization and familial change are not related in a linear fashion (Burch, 1967; Blayo, 1972; Dupaquier and Jadin, 1972; Laslett, 1972a; 1972b; Van der Woude, 1972).

Those who have examined change in household structure during the early phases of industrialization and urbanization have either found no change (Paydarfar, 1975; Kertzer, 1978), or suggest that households may become more complex during the early period of these processes (Burch, 1967; Anderson, 1972). It has also been suggested that it was the transition from industrial to post-industrial rather than from preindustrial to industrial that led to familial change.
(Smith, 1981). The findings from multivariate cross-sectional analyses of the determinants of household structure have been inconsistent, both at the micro and macro-levels (Chevan and Korson, 1975; Michael et al., 1980; Burch et al., 1983b; Pampel, 1983; Wister and Burch, 1983).

4.3 Additional Explanations

4.3.1 Introduction

Aside from the modernization hypothesis, three other explanations have been suggested in the literature to account for variations in household structure: 1) the tastes or preferences explanation; 2) the availability of kin hypothesis; and 3) the income explanation. The income explanation assumes that people want autonomy and privacy. "With higher incomes, persons can afford to purchase the autonomy and privacy that comes from living alone; persons with low incomes must reduce monetary costs -- while increasing the psychic costs of foregoing desired privacy and autonomy -- by sharing living arrangements" (Pampel, 1983:433). It is argued that variations in income account for both historical and cross-sectional variations in household structure (Carliner, 1975; Michael et al., 1980). The strongest proponents of the income explanation are Michael et al. (1980).

In contrast to the income explanation, the tastes and preferences explanation suggests that in recent years
changes in tastes and preferences for various living arrangements have occurred so that people now use their income to purchase independent living quarters rather than other things. "Thus increases in income before 1940, before structural changes in tastes for privacy and autonomy had occurred, did not translate into higher proportions living alone" (Pampel, 1983:434). It is argued that changes in preferences for various living arrangements during the last few decades have led to alterations in household structure independently of income (Pampel, 1983:434). The hypothesis was originally proposed by Beresford and Rivlin (1966), and was not intended to account for cross-sectional variations in living arrangements. However, cross-sectional variations in living arrangements have been related to differentials in tastes and preferences (Kobrin, 1981; Kobrin and Goldscheider, 1982; Thomas and Wister, 1984).

The availability of kin hypothesis suggests that because of declining fertility and perhaps increased mobility, the number of potential co-residents for the elderly has declined, therefore living alone among this group has increased (Kobrin, 1976a; Harrison, 1981). This explanation has also been invoked to explain cross-sectional variations in living arrangements (Harrison, 1981; Thomas and Wister, 1984; Wister and Burch, 1984). Although the theory of both micro and macro-level variations in household structure is not well developed, at the micro-level these
three hypotheses when taken together, suggest "a broad behavioural model of choice guided by tastes or preferences in the face of constraints" (Burch, 1979:179).

In the next sections, studies that have either tested the validity of one or more of these hypotheses, or have employed one or more of these explanations to account for historical and cross-sectional variations in household structure will be described. As most studies include variables that are relevant to all three hypotheses, it was difficult to organize the studies for presentation. It was decided that the presentation should be organized according to the main hypothesis that was being tested or advanced in the study. In the final section of this Chapter the implications of the findings of various studies for the validity of each of the four explanations will be discussed.

4.3.2 The Tastes and Preferences Explanation

Beresford and Rivlin (1966) were among the first to document the increase in privacy, which they defined as "the occupancy by an individual or a nuclear family of a separate dwelling unit not shared with other relatives or non-relatives" (p. 247), in the United States in the post-World War II period. Their explanation of the variation in household structure over time represents the first major departure from the traditional industrialization/urbanization perspective.
Their findings indicated that household composition in the United States had altered substantially between 1940 and 1960 (Beresford and Rivlin, 1966). In order to determine whether or not the post-war rise in separate living in the United States was of a recent nature, Beresford and Rivlin (1966) compared census data on the household relationships of the young in Massachusetts for the years 1885, 1940 and 1960. The data suggested that most of the change in household composition in Massachusetts had occurred after 1940 (Beresford and Rivlin, 1966:248-250). Since the changes which had occurred in Massachusetts between 1940 and 1960 were similar to those that took place in the United States as a whole, and because they found no reason to suspect that household structure in this state in 1885 was atypical, they concluded "that the increase in privacy which occurred in the country as a whole after World War II was a new phenomenon, not a continuation of a long trend" (Beresford and Rivlin, 1966:250).

In their attempt to explain the post-war rise in separate living in the United States, Beresford and Rivlin noted that it had occurred simultaneously with increasing income. However, rising income provided an insufficient explanation for increased privacy during the post-war period since incomes had risen considerably between 1885 and 1940 but the data for Massachusetts had indicated little change in household structure between these two dates. Therefore,
Beresford and Rivlin concluded "that a basic shift in tastes occurred" around 1940 "after which people tended to use their rising incomes to purchase additional privacy" (1966:254).

In essence, then, in their attempt to explain the post-war increase in separate living in the United States, Beresford and Rivlin (1966) attribute a major causal role to changes in tastes and preferences governing the household status choice of individuals. They do not, however, provide an explanation for why preferences for various alternate living arrangements changed in the post-war period after remaining constant for so long.

Chevan and Korson (1975) attempted to demonstrate that family modernization, which they defined as "the adoption of a set of norms, attitudes, and values which lead to changes in family structure" (p. 517), was a universal trend by comparing the living arrangements of widows in the United States and Israel in 1960/61. The effect of age, children ever born, ethnic-religious group membership, labour force participation, education, number of times married, age at first marriage and place of residence (central city, other urban and rural) on the tendency of widows in both countries to live alone was assessed through multiple classification analysis. Overall, the results suggested that even with other things controlled, an Israeli widow was less likely to live alone than her American counterpart (Chevan and Korson,
Age and children ever born were the strongest predictors of living alone in both countries followed by ethnic group membership and labor force participation. The effects of the remaining variables were relatively small (betas ≤ .061). The correlation between the order of the beta coefficients in the two countries was quite high (r = .833) (Chevan and Korson, 1975:513-515). On the basis of the similarity of the relationships between the independent variables and living arrangements in the United States and Israel, Chevan and Korson concluded that "as different societies and subcultures modernize, their family structures come to resemble one another" (1975:517). It is not clear, however, how increasing education, urbanization, etc. lead to changes norms, attitudes and values which govern family structure.

Chevan and Korson suggested five additional factors, not measured in the study, which would aid in achieving a better understanding of the living arrangements of widows: health, family attitudes and values; personality factors, availability of role models for children of migrants; and income, which was unavailable for Israel (Chevan and Korson, 1975:516).

Thomas and Wister (1984) examined the effects of cultural or normative structures, as measured by ethnicity on the tendency of older previously married Canadian women
to live alone or with unrelated persons in 1971. The dependent variable was dichotomized into living alone/not living alone, with those who were living with nonrelatives being placed in the first group. The independent variables which were included in the analysis were ethnicity, income, education, age and fertility (Thomas and Wister, 1984).

Two discriminant analyses, one in which ethnicity was dichotomized into the British/French categories and one where it was dichotomized into the Jewish/Italian categories, were undertaken. The rationale behind using ethnicity as a measure of cultural or normative structures underlying living arrangements was "that specific differentials in household-family structure by ethnicity can be attributed to variations in kinship ties and responsibilities and that these variations reflect cultural diversity after controlling for major socioeconomic and demographic correlates" (Thomas and Wister, 1984:305). A comparison of the British and French was undertaken because previous research had suggested that kinship ties among French Canadians are very strong. Jews and Italians were compared because both groups appeared to have norms of co-residence. However, since Jews tend to have high income, high education and low fertility, it was expected that once these factors were controlled there would be no differences between the living arrangements of Jews and Italians (Thomas and Wister, 1984:305-306).
The strongest predictor of living arrangements in both subsamples was fertility. The magnitude and the direction of the coefficients were identical in both sets of analyses. Thus, Kobrin's (1976a) availability of kin hypothesis was supported (Thomas and Wister, 1984). It was argued that "lower fertility limits the number of potential alternatives that an older woman has when deciding with whom to live once out of an intact marital relationship"... "higher completed fertility expands the opportunity structure for co-residence at advanced ages" (Thomas and Wister, 1984:307).

The second most important predictor of living arrangements of older women was ethnicity, although, the magnitude of the coefficient was larger for the Jewish/Italian than the British/French subsample. The fact that the ethnic differential in living arrangements persisted even after various social, demographic and economic variables had been controlled implies according to Thomas and Wister "that cultural factors affect tastes and preferences that shape decisions about independent living" (1984:308).

Age, education and income also exerted significant influences on the tendency to live alone among both groups. However, the effect of age, although similar in magnitude, was positive among the Jews/Italians and negative among the British/French. The finding of the negative association between age and living alone among the British/French was
taken as partial support for Shanas' (1962) suggestion that decreasing functional capacity with increasing age makes it more difficult to live alone (Thomas and Wister, 1984:308-309).

Thomas and Wister argued that "the independent effect of education on the tendency to live alone suggests that education is best understood as an attitudinal variable or perhaps as an indicator of coping ability, rather than its more common association with socioeconomic status" (Thomas and Wister, 1984:309). Although income did significantly increase the tendency to live alone among both groups, the effect was not strong. They suggested therefore that Michael et al's. argument that living alone reflects an "economic demand for privacy" is questionable (Thomas and Wister, 1984:308-309).

4.3.3 The Income Explanation

Carliner (1975) examined the factors associated with household headship among married and unmarried adults in the United States, and suggested factors that might have contributed to increases in household headship among both groups since 1940. In 1970 98.6 percent of all married couples headed their own households in comparison to 93.2 percent in 1940. Married couples who were not heading their own households in 1970 were the very young, the elderly, recent migrants and those with low incomes. However, migration
only accounted for a small percentage of married couples who were doubled-up. In addition, Carliner argued that even those with low incomes did have sufficient monetary resources to maintain a separate residence (Carliner, 1975:28-30).

The increase in headship among married couples since 1940 did not appear to be attributable to alterations in the age and racial composition of the population. Despite the fact that Carliner could not explain "why an increase in income of 50 per cent in the 30 years before 1940 should have led to an increase in doubling but an income increase of 100 per cent in the 30 years after 1940 led to a dramatic fall", Carliner argued that "I am still inclined to attribute the decline in doubling since 1940 to increased incomes" (1975:30). Unfortunately, aside from the fact that both headship and income had risen since 1940, and the fact that income was an important correlate of household headship among married couples in 1970, little evidence to support such a conclusion was presented.

Headship among unmarried persons in the United States also rose between 1940 and 1970. It was suggested that changes in the demographic composition of the unmarried population could not account for the increase. Increases in headship among the unmarried were also attributed to rising incomes (Carliner, 1975:35-36).

Using data from the 1967 Survey of Economic
Opportunity, Carliner conducted a multiple regression analysis of the determinants of household headship among unmarried individuals. The independent variables included dummies for age, marital status and sex, rural, South, race, and women with children under the age of twenty-one. Income was measured at the interval level (Carliner, 1975:32).

The results indicated that there were significant differences in headship among the previously married and the never married, among both men and women. Although there were no sex differences in headship among the never married, among the previously married, women were more likely to head their own households than men. Carliner suggested that "perhaps women who have been housekeepers during a marriage in which the man worked outside the home feel more comfortable continuing to maintain their own homes alone than do the men" (1975:32-33).

Southern and rural residence each decreased the probability of being a household head by 3.2 percent, while having minor children increased it by 21.9 percent. The effect of income on headship was strong and positive. Race did not exert an influence on household headship (Carliner, 1975:33-35). Overall, Carliner concluded that among the unmarried, age, sex and marital status were the most important determinants of household headship (1975:37).

Although the income hypothesis had been previously suggested (Beresford and Rivlin, 1966; Carliner, 1975), it
has been most clearly articulated and most forcefully posed by Michael et al. (1980). The theoretical model which they employ is clearly micro-economic in nature (Michael et al., 1980:40):

We view the decision to live alone as a reflection of an economic demand for privacy or autonomy. Thus, changes in income and prices are considered likely to affect this behaviour. Previous writers have identified income as an important determinant of the decision to live alone, and many of the other variables suggested in the sociological literature can be thought of as affecting the shadow price of living alone compared to alternate living arrangements.

Michael et al. (1980) analyzed the cross-state variation in the tendency of elderly widows and young single persons to live alone in 1970 through the use of multiple regression. The regression equations thus estimated were then used to explain the increase in separate living among these two groups between 1950 and 1976. In addition to income, other independent variables employed in the regressions for young singles were education, mobility, race and a dummy variable for whether or not abortion was legal in a state in 1970. Additional variables included in the regressions for widows were education, mobility, race and the ratio of women aged 65 and over to women aged 35-44 (Michael et al., 1980:39-43).

The major determinant of the cross-state variation in the proportions of young singles and elderly widows living alone was income, although, among widows, the coefficient
was less stable due to the difficulty in measuring their income. Abortion, mobility and education had positive effects on the tendency of young singles to live alone, whereas race had a negative effect. Measures of urbanization, percent Catholic and an age-specific sex ratio were also experimented with, but none of these variables had coefficients which were statistically significant. Among widows the only other variables besides income that had statistically significant effects on living alone were mobility and race. However, when Alaska and Hawaii were excluded from the regressions, the race coefficient was no longer significant (Michael et al., 1980:43-48).

When the regression equations estimated from cross-sectional data were used to explain the increase in living alone between 1950 and 1976, it was found that about three-fourths of the increase in living alone among each group studied was accounted for by income (Michael et al., 1980:49). However, at this point, Michael et al., confronted the same problem as their predecessors (1980:45):

Income growth has characterized the American economy throughout its history and one cannot extrapolate backward in time from the regression slope coefficient on income to infer the percentages living alone decades ago. (One would find nonsensical negative percentages).

They argued that a solution such as that suggested by Beresford and Rivlin "that in recent decades a structural change occurred which renders extrapolation in the past
inappropriate" is unsatisfactory (Michael et al., 1980:45). Rather, their solution to the problem was to assume that the relationship between income and living arrangements over time is logistic. Although the logistic equations were very similar to the linear ones, Michael et al. preferred the logistic model as it "is capable of dealing with nonlinearities which must have existed if the underlying structure did not change in the post-war era" (Michael et al., 1980:45). Their interpretation of the "S-shaped relation between the propensity to live alone and income is that a threshold income was reached sometime in the 1940s after which further increases in income had a sizeable impact on the decision to live alone" (Michael et al., 1980:45). Why Michael et al. (1980) chose to assume that the underlying structure did not change in the post-war period is unclear.

Burch et al. (1983b) provided a test of Michael et al.'s (1980) income threshold hypothesis by analyzing the cross-sectional cross-state variations in $l'_H$ for the years 1900, 1920, 1940 and 1970, through regression. It was argued that if the income threshold hypothesis was valid, then the regression coefficients of income would be zero in 1900 and increase steadily to become positive in 1970 (Burch et al., 1983b:21). The regression of $l'_H$ on income alone revealed that the coefficient was positive in 1970, negative in 1940 and 1920 and non-significant in 1900. They interpreted these results as being consistent with the threshold
hypothesis (Burch et al., 1983b:25).

In the next set of regressions, ten additional variables, density, education, divorce, daughter-mother ratio, nativity, child-woman ratio, migration, urbanization, race and female labor force participation, were added to the model. In this set, the variables that had significant effects on I'H were density, education and urbanization in 1970; income, education, female labor force participation, migration and race in 1940; and the child woman ratio in 1900. None of the coefficients in the regression for 1920 were significant. It was concluded that "these results, in contrast with the zero-order results, are not particularly supportive of the income threshold hypothesis, nor indeed with the general idea that income is the dominant causal factor in mid-century changes in household status" (Burch et al., 1983b:32). The fact that the regression equation was different at each date, indicates that there was "a different underlying structure at each census date" (Burch et al., 1983b:32). This implies that the Michael et al. (1980) assumption that the regression equation estimated from cross-sectional data for 1970 can be used to explain post-war changes in living arrangements is inappropriate (Burch et al., 1983b:32-33).

Burch et al. concluded that many of their results "may be interpreted in terms of a cultural change model that was explicitly rejected by Michael et al." (1983b:39). First,
the shift in the relationship between I'\(H\) and education from zero in 1900 and 1920 to positive in 1940 and 1970 suggests according to Burch et al. (1983b) that the association between education and the demand for privacy and autonomy may be curvilinear. It is not clear how this explanation is consistent with the cultural change model. Second, the fact that the relationship between I'\(H\) and the child-woman ratio was positive in 1900, non-significant in 1920 and 1940 and negative although not quite significant in 1970 (p<.13), suggests according to the authors that there was "a more or less homogeneous familistic culture operating across the United States up to 1940 . . . subsequent to 1940, this culture began to break down leading to a situation in 1970 where states retaining the familistic culture were high on fertility and low on headship, and vice versa" (Burch et al., 1983b:39-40).

Third, the fact that the relationship between I'\(H\) and income was negative in 1920 and 1940, suggests that "prior to 1970, the prevailing preference was for co-residence rather than for privacy and independence, and that populations with high incomes were more able to realize it, ceteris paribus" (Burch et al., 1983b:40). Finally, female labor force participation had a negative coefficient in 1940 and its effect on headship in 1970 was not significant. It was argued that this finding was "consistent with the view that up to 1940, the problems associated with non-
traditional employment behavior of women were handled in a traditional manner (the co-residence of kin for childcare and other domestic services). By 1970, the traditional family culture has broken down, and the strong negative relationship has disappeared" (Burch et al., 1983b:40).

Arguing that previous research had been unable to provide adequate tests of the income explanation and the tastes and preferences explanation because of the use of cross-sectional and aggregate data, Pampel attempted to provide a more complete test of these two explanations by using data from the Public Use Samples of the 1960 and 1970 U.S. censuses and a microdata file of the 1976 Current Population Survey (Pampel, 1983:434-35). The analytic technique which was used was regression.

The sample was comprised of unmarried adults over the age of 25. The dependent variable consisted of the living alone/not living alone dichotomy. The predictor variables in the model were income, sex, marital status, race, labor force participation, education and time (Pampel, 1983:437-39). Time was used as an indicator of "the structural context in which individuals make decisions about living alone" (Pampel, 1983:436). Aside from education and income all other variables were dummy variables (Pampel, 1983: 438). Analyses for all unmarried persons and for unmarried persons who were not living with a related child were presented separately (Pampel, 1983:437).
The results for all unmarried persons indicated that only 13 percent of the variation in living arrangements was accounted for by income, time and the compositional variables. Although the effect of income on living alone was positive, both with and without controls for the other variables, it explained less than 2 percent of the variance when other variables were not included in the regression. Similarly, by itself, time explained only .013 of the variation in living arrangements. The inclusion of income and the other variables in the regression suggested that the probability of living alone had increased by .10 over time. The effects of the compositional variables suggested that males, whites, the educated, and the widowed and divorced were most likely to live apart from other people. The relationship between age and living arrangements revealed that the tendency to live alone begins to increase at age 45 and does not begin to decline until age 75 (Pampel, 1983:440-41).

In the analysis of the living arrangements of unmarried individuals not living with related children, neither race nor sex had any effect on the tendency to live alone. While the effects of age and education were smaller than those for the total sample, marital status had a greater effect on the living arrangements of unmarried persons not living with children than it did on those of all unmarried persons (Pampel, 1983:441-42).
It was concluded that although the consumer demand or income explanation was partially supported by the findings, the effect of income on living alone was small. Therefore, "as suggested by theories of changes in structural tastes, factors other than those related to consumer demand may be needed to explain trends in living alone" (Pampel, 1983: 445).

4.3.4 The Availability of Kin Explanation

Kobrin (1976a) analyzed the factors associated with the decline in average household size in the United States from 5.8 in 1790 to 3.0 in 1973. She suggested that while the decrease between 1790 and 1950 could easily be attributed to changes in fertility and mortality levels, the decline since 1950 was due to the increase in very small units and could not be explained in terms of declining fertility. She attempted to determine whether the change since 1950 was also due to alterations in demographic factors, particularly population aging, by examining data on primary individuals by age and sex for 1950 and 1974 (Kobrin, 1976a:127-131). ("A 'primary individual' is a household head who lives either alone... or with unrelated persons" (Kobrin, 1976a:130)).

The analysis of these data suggested that population aging had had little effect on the increase in the number of male primary individuals. The rise in the number of young
men who were primary individuals exceeded the growth in the number of older men who either lived alone or with unrelated persons. Among women, however, the increases in primary individuals occurred mostly at the older ages, indicating that the aging of the population has been quite important in the increase in the number of older women who are primary individuals (Kobrin, 1976a:131). However, a demographic decomposition undertaken to determine the effect of changing population structure on the increase in the number of older women who lived alone or with nonrelatives suggested that only about one-third of it was attributable to population change and marital status change. The remainder was attributable to the increased tendency of older women to live alone or with unrelated persons (Kobrin, 1976a:131-34).

Kobrin argued that the rise in the tendency of older women to live as primary individuals can be explained by the increase since 1930 in the number of older women relative to the number of women in their daughter generation. She suggested that in the past, "elderly relatives, particularly female ones, ordinarily lived with the families of their kin, especially of their children" (Kobrin, 1976a:136). But because of the demographic alterations, in particular declining fertility, since 1930, the availability of relatives with whom an elderly individual might possibly co-reside has declined, thus living alone has had to increase.
Wister and Burch (1983) tested Kobrin's (1976a) availability of kin hypothesis at the micro-level using cross-sectional data on the living arrangements of elderly Canadian women in 1971. The major hypothesis of the study was "that the probability of an older widowed or divorced female being a primary individual should be inversely related to the number of children she has borne" (Wister and Burch, 1983:2).

The variables in the model included age, education, income, urban/rural residence and fertility. Age was conceived of as a demographic factor; children ever born, education and urban/rural residence were conceived to be indicators of social factors; and income was conceptualized as an economic factor. Fertility had the strongest effect on the tendency of an older previously married woman to be a primary individual, followed by age, education and income respectively. The effect of urban/rural residence on the living arrangements of older women was not significant (Wister and Burch, 1983:6-7).

The moderate negative relationship between children ever born and the living arrangements of widows was taken as a confirmation of Kobrin's availability of kin hypothesis. The negative effect of age on the tendency of older women to be primary individuals was interpreted mainly within the context of the constraining effect of poor health with advancing age on maintaining a separate residence. Since
the coefficient of education changed little when income was controlled, it was suggested that the effect of education on living arrangements was through attitudes, with high education implying less traditional attitudes towards living alone. Since income only had a moderate effect on living arrangements, it was argued that Michael et al.'s (1980) hypothesis was only partially supported (Wister and Burch, 1983:7-9).

Wister and Burch (1983) included the interaction between fertility and income in their final regression. The results suggested that those with high income and low fertility were most likely to live as primary individuals, and those with high fertility were least likely to live away from kin regardless of income level (Wister and Burch, 1983:10).

Harrison (1981) examined the increase in living alone in Canada between 1951 and 1976. During this period the percentage of the population who lived alone increased from 1.8 to 5.2 percent. In 1976 almost 17 percent of all households contained only one person, compared to 7.4 percent in 1951 (Harrison, 1981:15). Of those who lived alone in 1976, almost half were young singles or elderly widows (Harrison, 1981:20). Harrison argued that while a part of this rise in one-person households was due to changes in the size and composition of the population, such alterations "were certainly not the sole precipitators of
the growth in living alone" (1981:33).

Therefore, the effect of social and economic changes, in particular income and fertility, on the increase in living alone was assessed through a cross-sectional, cross-tabular analysis of data from the 1971 Canadian Census. In 1971, non-family persons who lived alone had higher incomes than those in other living arrangements (Harrison, 1981:38). Furthermore, a direct relationship between the level of income and "the degree of privacy and autonomy implied by the living arrangement" was found (Harrison, 1981:39). On the basis of this finding Harrison argued "that the choice of living arrangement is constrained by income, and that a number of people who find themselves in a shared dwelling would live alone if they had enough monetary resources" (1981:39-40). He suggested that living alone is not a viable option for individuals who lack sufficient resources (Harrison, 1981:40). Between 1965 and 1976 the incomes (in constant dollars) of unattached individuals in Canada rose by 43.7 percent. Harrison suggested that such growth in income would have increased the number of living arrangement options available to such persons and enabled more of them to live alone (1981:40).

Based on the theoretical rationale that with higher fertility the opportunity structure for living arrangements is increased, the relationship between children ever born and the living arrangements of elderly Canadian widows in
1971 was also examined (Harrison, 1981:43). The results indicated that widows who had no children were more likely to be living alone in comparison to those with children. Furthermore, there was a negative association between a widow’s propensity to live alone and the number of children she had borne. Harrison suggested that elderly widows in 1971 had lower fertility than in 1951 and therefore the opportunities for these women to live with relatives were also lower, thus the tendency to live alone would be higher (Harrison, 1981:54).

In addition to declining fertility the increased mobility of Canadians between 1951 and 1976 was seen as a further constraint on the living arrangements choices available to older women which had resulted in more of them living alone. The growth in the housing supply, particularly apartments, was suggested as an additional factor which had contributed to the increase in living alone in Canada (Harrison, 1981:49-50).

Since there could be a relationship between a widow’s income and her fertility, the joint effects of fertility and income on the living arrangements of widows were examined. Fertility differences affected the living arrangements of those with low incomes to a greater extent than they did those of widows with high incomes. Women who had had at least four children were more likely to be living with relatives than those with fewer children regardless of
income level. Harrison argued that the results of this analysis indicated that overall, the effect of income on living arrangements was more substantial than that of fertility (1981:43-48).

Unlike most of the other studies, the theoretical model employed by Kobrin (1981) and Kobrin and Goldscheider (1982) incorporated all three of the above explanations. Kobrin (1981) studied the effect of age, sex, marital status and income on the living arrangements of nonmarried, non-parenting adults over the age of 25, who were neither students nor resident employees, in the United States in 1970 through multiple regression. The theoretical model employed was a model of consumer choice where "...the decisions to purchase any good are based on income, the price of the good, and the taste for that good relative to other goods" (Kobrin, 1981:371). Accordingly, independent variables were conceptualized as measuring resources, constraints, and preferences. Income was considered to be a measure of resources and it was expected that those with high incomes would be found to live alone more often than those with low incomes. Based on the argument that females take more responsibility than males in maintaining kinship ties, sex was employed as an indicator of preferences. Age and marital status were both conceptualized as constraining the availability of alternate living arrangements. Since additional family ties are created through marriage, it was
expected that the previously married would co-reside with relatives more frequently than the never married. Since the availability of relatives declines with age, the young were expected to live with kin more often than others (Kobrin, 1981:371-72).

The dependent variable was a dichotomy consisting of the living with family/living away from family categories. Aside from income, which was measured in eight equal intervals, all other variables were dummy variables (Kobrin, 1981:373). The predictive power of the model was quite low ($R^2 = .07$). Income had a strong positive effect on non-family living. One unit change in income increased the likelihood of living away from relatives by almost 4 percent. Similarly, divorced individuals were 14 percent more likely to live in non-family settings than the never married. Although widowed women were 20 percent more likely to be living alone or with nonrelatives than single women, no difference between the living arrangements of widowed and single men was observed (Kobrin, 1981:375).

The relationship between age and living arrangements suggested that the tendency to live apart from relatives increases until age 75 and then declines. However, an interaction between age and sex was also observed. Changes in living arrangements with age were much more abrupt among males than females (Kobrin, 1981:375).

It was concluded that the results generally supported
the theoretical model of consumer choice which was utilized. The effect of resources on living arrangements was strong, with those with high incomes being more likely to live apart from relatives. In relation to constraints, as measured by kin availability, the results were inconsistent. The rise in the tendency to live apart from relatives with increasing age was consistent with the view that kin availability declines with age. However, the experience of having been married did not increase the probability of living with relatives as had been expected. In order to account for this finding, Kobrin suggested "that marriage represents a break, not only from the parental household, but also more generally from the family of orientation, so that the widowed and the divorced, despite the increase in the availability of kin, may be less willing to give up the independence they had known during their marriage" (1981:376).

Finally, differential preferences were also found to exert an influence on the choice of living arrangement. Even with other factors controlled, women were more likely to live with relatives than males. Kobrin concluded that "this result suggests that one must often go beyond the demographic considerations of availability and the economic considerations of income to a more sociological understanding of the group norms or preference structures that influence choice" (1981:376).
In a paper co-authored by Kobrin and Goldscheider (1981) the issue of differences in preference structures for various living arrangements was examined more closely. Living arrangements of a subsample of four mother-tongue groups, Greek, Yiddish, Russian and Polish, were examined as well as those of the total U.S. sample examined in the 1981 article by Kobrin. In order to analyze the differences in preference structures, the living arrangements of each of these four groups were compared. Aside from the inclusion of the ethnic subsample, the analysis and the theoretical model were identical to those in Kobrin's 1981 article.

Russian and Yiddish mother tongue groups were 10 percent more likely and the Greeks 8 percent less likely to live in non-family settings than the Poles, the reference group. The amount of variance explained in the living arrangements of the ethnic subpopulation by the model was quite low \( R^2 = .04 \), and considerably lower than that for the total sample \( R^2 = .07 \). In the ethnic subsample, the effect of divorce, widowhood and income was considerably lower, and that of sex only slightly lower than in the total U.S. sample. The effect of age on the living arrangements of the ethnic subsample was similar to that for the total sample, however no interaction between age and sex was found for the subsample (Kobrin and Goldscheider, 1981:113-114).

It was concluded:
... that variation in living arrangements within these ethnic subpopulations is tied primarily to the fundamental considerations of the effects of age on kin accessibility and the biology of aging per se with less discretion for individuals to exercise options such as buying or maintaining as much of the independence associated with marriage when it ends. It also implies that ethnic groups have different family values that are expressed in terms of household living arrangements (Kobrin and Goldscheider, 1982:114-115).

4.4 Conclusion

In conclusion, the results of studies that have examined the effects of variables related to the four explanations on household structure suggest that the utility of a theoretical model in which household composition is conceptualized as a simple linear function of industrialization and urbanization in explaining historical and cross-sectional variations in living arrangements is limited. Although the findings regarding the relationship between these factors and household structure are not entirely clear, they do indicate the lack of a simple linear relationship (Goode, 1963; Burch, 1967; Anderson, 1972; Blayo, 1972; Dupaquier and Jadin, 1972; Laslett, 1972a; 1972b; Van der Woude, 1972; Paydarfar, 1975; Kertzer, 1978; Michael et al., 1980; Burch et al., 1983b; Wister and Burch, 1983).

Beresford and Rivlin's (1966) suggestion that the increase in separate living in recent decades is due to the changes in tastes and preferences for living arrangements
which occurred during the post-World War II era is supported by the findings of other studies (Burch et al., 1983b; Pampel, 1983). Furthermore, tastes and preferences for various living arrangements have also been demonstrated to vary cross-sectionally (Kobrin, 1981; Kobrin and Goldscheider, 1982; Wister and Burch, 1983; Thomas and Wister, 1984).

The findings in regard to the availability of kin hypothesis are more mixed. At the micro-level, availability of kin is an important determinant of the living arrangements of older women (Harrison, 1981; Wister and Burch, 1983; Thomas and Wister, 1984). However, it was less important in explaining the micro-level variations in the living arrangements of the general unmarried adult population (Kobrin, 1981; Kobrin and Goldscheider, 1982). At the macro-level, neither the daughter-mother ratio nor its inverse the mother-daughter ratio are important predictors of household status (Michael et al., 1980; Burch et al., 1983b).

Harrison (1981) suggested that in addition to fertility, population movement also restricts the availability of kin and thus acts as a constraint on living arrangements choices. Only two studies have measured the effect of this variable on household composition, and both use macro-data. Michael et al. (1980) found a relationship between mobility and living alone only among young singles. Burch et al.'s
(1983b) analysis suggested that migration had a significant positive effect on \( I' \) only in 1940 and although the relationship was not significant in 1900, the coefficient for migration was relatively large (beta = .30, significance = .08). Therefore, the availability of kin hypothesis is of limited value in explaining macro-level variations in household composition.

Finally, the income explanation is also supported by the findings of all studies with the exception of Burch et al.'s (1983b) study, where the evidence was inconclusive. However, in none of these studies does income emerge as the major determinant of household composition as suggested by Michael et al. (1980). Therefore it would appear as though Michael et al.'s (1980) view is only partially supported by the empirical findings of various studies.

Unfortunately, all four hypotheses attempt to arrive at singular explanations of variations in living arrangements. It seems that this approach is rather naive. It is highly unlikely that any one particular explanation can account for the variation in any social phenomenon, especially living arrangements. Thus most of the studies reviewed in section 4.3 do incorporate variables related to most of the explanations. However, Kobrin (1981) and Kobrin and Goldscheider (1982) are the first to attempt to incorporate the explanations into one micro-level theoretical model. However, no attempt has been made to combine the four explanations into
a model that might possibly explain the macro-level variations in household structure.

Such a task will not be undertaken in this thesis for several reasons. First, since macro-level studies of historical and cross-sectional variations in household structure are rare, there is not yet enough evidence of the effects of urbanization and industrialization, income, kin availability and tastes and preferences on macro-level variations in household structure in Canada in order to be able to develop and test complex theoretical models. Rather, the relationships between these factors and household structure have to first be established, this is the task of the remainder of this thesis. Second, because of the unavailability of data, cross-sectional and time series observations were pooled in order for there to be a sufficient number of data points to conduct a multivariate analysis. Therefore, the design of the study is already sufficiently complex. Third, as a large part of the thesis was aimed at discovering the variations in household structure in Canada during the twentieth century, a considerable amount of work had already been done before the endeavour to explain the variations could even be undertaken. The additional task of developing and testing a theoretical model appeared to be too ambitious a task.

Therefore, as no readily available theory of macro-level variations in household structure exists, the aims of
the remainder of the study are more modest than testing a theoretical model. Rather, the objective is to determine the relative effects of variables related to each of the four explanations on household structure in the Canadian provinces over the 1921-1971 period.

In the next chapter, the variables used as indicators of industrialization/urbanization, kin availability, income and tastes and preferences will be discussed and specific hypotheses regarding the relationships between the variables and \( I_{H} \) will be presented. In Chapter 6, these hypotheses will be tested through multiple regression and the implications of the findings for the adequacy of each of the four explanations in accounting for the cross-sectional and historical variations in household structure in the Canadian provinces will be discussed.
CHAPTER FIVE

Regression Methodology

5.1 Introduction

In the previous chapter, four explanations of variations in household structure were discussed. However, no testable hypotheses were developed. The purpose of the remainder of this thesis is to assess through multiple regression the impact of variables relating to each of the four explanations on historical and cross-sectional variations in $l\_H$ in the Canadian provinces over the 1921-1971 period. Despite the fact that findings of previous studies suggest that neither industrialization/urbanization (Goode, 1963; Burch, 1967; Anderson, 1972; Laslett, 1972a; 1972b; Paydarfar, 1975; Kertzer, 1978; Michael et al., 1980; Burch et al., 1983b; Wister and Burch, 1984) nor, at the macro-level, the availability of kin are important determinants of household structure, all four explanations will be explored. In this thesis since it is possible that the relationships in the Canadian provinces may differ from those uncovered by the previous studies.

Unfortunately, because of problems of data availability, the analysis could be undertaken only for the decennial census years between 1921 and 1971, inclusive.
Furthermore, because of the small number of provinces in Canada, and the small number of time points for which data were available, the number of observations was insufficient to conduct a multivariate analysis with several independent variables, using either time series or cross-sectional data alone. This meant that the relative importance of each explanation in accounting for provincial variations in household structure could not easily be assessed. Therefore, in order to increase the number of cases, time series and cross-sectional data were pooled. It should be noted that the unit of analysis is no longer province or time, but rather, a particular province at a particular date. The statistical assumptions underlying the pooling of cross-sectional and time series data are discussed in section 5.3.4 below.

As there were nine provinces and six time points, the pooling of time series and cross-sectional data originally yielded 54 cases. However, three observations, Ontario 1951, Saskatchewan 1921, and Alberta 1921, had to be excluded from the regression analysis.

Ontario 1951 was deleted because its residual was more than two standard deviations away from the value predicted by the regression equation. Generally, a residual of this magnitude results from various types of errors. A residual of this size can seriously distort the results and, if no errors can be detected and corrected, the case should be
dropped (Pedhazur, 1982:37-38). Occasionally, however, extreme residuals may be observed even in the absence of errors. This would occur when cases "with a unique attribute, or a unique combination of attributes, may react so uniquely to a treatment as to make them stand out and deviate from the rest of the group" (Pedhazur, 1982:38). Since no errors were detected in the data for Ontario 1951, this latter situation may well explain the extreme residual for this case.

Alberta 1921 and Saskatchewan 1921 were excluded from the analysis because reliable estimates of their respective incomes in 1921 could not be obtained. The problems with the income estimates of these provinces in 1921 are discussed in section 5.4.2 below. The exclusion of Ontario 1951, Alberta 1921 and Saskatchewan 1921 resulted in a final sample size of 51 observations.

The remainder of this chapter is divided into three sections. In the first, the variables which were used as measures of industrialization/urbanization, income, tastes and preferences and kin availability are discussed and the hypothesized relationships between each of these variables and I'W are presented. In the second section, the analytic technique used to test the hypotheses, regression, is described. In addition, the issues and assumptions of regression analysis within the context of this particular study are discussed. In the final section, the variables
are operationalized and data sources are identified.

5.2 Development of Hypotheses

5.2.1 The Industrialization/Urbanization Explanation

Two variables, percent urban and males employed in agriculture were used as measures of industrialization/urbanization. The utilization of percent urban as a measure of urbanization needs little justification. Males in agriculture provides a measure of the industrialization component of the explanation. Where the percentage of males employed in agriculture is high, the level of industrialization is likely to be low.

The original hypothesis regarding the relationship between industrialization and urbanization and household structure suggests that the higher the levels of urbanization and industrialization, the lower the proportion of extended households and families, or, conversely, the higher the level of household headship (Goode, 1963; Burch, 1967; Laslett, 1972a; Kertzer, 1978; Medjuck, 1979; Smith, 1981; Cherlin, 1983).

The hypothesized relationships between the two variables used as measures of industrialization/urbanization and $I'_H$ are as follows:

1) The relationship between males in agriculture and $I'_H$ will be negative.
2) The relationship between percent urban and \( I' \) will be positive.

5.2.2 The Income Explanation

Personal per capita income was the only variable employed as an indicator of the income explanation. Based on the theoretical rationale that higher incomes enable the population to purchase privacy and autonomy in living arrangements (Michael et al., 1980; Harrison, 1981; Pampel, 1983), it is expected that:

3) The relationship between personal per capita income and \( I' \) will be positive.

5.2.3 The Availability of Kin Explanation

The daughter-mother ratio and migration were employed as indicators of kin availability. The choice of the daughter-mother ratio as an indicator of kin availability is directly based on Kobrin's (1976a) suggestion that the recent increase in living alone among elderly women in the United States is due to the rise in the ratio of the number of older women to the number of women in their daughter generation. This situation has resulted in a decline in the number of potential co-residents for older women and thus living alone has increased. Although Kobrin's argument is meant to explain the increase in living alone among a certain group, namely older women, it is also relevant to the present study. Since \( I' \) measures the tendency of all adults in a society to live together or apart (Burch et al.,
1983a), alterations in the living arrangements of elderly women should be reflected in the variations in $I'_{H}$.

Based on the rationale that migration leads to a dispersal of kin who might potentially share a residence, and therefore decreases the range of living arrangements choices (Burch et al., 1983b; Harrison, 1981), migration was also conceptualized as a measure of kin availability. From the above discussion, it can be hypothesized that:

4) The daughter-mother ratio will be negatively related to $I'_{H}$.

5) Migration will be positively related to $I'_{H}$.

5.2.4 The Tastes and Preferences Explanation

Macro-level measures of tastes and preferences are difficult to obtain. In this study, three separate variables, education, time and region, were conceptualized as indicators of tastes and preferences for living arrangements. The use of education as an indicator of tastes and preferences is unusual in that this variable is generally considered to reflect socioeconomic status at the micro-level and modernization at the macro-level. However, micro-level studies (Chevan and Korson, 1972; Thomas and Wister, 1984; Wister and Burch, 1983) have found that education increases the tendency toward separate living independently of income. On the basis of this finding both Thomas and Wister (1984) and Wister and Burch (1983) have argued that
the effect of education on living arrangements therefore operates through the dimension of attitudes or tastes and preferences rather than through the economic sphere. Thus the precedent for conceptualizing education as a measure of attitudes or tastes and preferences has been established. It is also very difficult to conceptualize the effect of increasing education on living arrangements other than through more "modern" attitudes and values toward separate living.

Beresford and Rivlin's (1966) suggestion that the rapid increase in separate living in the United States in the post-World War II period was due to an abrupt change in tastes and preferences for these types of living arrangements was incorporated into the analysis through the use of a dummy variable for the 1951-71 period. The use of time as a measure of abrupt change in tastes and preferences is based on Pampel's (1983:436) suggestion that time provides a measure of "the structural context in which individuals make decisions about living alone". If a rapid shift in tastes did occur in the post-war era as Beresford and Rivlin (1966) suggest, then this variable would have a positive coefficient.

The patterns in I' shown in Figures 1, 2 and 3 indicate that there is a regional component to household headship in Canada. Generally headship is highest in the West and lowest in the Maritimes. This suggests that in the
regression analysis region might be included as a separate variable. Dummy variables for the Maritimes, Quebec, the Prairies and British Columbia, with Ontario being the reference category, were therefore included in the analysis. On the basis of the trends in Figures 1, 2 and 3 it is expected that headship in the Prairies and British Columbia would be higher, and that in the Maritimes lower than in Ontario when all else is controlled; however no difference between headship levels in Quebec and Ontario should be expected. The expectations in relation to the Maritimes and Quebec are supported by the results of at least two studies (Gaffield, 1979; Trovato and Halli, 1983). If the beta coefficients for the regional dummies turn out to be significant after all other variables are held constant, it would suggest that tastes and preferences for living arrangements vary across regions. In conclusion, the hypothesized relationships between variables used as measures of tastes and preferences and $I'_H$ are that:

6) There will be a positive relationship between education and $I'_H$.

7) There will be positive association between the dummy variable for the post-World War II era and $I'_H$.

8) There will be a negative relationship between the dummy variable for the Maritimes and $I'_H$.

9) There will be no relationship between the dummy variable for Quebec and $I'_H$.

10) There will be a positive relationship between
the dummy variable for the Prairies and $I'_H$.

11) There will be a positive association between the dummy variable for British Columbia and $I'_H$.

An additional variable, population density per square mile, was also included in the regressions. The rationale behind its inclusion is Burch et al.'s suggestion that an equation that excludes density may be misspecified. They found that for 1970, when $I'_H$ was regressed on income alone, the coefficient of income was significant and positive; when education was added, the coefficient of income became insignificant. However, when density was added the income coefficient again became significant and positive (1983b:38). Thus their analysis suggests that the effect of density on $I'_H$ should be controlled. It is expected that:

12) There will be a negative relationship between population density and $I'_H$.

Overall, there are twelve hypotheses regarding the relationships between various factors and $I'_H$. In the next section the technique which was used to test these hypotheses will be described.

5.3 Analytic Technique

5.3.1 Bivariate Regression Analysis

The hypotheses presented in the previous section were tested through multiple regression analysis. As multiple regression simply involves an extension of the bivariate
regression model to a situation where there are two or more independent variables (Nie et al., 1975:328), a review of bivariate regression may be useful. Bivariate regression involves the prediction of the values of the dependent variable, Y, on the basis of the linear equation:

\[ Y' = A + BX \]  \hspace{1cm} (5.1)

\( Y' \) represents "the estimated value of the dependent variable \( Y \), \( B \) is a constant by which all values of the independent variable \( X \) are multiplied, and \( A \) is a constant which is added to each case" (Nie et al., 1975:323). The coefficients \( A \) and \( B \) are respectively referred to as the constant and the unstandardized regression coefficient. \( A \) designates "the point at which the regression line crosses the \( Y \) axis and represents the predicted value of \( Y \) when \( X = 0 \)". whereas \( B \) "is the slope of the regression line and indicates the expected change in \( Y \) with a change of one unit in \( X \)" (Nie et al., 1975:323). The estimated values of the dependent variable, or in other words, the \( Y' \) values, are represented by the points on the regression line (Nie et al., 1975:323).

Generally, whenever the above equation is used to estimate the values of the dependent variable, the estimated values will not equal the actual values, unless of course \( X \) and \( Y \) are perfectly correlated. This difference between the actual and predicted values of the dependent variable, \( (Y - Y') \), is called the residual or the error. The goal of regression is produce values of \( A \) and \( B \) in such a way that
the sum of the squared residuals, 

\((Y-Y')^2\) is minimized.

"Since the sum of squared residuals is minimized, the regression line is called the least squares line or the line of best fit" (Nie et al., 1975:323).

5.3.2 Multiple Regression Analysis

Nie et al. (1975:8-9) suggest that:

Multiple regression is an extension of the bivariate correlation coefficient to multivariate analysis. Multiple regression allows the researcher to study the linear relationships between a set of independent variables and a dependent variable while taking into account the interrelationships among the independent variables. The basic goal of multiple regression is to produce a linear combination of independent variables which will correlate as highly as possible with the dependent variable. This linear combination can then be used to "predict" the values of the dependent variable, and the importance of each of the independent variables in that prediction can be assessed.

In multiple regression, the values of the dependent variable, \(Y\), are predicted on the basis of the following equation:

\[
Y' = A + B_1 X_1 + B_2 X_2 + \ldots + B_k X_k
\]  

(5.2)

Just as in the bivariate case, \(Y'\), \(A\) and the \(B\)’s respectively represent the predicted values of \(Y\), the \(Y\) intercept and the unstandardized regression coefficients. The independent variables are represented by the \(X\)’s. As in the bivariate case, in multiple regression \(A\) and \(B\) are selected in a way that minimizes \((Y-Y')^2\), the sum of the squared residuals, this implies that "the correlation
between the actual Y and the Y' estimated values is maximized, while the correlation between the independent variables and the residual values of (Y-Y') is reduced to zero" (Nie et al., 1975:328).

The B coefficients in equation 5.2 above may be interpreted as partial regression coefficients since, for example, the coefficient B₁ represents the amount of change that can be expected in the dependent variable, Y, as a result of a change of one unit in X₁ while the effects of the independent variables X₂ through Xₖ are held constant (Nie et al., 1975:330). The magnitude of the B's, the unstandardized regression coefficients, is affected "by the scale of measurement that is being used to measure the variable with which the B is associated", therefore, the B coefficients of different variables are not comparable and the relative effects of the independent variables cannot be determined (Pedhazur, 1982:64).

However, standardized regression coefficients, referred to as beta weights (β₁), which "are scale-free indices and therefore can be compared across variables" can also be computed (Pedhazur, 1982:247). β₁ can easily be calculated from the unstandardized regression coefficient B₁ by multiplying B₁ by the quantity obtained when the standard deviation of X is divided by the standard deviation of Y (Nie et al., 1975:325). "As in the case of" B, "β is interpreted as the expected change in Y associated with a unit
change in \( X \) however, "a unit change in \( X \), when it has been standardized, refers to a change of one standard deviation in \( X \)" (Pedhazur, 1982:53). Thus beta weights are study-specific and cannot be compared across studies.

Nie et al., (1975:325) suggest that:

While \( \beta_{YX} \) (the beta weight) does not enable one to estimate \( Y \) values in the original raw value units, the standardized regression coefficient is more convenient to use in a number of contexts. Working with beta weights enables one to simplify the linear regression equation, since the constant \( A \) (the \( Y \) intercept) is always equal to zero and therefore can be omitted. Furthermore, when there are two or more independent variables measured on different units (such as income in dollars and education in years), standardized coefficients may provide the only sensible way to compare the relative effect on the dependent variable of each independent variable. Moreover, a standardized regression coefficient is quite readily transformed to its unstandardized counterpart if standard deviations for the original \( X \) and \( Y \) are available.

"The total sum of squares in \( Y \) (which is the variability of the dependent variable \( Y \)) can be partitioned into components that are (1) explained or accounted for by the regression line, denoted by \( SS_{\text{Reg}} \), and (2) unexplained (the sum of squared residuals), \( SS_{\text{Res}} = (Y - Y')^2 \) (Nie et al., 1975:323-24). In both bivariate and multivariate regression the predictive accuracy of the regression equation and the strength of the linear relationship between the dependent and a set of independent variables can be obtained by taking the ratio of the variation in \( Y \) explained by the regression equation to the total amount of variation in \( Y \). This ratio,
$R^2$, gives the proportion of the variation in Y which is explained by the regression equation (Nie et al., 1975, 324, 327). The value of $R^2$ ranges between zero and one, the closer the value is to unity, the larger the amount of variance in Y explained by the regression equation.

5.3.3 Dummy Variable Regression

Generally, in order to perform regression analysis, it is necessary that the variables be measured at the interval or ratio levels (Nie et al., 1975:320). Most of the variables employed in the regressions were indeed measured at the interval level.

However, it will be recalled that two sets of variables, time and region, were to be used as dummy variables in the regressions. Region is a nominal level variable, and for theoretical reasons explained above, time was also made into a nominal scale consisting of the pre-war and post-war categories. However, "since the numbers assigned to categories of a nominal scale are not assumed to have an order and unit of measurement, they cannot be treated as 'scores' as they would be in conventional regression analysis" (Nie et al., 1975:373), therefore these variables could not be used in the regressions unless they were dummmied.

Dummy variables are "'created' by treating each category of a nominal variable as a separate variable and
assigning arbitrary scores for all cases depending upon their presence or absence in each of the categories" (Nie et al., 1975:374). Because the dummy variables are assigned arbitrary values of 0 and 1, "they may be treated as interval variables and inserted into the regression equation" (Nie et al., 1975:374). However, if all of the dummy variables were included in the regression, the equations would become "unsolvable because the Kth dummy variable is completely determined by the first K-1 dummies entered into the regression equation" therefore, one of the dummy variables should be omitted from the regression (Nie et al., 1975:374). The omitted category, as it becomes a reference point to which the effects of the other dummy variables are compared, is called the reference category. Thus in the regression, dummy variables for the post-war era, the Maritimes, Quebec, the Prairies and British Columbia were included. The pre-war period (1921-1941) and Ontario were the respective reference categories.

5.3.4 Assumptions and Issues

One possible objection that may be raised in relation to this thesis concerns the use of aggregate data. However, an examination of relevant literature suggests that the use of aggregate data is only problematic when the intent of the researcher is to make inferences about individuals. Even then, it is sometimes possible to take steps that allow one
to make inferences about individuals from aggregate models (Goodman, 1959; Grunfeld and Griliches, 1960; Hammond, 1973; Langbein and Lichtman, 1978). The purpose of this research, however, is not to make such inferences, but rather, to investigate the relationships between $I'_H$ and several independent variables in the Canadian provinces both historically and cross-sectionally. If the purpose of the study is to determine the nature of aggregate level relationships, as in this thesis, then the use of aggregate data is entirely appropriate (Menzel, 1950; Goodman, 1959; Grunfeld and Griliches, 1960; Hammond, 1973; Langbein and Lichtman, 1978). "In such cases, the aggregate models estimated by the investigator represent the behavior he seeks to understand" (Langbein and Lichtman, 1978:10).

The $R^2$ value obtained from an aggregate multiple regression model will be higher than that resulting from a micro-level model only if the following two assumptions are met (Grunfeld and Griliches, 1960:4, footnote 4):

a) the disturbances are truly random, i.e. there is no correlation between the micro disturbances of different individuals;

b) aggregation is not random with respect to the independent variables.

Even though the $R^2$ of an aggregate model will often be higher than that of a micro-level model, Grunfeld and Griliches suggest that "this is not very relevant in judging the performance of either equation" (1960:9). Furthermore,
"the aggregate equation may explain the aggregate data better than all the micro equations combined if our micro equations are not 'perfect'" (Grunfeld and Griliches, 1960:9-10).

In this study three regression analyses were undertaken. In the first regression $I'$ was regressed on 12 independent variables and in the second and third regressions on 10 and 9 independent variables, respectively. Because of the small size of the sample (51), the issue of the case-to-variable ratio needs to be considered. Tabachnick and Fidell (1983:91-92) suggest that the number of cases should be at least 4 to 5 times larger than the number of predictor variables. In the first regression, this requirement was not quite met. However, in the second and third regression it was met.

There are several assumptions that underlie multiple regression analysis: 1) the relationship between a dependent and a set of independent variables is linear (Tabachnick and Fidell, 1983:80); 2) the error terms are normally distributed (Bohnnstedt and Carter, 1971:123); 3) the variances of the error terms are equal for each observation, or homoscedasticity (Hanushek and Jackson, 1977:142); and 4) the error terms are uncorrelated (Hanushek and Jackson, 1977:142). Tabachnick and Fidell (1983:93) suggest that an examination of the scatterplots of residuals allows one to determine whether or not the first three assumptions
hold. If the assumptions are being met, then the scattergram should be rectangular and the points should be concentrated along the center of the plot. An examination of the scattergrams of residuals from all three regressions suggested that the assumptions of linearity, normality and homoscedasticity were indeed being met.

The assumption of uncorrelated error terms is of special concern in this study. Generally, when time series data are analyzed the possibility of autocorrelation, or correlation between pairs of error terms is enhanced (Hanushek and Jackson, 1977:142). Since cross-sectional and time series data were pooled in this study, there is a possibility that the error terms might be correlated.

One way to test for autocorrelation is to compute the Durbin-Watson statistic which provides an estimate of the magnitude and direction of autocorrelation. If the error terms are uncorrelated, the Durbin-Watson statistic should equal 2.00. A value of less than 2.00 suggests that there is a positive correlation between the error terms, while a value of greater than 2.00 indicates a negative correlation (Hanushek and Jackson, 1977:165).

The results from the regression of I'H on 12 and on 10 independent variables both produced a Durbin-Watson statistic of approximately 2.00, 1.99 and 2.02 respectively, suggesting that the error terms are uncorrelated. In the regression of I'H on 9 independent variables the Durbin-
Watson statistic was equal to 1.90 (see tables at end of Chapter Six). In order to determine whether or not this indicated a statistically significant correlation between error terms, a table of critical values of the Durbin-Watson statistic had to be consulted.

The table provides the upper and lower critical values of the statistic. The critical values are dependent upon the size of the sample and the number of predictor variables (Hanushek and Jackson, 1977:165). If the actual value falls below the critical value for the lower limit, then positive correlation among the error terms is present, if the actual value is larger than the critical value for the upper limit, then there is no positive correlation between the errors. However, if the actual value lies in between the two critical values, then the test for positive serial correlation is inconclusive. A test for negative serial correlation can also be conducted. First new critical upper and lower levels are established by subtracting the appropriate lower and upper critical values given in the table from 4.00. Then the actual Durbin-Watson is compared to these new critical values. If the actual value is larger than the new lower critical value then the errors are negatively correlated. If the actual value is less than the new upper critical value then there is no negative correlation. If the actual value lies between the upper and lower values then the test is again inconclusive (Wonnacott and

Unfortunately, critical values for more than five predictor variables are not provided in the table of critical values (Wonnacott and Wonnacott, 1981:533). However, the critical values for more than five independent variables could easily be extrapolated as both the upper and lower critical values change linearly. The extrapolation suggested that for 9 independent variables and 50 cases the lower and upper critical values for the Durbin-Watson at the .05 level of significance were 1.18 and 1.97 respectively. At the .01 level the lower critical value was 1.00 and the upper, 1.79. Thus the Durbin-Watson value of 1.90 obtained from the regression of \( l'H \) on 9 independent variables indicates that the positive correlation between error terms is not significant at the .01 level. However, when the .05 level of significance is used, the test is inconclusive. A test for negative correlation between the error terms suggested the lack of a negative correlation at either the .05 or .01 levels.

The pooling of time series and cross-sectional data involves a further assumption. The assumption is "that all the regression coefficients are fixed and common to both independently estimated time-series and cross-sectional regressions" (Wrance, 1981:58, footnote 7). Unfortunately, the same problems that led to the decision to pool cross-
testing of this assumption. The problem of multicollinearity is discussed in Chapter Six.

5.4 Operationalization of Variables

The dependent variable in the analysis is \( I'_{\mathbf{H}} \). In total, there were twelve independent variables in the analysis.

5.4.1 Industrialization/Urbanization Variables

It will be recalled that two variables, percent urban and males employed in agriculture were used as measures of industrialization/urbanization. Percent urban was defined as the percentage of the total population that resided in incorporated villages, towns and cities with a population of 1000 or more. Male workers employed in agriculture was operationalized as the percentage of the total male work force that was engaged in agricultural occupations.

5.4.2 The Income Variable

In this study, income was defined as the personal per capita income of a province at a particular time, adjusted for the consumer price index for Canada. First, personal income in millions of dollars for the provinces at various dates was obtained and divided by the total population in order to derive personal per capita income. Second, this
value was adjusted by the total consumer price index for Canada, with 1971 being the base year, so that income in constant dollars could be obtained. It would have been desirable to adjust the incomes of the provinces at various dates by the consumer price indexes for each given province, however, the necessary data for such an adjustment were unavailable for the period under consideration.

Unfortunately, prior to 1926 provincial incomes are not available. However, as annual figures from 1926 onwards are available, regression estimates for 1921 were easy to derive. The regression estimates for 1921 were based only on the personal per capita incomes in constant dollars for the years 1926, 1927 and 1928. It was felt that if the 1921 estimates had been based on a longer time period the estimates would have been unduly high due to the rapid increase in incomes, even in constant dollars, between 1931 and 1971. The years 1929 and 1930, which coincide with the beginning of the Great Depression, were not used in the estimation procedure because they may have unduly biased the estimates for 1921 downwards.

The estimated incomes produced by the regression appeared to be reasonable in all cases except Alberta and Saskatchewan. The estimates for Alberta and Saskatchewan appeared unusually high, both in comparison to those of other provinces and in relation to their own incomes for 1926, 1927 and 1928. Therefore, it was decided that Alberta
1921 and Saskatchewan 1921 would be excluded from the analysis.

5.4.3 Availability of Kin Variables

The two variables used as measures of the availability of kin were the daughter-mother ratio and migration. The daughter-mother ratio was simply the ratio of women aged 35-44 to widowed and divorced women aged 55 and over. Migration was defined as the percentage of the total population of a province at a certain date that was born in another province.

5.4.4 Tastes and Preferences Variables

It will be recalled that education, region and time were used as measures of tastes and preferences. Both time and region were made into dummy variables. Four dummy variables for region were used in the regressions, these were the Maritimes, Quebec, Prairies and British Columbia. Ontario comprised the omitted or the reference category. A dummy variable for the post-War era, 1951 to 1971, used to measure abrupt changes in tastes and preferences for separate living in the post-World War II period, was also included in the regressions. The 1921 to 1941 period was the reference category.

Education was defined as the percentage of the population aged 5-19 that was enrolled in public elementary and
secondary schools. For census years prior to 1961 the number of students enrolled in such schools had to be linearly interpolated, since data for census years between 1951 and 1921 were not provided. However, as data for the beginning and the middle of all decades were available, data for a particular census year were easily obtained through linear interpolation.

5.4.5 Density

The final variable included in the regression analysis was population density. Density was defined as population per square mile of land area.

5.5 Data Sources

The data that were used in the calculation of $I'H$, the number of households, age-sex-marital status distributions and headship rates by age-sex and marital status, were all from the various volumes of the Canadian Census. Data for percent urban were obtained from the various volumes of the Canada Year Book.

Population density per square mile was obtained from a table contained in a large volume on historical statistics for Canada, compiled by Leacy (1983). The percentage of males in agriculture, personal per capita income in constant dollars, and migration were directly calculated from various tables presented in Leacy (1983). For education, the number
of students enrolled in public elementary and secondary schools was taken from Leacy (1983), while population aged 5-19 had to be calculated from the Census. Both the numerator and the denominator for the daughter-mother ratio were calculated from the same census tables which were used to obtain the age-sex marital status distributions used in the calculations of \( I''_H \).

The exact sources for each variable for each year are provided in Appendix 1. In the next chapter, the hypotheses regarding the relationship between the independent variables and \( I''_H \) will be tested by regressing \( I''_H \) on the various independent variables. In addition, the implications of the findings for each of the four explanations will also be discussed.
CHAPTER SIX

Data Analysis and Discussion

6.1 Introduction

The main purpose of this chapter is to ascertain the adequacy of the four explanations discussed in Chapter Four in accounting for the cross-sectional and historical variations in \( I' \) in the Canadian provinces over the 1921-1971 period. In order to achieve this objective, the hypotheses regarding the relationships between \( I' \) and the 11 variables related to the four explanations, as well as between \( I' \) and density, are tested by regressing \( I' \) on the 12 independent variables. Then, the implications of these findings for the validity of each of the four explanations are discussed. As means and standard deviations often provide useful information about the distributions of variables, these statistics are provided in Table 3. The simple or the bivariate correlations between variables are presented in Table 4. All tables are presented at the end of the chapter.

6.2 Multicollinearity

Generally, "in a time series analysis where many variables tend to follow the same basic pattern of movement"
or in samples that contain highly aggregated observations" (Hanushek and Jackson, 1977:87), a problem of multicollinearity, or high correlations among independent variables may exist (Hanushek and Jackson, 1977:86). As the correlations between the explanatory variables approach unity, it becomes difficult to estimate the independent effect of a particular variable while controlling for the effects of the other variables. This occurs because there simply is not "enough information about the variations in Y associated with changes in each explanatory variable for constant values of the other exogenous variables to estimate these effects accurately" (Hanushek and Jackson, 1977:87). As a result, the variance of the estimated parameters of correlated variables increases. However, despite the presence of multicollinearity, if the model is properly specified, the parameter estimates will be unbiased (Hanushek and Jackson, 1977:87-88). Since the unit of analysis in this study is a given province at a particular date, and because the data contain both cross-sectional and time series observations, the possibility of multicollinearity is enhanced.

One way to determine whether or not a problem of multicollinearity exists is to examine the simple correlations between the independent variables (Hanushek and Jackson, 1977:90). It has been suggested that correlations among predictor variables in the range of .80 to 1.00 indicate extreme collinearity (Nie et al., 1975:340). From Table 4
it is evident that the correlations between males in agriculture and percent urban, and density and the dummy variable for the Maritimes are between .800 and .846 and therefore fall between the range of .80 and 1.00. Although such high correlations between independent variables may signify multicollinearity, Hanushek and Jackson (1977:90) argue that:

High simple correlations are however neither necessary nor sufficient (except with perfect correlations) in identifying troublesome inter-correlations. As the term multicollinearity implies, problems can and often do arise in more than just pairs of variables. Further, it is not possible to define "high" correlations with any precision -- it depends upon the specific model and sample.

Thus high bivariate correlations are not especially useful in identifying multicollinearity. Tabachnick and Fidell suggest that to determine the existence of multicollinearity each independent variable should be treated as a dependent variable and regressed on all other independent variables. If the $R^2$ values from such regressions are high, it is an indication that the variables treated as dependent are collinear with some combination of the independent variables. If the $R^2$ value is subtracted from 1.00, the tolerance of the variable treated as dependent can be obtained. High $R^2$ values or low tolerances are indicative of multicollinearity (1983: 83).

Unfortunately, Tabachnick and Fidell (1983) do not
suggest what level of tolerance indicates severe multicollinearity. The lack of an established cut-off point is especially problematic within the context of this study since the utilization of aggregate data is likely to result in high $R^2$ values and hence low tolerances. An additional problem with this technique is that it does not allow one to directly discern which particular combination of independent variables are collinear. Hanushek and Jackson suggest that "pinpointing the exact location of the damaging intercorrelations... can be quite difficult in complex multivariate models" (1977: 92). One technique that is often suggested to deal with multicollinearity is the exclusion of one of the variables that are collinear (Nie et al., 1975: 341-42; Pedhazur, 1982: 246; Tabachnick and Fidell, 1983: 83). Even assuming that collinear variables have been identified, caution has to be exercised when such a procedure is followed. The "deletion of variables to reduce the degree of multicollinearity may lead to specification errors" (Pedhazur, 1982: 246) and hence the parameters may become biased (Pedhazur, 1982: 35).

Pedhazur suggests that "high multicollinearity is symptomatic of insufficient, or deficient, information, which no amount of data manipulation can rectify" (1982: 247).

When it is present to a high degree, one must either live with imprecise estimates or find more information. The prospects of readily finding more information are often bleak (Hanushek and

Given the complexity of the problem of multicollinearity and the fact that the study represents pioneer work in the area in Canada, the probability of identifying variables that are collinear and dealing with the problem is very low indeed. The procedure that was followed here was to first regress $l'H$ on all 12 independent variables and to identify those variables that were not very successful in explaining the variation in $l'H$ (see Table 5). The results of all regressions are presented in Tables 5 through 13 at the end of the chapter. In addition, each of the independent variables was treated as a dependent variable and regressed on all other independent variables and tolerance levels were calculated (see Table 7). The confidence intervals of the unstandardized regression coefficients were also examined (see Table 6). In the next regression all those variables that had been of little use in explaining the variation in $l'H$ were excluded (see Table 8). Again, each independent variable was treated as a dependent and regressed on all other independent variables and tolerances were calculated (see Table 10). The confidence intervals of the estimators were also examined (see Table 9). A comparison of the tolerances and confidence intervals of variables included in the two regressions indicated that the confidence intervals for many variables had decreased while the tolerances had increased
after the exclusion of some of the independent variables.

However, two variables, migration and the dummy variable for British Columbia had large confidence intervals and tolerance levels of less than 10%. Since the beta coefficient for British Columbia was smaller than that for migration, and the theoretical reasons for retaining migration were stronger, this dummy variable was excluded from the next regression. In the next regression, then, \( L'_{H} \) was regressed on 9 independents (see Table 11). In this regression all variables had statistically significant effects on \( L'_{H} \). The confidence interval for migration was considerably smaller than in the previous regression (see Table 12). Furthermore, the tolerances for a number of variables, particularly migration and the dummy variable for the Prairies, increased (see Table 13).

The even more important finding was that the results changed only little despite the exclusion of so many variables, suggesting that the model was not yet misspecified. However, it did not seem advisable to exclude any further variables from the regression for two reasons. First, the remaining variables had coefficients that were statistically significant at the .01 level. If multicollinearity still existed one would not expect statistically significant results. Furthermore, it seemed likely that the exclusion of additional variables, since the effects were all statistically significant, might have led to
serious specification errors.

Second, the test for correlation between error terms in the 9 variable regression at the .05 level of significance proved inconclusive, whereas in the 10 variable equation no serial correlation was present (see section 5.3.4 above). The exclusion of additional variables from the model would most likely have resulted in an increase in serial correlation. Since the effects of the variables were statistically significant and relatively large in magnitude, the exclusion of variables would have increased the errors and enhanced the possibility of correlation among them and an important assumption underlying regression would have been violated. The results of the regressions are presented in the next section.

6.3 Regression Results

Three multiple regressions were performed in this study (the results are shown in Tables 5 through 13 at the end of the chapter). The first regression was a preliminary run in which $I'H$ was regressed on all 12 independent variables. The purpose of this regression was to determine which variables were unsuccessful in explaining the variation in $I'H$ and therefore could be excluded from the next regression. The results of this regression are presented in Table 5. The confidence intervals for the $B's$ are provided in Table 6 and the tolerance levels for the independent
variables are shown in Table 7. The $R^2$ value obtained from this regression was very high, .949, suggesting that the model was very successful in explaining the historical and cross-sectional variations in $I'_{H}$ in the Canadian provinces over the 1921-1971 period. The Durbin-Watson statistic from this regression was 1.99, indicating the absence of intercorrelations among error terms.

As the number of explanatory variables in the model is quite large, a reduction in the model would be useful. One procedure often followed when attempting to reduce the number of explanatory variables is to exclude all variables whose coefficients are not statistically significant at a pre-determined level. Usually in sociology the .05 or the .01 levels are used as the cut-off points. The results in Table 5 indicate that the effects of migration, the dummy variable for British Columbia, the daughter-mother ratio, and percent urban on $I'_{H}$ are not significant at the .05 level.

However, whether or not the coefficients of variables are statistically significant depends not only upon the actual value of the coefficient but on the size of the sample as well (Wonnacott and Wonnacott, 1981:40). The smaller the size of the sample, the more difficult it is to obtain statistically significant results. Since the sample size in this study is only 51 cases, reliance upon statistical significance as a means of model reduction therefore
seemed too stringent a condition, especially because there were theoretical reasons for the inclusion of all variables in the model. However, a reduction in the model was clearly needed as the magnitude of the beta coefficients of some variables was quite small.

Therefore, it was decided that only those variables with a beta coefficient of less than .10 would be excluded and all others retained. Although this cut-off point is arbitrary, it is no more arbitrary than relying upon various levels of statistical significance as a means of model reduction. The use of this type of a criterion for model reduction emphasizes substantive importance rather than statistical significance. Using this cut-off point, then, it is evident from Table 5 that two variables, percent urban and the daughter-mother ratio, are of little importance in explaining the cross-sectional and historical variations in \( I'H \). Therefore, of the hypotheses presented in the previous chapter numbers 2, and 4 are rejected. Since these variables have little effect on \( I'H \) they will be excluded from the next regression.

In the second regression, \( I'H \) was regressed on ten independent variables, the results of this regression are provided in Table 8, while the confidence intervals and tolerances for the independent variables are presented in Tables 9 and 10. The exclusion of the two variables produced very little change in either the \( R^2 \) value or the
Durbin-Watson statistic. The model still explains almost 95% of the variance in $l'_{H}$, and intercorrelations between error terms are still virtually non-existent. These results are to be expected given the fact that the explanatory power of the excluded variables was small. The exclusion of the two variables does however result in a change in the coefficients of the remaining variables. This is not an unusual result, given that the independent variables are intercorrelated.

A comparison of Tables 6 and 9 reveals that the exclusion of the two variables results in substantial decreases in the confidence intervals for the B coefficients of income, males in agriculture, the dummy variable for the Maritimes and the dummy variable for British Columbia. Despite the decrease in the confidence interval of the B for British Columbia, its interval, and that of migration are still extremely large. It is evident from Tables 7 and 10 that the exclusion of the two variables from the second regression also results in an increase in the tolerances of many variables, especially income, males in agriculture, and the dummy variables for the Maritimes. However, the tolerances of migration and the dummy variables for British Columbia and the Prairies remain quite low.

Given the findings in relation to British Columbia and migration, it would appear as though these variables may be highly collinear. The bivariate correlation between these
variables is also relatively high (.716). Thus one of these variables should perhaps be excluded from the next regression. Since the beta coefficient for British Columbia was smaller than that for migration and because the theoretical reasons for retaining migration were stronger, the dummy variable for this region was excluded from the next regression.

In the final regression, then, $l'H$ was regressed on 9 predictor variables. The results of this regression are presented in Table 11, and Tables 12 and 13 respectively show the confidence intervals and the tolerance levels for the independent variables. The exclusion of the dummy variable for British Columbia results in only a slight decrease in the $R^2$ value. The Durbin-Watson statistic, however, falls below 2.00. The major differences between the results of this regression and the previous one are that coefficients for the Prairies decrease and the coefficients for migration increase substantially. The results in Tables 9 and 12 indicate that the exclusion of the dummy variable for British Columbia results in a substantial decrease in the width of the confidence interval for migration. Furthermore, it is evident from Tables 10 and 13 that the tolerance of migration increases from .091 to .395 and that for the dummy variable for the Prairies from .102 to .242 when the dummy variable for British Columbia is excluded from the regression. As the dummy variable for British
Columbia had to be dropped from the final regression because of multicollinearity, there is little choice but to reject hypothesis 11.

The results of the final regression indicate that income is the major determinant of cross-sectional and historical variations in $l'H$ in the Canadian provinces over the 1921-1971 period, followed closely by education. The relationships between income and $l'H$ and education and $l'H$ are both strong and positive. The fact that the effect of education is so strong even when all other factors, especially income, are controlled, suggests that the conceptualization of this variable as a measure of tastes and preferences may be appropriate. These findings indicate that the higher the levels of income and education in any particular province at any particular date, the higher the level of household headship and the lower the proportion of extended households. These findings support both hypotheses 3 and 6.

The percentage of males employed in agriculture has the third strongest effect on $l'H$. However, although the effect is quite strong (beta = .523), the coefficient is positive rather than negative as was expected. Therefore, hypothesis 1 is not confirmed by this finding. This result suggests that the higher the percentage of males employed in agriculture the higher the level of headship in any given province at any given date.
The coefficients for each of the three remaining regional dummies are all positive suggesting that once other factors are controlled, headship levels in the Maritimes, Quebec and the Prairies over the 1921-1971 tend to be higher than those in Ontario. The positive relationship between the dummy variable for the Prairies and \( I'_{H} \) provides support for hypotheses 10. The finding that the coefficients of the regional dummies for the Maritimes and Quebec are also positive was surprising. Indeed the betas for both these regional dummies are considerably larger than that for the Prairies. Thus both hypotheses 8 and 9 have to be rejected.

The effect of density on \( I'_{H} \) was negative as expected, and thus provides support for hypothesis 12. Although the effect of density on \( I'_{H} \) is comparatively small, the finding indicates that the higher the population density in a province at any date, the lower the level of separate living and the higher the level of co-residence.

The effect of the dummy variable for the post-World War II era, although small in comparison to that of many other variables, was negative. Since it had been expected that this variable would be positively related to \( I'_{H} \), the finding of a negative relationship between the dummy for post-war and \( I'_{H} \) leads to a rejection of hypothesis 7. This result suggests that high headship rates of the post-war period are due to such factors as high incomes etc., and
that once these other factors are controlled, headship in the pre-war period tends to be higher than that in the post-war era.

Finally, migration was positively related to $I'_H$. Thus the higher the percentage of migrants in a province at any date, the higher the headship rate. This finding confirms hypothesis 5. In the next section, the implications of these findings for the validity of the four explanations of variations in household structure are discussed.

6.4 Discussion

6.4.1 The Industrialization/Urbanization Explanation

The results from the regressions suggest that urbanization is not an important predictor of cross-sectional and historical variations in $I'_H$ in the Canadian provinces over the 1921-1971 period. Furthermore, the effect of males in agriculture on household headship, although very strong, was the opposite to that expected on the basis of the modernization perspective. These findings suggest that the utility of the industrialization/urbanization hypothesis in explaining the cross-sectional and historical variations in household structure in the Canadian provinces over 1921-1971 is limited. The lack of a simple, positive linear relationship between urbanization and household headship and of a simple, linear negative association between males in agriculture and headship confirms the findings of several
previous studies (Goode, 1963; Burch, 1967; Anderson, 1972; Laslett, 1972a; 1972b; Paydarfar, 1975; Kertzer, 1978; Michael et al., 1980; Burch et al., 1983b; Wister and Burch, 1984), and refutes the original hypothesis regarding the relationship between industrialization and urbanization and household structure.

One possible explanation for the positive association between males in agriculture and household headship is that the percentage of males employed in agriculture is only high in rural/agricultural areas. Young adults from such places often have to leave the parental household if they wish to attend college or university, or take up employment in non-agricultural sectors. In contrast, young people living in areas where the proportion of males in agriculture is low, or in industrial areas, need not leave the parental household in order to find employment. Thus in rural/agricultural areas the co-residence of adult children with parents, a component of $I'_H$, will be lower than in non-agricultural or industrial areas, and therefore $I'_H$ will be higher.

This interpretation of the positive association between males in agriculture is based on Kertzer's (1978) explanation of the failure of household structure in Bertalia, Italy to become less complex during the early phase of industrialization and urbanization. Kertzer (1978:18) argued that:
In rural areas a youngster living in a poverty-stricken family may be forced (or may elect) to find employment outside of his parents' place of residence... For the young person living in the urban area, though, there was a greater variety of economic opportunities, and these did not entail leaving his parents' residence. In fact, it would be economically unwise if not impossible for the youngster to seek out lodging of his own.

6.4.2 The Income Explanation

The finding that income had the strongest effect on cross-sectional and historical variations in household structure in Canada provides strong support for Michael et al.'s (1980) contention that income is the major determinant of variations in separate living. High incomes in a province at any date enable individuals and families living in that province to purchase privacy and autonomy in living arrangements. As maintaining a separate residence is more expensive than sharing living quarters, those living in provinces with high incomes are able to afford their own households whereas those living in areas with low incomes are forced to share a residence with other individuals (Michael et al., 1980; Harrison, 1981; Kobrin, 1981; Kobrin and Goldscheider, 1982; Pampel, 1983).

6.4.3 The Availability of Kin Explanation

The daughter-mother ratio and migration were utilized as measures of the availability of kin explanation. The results from the regressions suggest that the daughter-
mother ratio is not an important predictor of macro-level variations in household structure. These results confirm the findings of two other macro-level studies that used this variable in their explanatory models (Michael et al., 1980; Burch et al., 1983b).

However, there was a positive relationship between the percentage of the population who had migrated to a particular province from another province and $l'H$. The explanation for this finding is that migration leads to the dispersal of kin who might potentially share a residence and therefore reduces the opportunity structure for living arrangement choices (Burch et al., 1983b; Harrison, 1981). In provinces that contain high proportions of in-migrants at any given date, the availability of kin with whom those migrants might share a residence is likely to be low and the rate of separate living will be high. Although the effect of this variable was in the predicted direction, the magnitude of the coefficient was small in comparison to that of most of the other variables. Therefore, the findings regarding the relationships between variables used as measures of the availability of kin perspective and $l'H$ suggest that kin availability is only of minor importance in explaining macro-level variations in household structure.

6.4.4 The Tastes and Preferences Explanation

Three sets of variables, education, time and region,
were used as measures of tastes and preferences. The strong positive linear relationship between education and I'H supports not only the suggestion that tastes and preferences are important determinants of living arrangements (Beresford and Rivlin, 1966; Kobrin, 1981; Kobrin and Goldscheider, 1982; Pampel, 1983; Thomas and Wister, 1984; Wister and Burch, 1983), but also the argument that the effect of education on living arrangements operates through the preference structure rather than through the economic dimension (Thomas and Wister, 1984; Wister and Burch, 1983). The strong positive relationship between education and I'H uncovered by a linear multiple regression model suggests that tastes and preferences are linearly associated with separate living.

The result that education was strongly related to I'H was surprising as the dependent variable relates to the adult population whereas the independent variable relates to the child and adolescent population. One would expect, however, that in any given province at any given time, the educational levels of children would be highly correlated with the educational attainments of adults. What is it about high levels of school enrollment among children and adolescents that leads to high rates of separate living among adults in a province at a particular date? One of the main purposes of education is to teach independence in both thoughts and actions. In those places and times where the
proportion of children and adolescents attending school is high; the value placed on education and therefore on independence in thoughts and actions is also likely to be high. High rates of separate living among adults are but one manifestation of this value.

The findings in relation to the other measures of tastes and preferences were not always in keeping with expectations. The dummy variable for the post-World War II era had a negative effect on $I_H$. Thus Beresford and Rivlin's (1966) suggestion that the increase in separate living in the United States after 1940 was due to an abrupt change in tastes and preferences for these types of living arrangements is not applicable to Canada. In conjunction with the findings for education, this result suggests that there were no marked increases in tastes and preferences for separate living in the post-World War II period other than those associated with rising education, and those, as was discussed above, were linear.

The fact that the coefficient for the dummy variable for post-war was negative and statistically significant indicates not only that increases in tastes and preferences for separate living, other than those associated with rising education, did not occur in the post-war period, but also that declines may actually have occurred. Despite the fact that this result seems counterintuitive, it is easily explained. During the post-war era, two changes, not easily
explained by rising incomes etc., could have produced this result. First, it is a well-known fact that in the period after World War II college and university attendance among the young has increased substantially. Many of these young people live either in residence or in an apartment that is shared with other students. Furthermore, a phenomenon virtually unheard of in the pre-war period, "living together" among young unmarried couples, is quite common today and generally more young people today are living in households of their own, shared with other young persons than in the pre-war period. The increases in these types of co-residence, components of \( I'_{H} \), would depress the increase in \( I'_{H} \) during the post-war period making it appear as though once all factors are controlled that tastes and preferences for separate living actually declined in the post-war period. However, the negative coefficient of the post-war period is not to be taken as a reversion to traditional forms of co-residence such as the co-residence of the elderly with their married children or that of unmarried adult children with parents. Rather, it reflects the prevalence of a very modern type of co-residence among young people. This discussion suggests that at least among the young, changes in living arrangements other than those associated with rising incomes etc. did occur in the post-war era, not in the direction of living apart from others in general, but in relation to living apart from family and
living with nonrelatives.

The dummy variables for all three regions included in the final regression had positive coefficients, suggesting that there is a regional component to tastes and preferences for separate living in Canada. The finding that headship in the Prairies remained higher than in Ontario even after controls for all other factors, was expected. However the result that headship, net of all other variables, tends to be higher in the Maritimes and Quebec than in Ontario was entirely unexpected. What these results suggest is that tastes for privacy and autonomy in living arrangements in these regions are stronger than those in Ontario. What it is about these regions that leads to higher rates of separate living net of incomes etc. is not entirely clear. Perhaps certain types of co-residence, such as that of unrelated young people, not related to income levels etc., are less common in these regions than in Ontario and serve to raise headship levels in these regions net of all other variables. One way to test this explanation would be to examine headship rates among young people from different provinces while controlling for income, education etc.

Overall, the findings in relation to education, time and region do support the argument that tastes and preferences have an important effect on living arrangements choices. However, the suggestion that tastes and preferences for separate living increased abruptly in the
post-war period is not supported. Instead, the findings suggest that the increase in proportions of the population preferring privacy over time has been linear and is due entirely to shifts in the educational composition of the population.

6.4.5 Density

Finally, the relationship between $\hat{I}_H$ and density was negative as expected. Although more research is needed to clarify the role of this variable, two tentative explanations can be offered. One interpretation is that when population density is high, housing will be less available generally, and when available it will be relatively more expensive than in less densely populated provinces at any given time. Therefore, the tendency toward separate living will be lower.

The other possible explanation is that in Canada, density, as measured in this study, reflects the wealth, net of income, of a given province at a given date. The lower the population density the higher the per capita wealth from such sources as minerals, oil and forests. The higher such per capita wealth in a province at a given time the more money available to spend on programs that facilitate separate living in one way or another for example: 1) more money would be spent on education, a factor that may increase tastes for privacy; 2) more money would be
available to provide subsidized housing, enabling more people to live apart from others; and 3) more money would be spent on transportation and communication systems which would increase the likelihood of elderly individuals living alone as they could have easy access to relatives or friends but still maintain independent living quarters. The exact role of population density on living arrangements clearly needs further study. It is not clear what population density measures in a country such as Canada where large proportions of the provinces are uninhabited. However, the variable does emerge as an important predictor of household structure in Canada and the United States (Burch et al., 1983b), and its exclusion from a model of the determinants of household structure could result in specification errors.

6.5 Conclusion

In conclusion, the results of the regressions of \( I'_H \) on several independent variables suggest that income is the major determinant of historical and cross-sectional variations in \( I'_H \) in the Canadian provinces over the 1921-1971 period. However, tastes and preferences, as measured by education and region, also play a very important role in living arrangements choices, although, what it is about the Prairies, Quebec and the Maritimes that leads to higher preferences for separate living is not entirely clear.
Furthermore, the results of this study suggest that tastes for privacy and autonomy did not increase sharply in the post-war era. Rather the increases have been linear and due almost entirely to rising education.

Although one of the industrialization/urbanization variables, males in agriculture, did have a sizeable effect on $I'_H$, the effect of this variable was opposite to that expected on the basis of the modernization perspective. Furthermore, percent urban was not an important predictor of household headship in Canada. These findings suggest that the utility of the industrialization/urbanization explanation in accounting for cross-sectional variations in household structure is limited.

Of the measures of the availability of kin explanation, only migration had an effect on $I'_H$. Furthermore, the magnitude of the relationship between $I'_H$ and migration was relatively small. Therefore, it appears that the availability of kin is only a minor determinant of the variations in household structure in the Canadian provinces over the 1921-1971 period. Finally, density also acts as a constraint on separate living.
Table 3. Means and Standard Deviations of Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>I'H</td>
<td>.991</td>
<td>.062</td>
</tr>
<tr>
<td>Density</td>
<td>14.835</td>
<td>14.477</td>
</tr>
<tr>
<td>Percent Urban</td>
<td>49.267</td>
<td>17.392</td>
</tr>
<tr>
<td>Daughter-Mother Ratio</td>
<td>2.606</td>
<td>.990</td>
</tr>
<tr>
<td>Education</td>
<td>71.920</td>
<td>8.523</td>
</tr>
<tr>
<td>Income</td>
<td>1547.196</td>
<td>928.106</td>
</tr>
<tr>
<td>Migration</td>
<td>10.924</td>
<td>7.326</td>
</tr>
<tr>
<td>Males in Agriculture</td>
<td>28.902</td>
<td>18.872</td>
</tr>
<tr>
<td>Maritimes</td>
<td>.353</td>
<td>.483</td>
</tr>
<tr>
<td>Quebec</td>
<td>.118</td>
<td>.325</td>
</tr>
<tr>
<td>Prairies</td>
<td>.314</td>
<td>.469</td>
</tr>
<tr>
<td>B.C.</td>
<td>.118</td>
<td>.325</td>
</tr>
<tr>
<td>Post-War</td>
<td>.510</td>
<td>.505</td>
</tr>
<tr>
<td>Ontario</td>
<td>.098</td>
<td>.325</td>
</tr>
<tr>
<td>Pre-War</td>
<td>.490</td>
<td>.505</td>
</tr>
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N = 51
Table 4. Correlation Matrix

<table>
<thead>
<tr>
<th></th>
<th>Post-War</th>
<th>I'H</th>
<th>Density</th>
<th>Percent Urban</th>
<th>Daughter-Mother Ratio</th>
<th>Education</th>
<th>Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males in Agriculture</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maritimes</td>
<td>-.218</td>
<td>.289</td>
<td>-.170</td>
<td>-.270</td>
<td>-.247</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quebec</td>
<td>-.378</td>
<td>.180</td>
<td>-.499</td>
<td>-.247</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prairies</td>
<td>-.363</td>
<td>.431</td>
<td>-.270</td>
<td>-.333</td>
<td>-.247</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B.C.</td>
<td>.716</td>
<td>.351</td>
<td>-.120</td>
<td>-.223</td>
<td>-.120</td>
<td>-.071</td>
<td>.072</td>
</tr>
<tr>
<td>Ontario</td>
<td>-.195</td>
<td>.172</td>
<td>-.243</td>
<td>-.223</td>
<td>-.120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-War</td>
<td>-.256</td>
<td>.549</td>
<td>.014</td>
<td>.007</td>
<td>-.071</td>
<td>.007</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Migration</th>
<th>Males in Agriculture</th>
<th>Maritimes</th>
<th>Quebec</th>
<th>Prairies</th>
<th>B.C.</th>
<th>Ontario</th>
<th>Pre-War</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-.459</td>
<td>-.218</td>
<td>-.170</td>
<td>-.363</td>
<td>.716</td>
<td>-.195</td>
<td>-.256</td>
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### Table 5. Regression of $I^H$ on 12 Variables

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<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income</td>
<td>0.0000468</td>
<td>0.704*</td>
</tr>
<tr>
<td>Education</td>
<td>0.00517</td>
<td>0.713*</td>
</tr>
<tr>
<td>Males in Agriculture</td>
<td>0.00176</td>
<td>0.536*</td>
</tr>
<tr>
<td>Quebec</td>
<td>0.0855</td>
<td>0.450*</td>
</tr>
<tr>
<td>Maritimes</td>
<td>0.0565</td>
<td>0.441*</td>
</tr>
<tr>
<td>Prairies</td>
<td>0.0404</td>
<td>0.306**</td>
</tr>
<tr>
<td>Density</td>
<td>-0.0914</td>
<td>-0.267*</td>
</tr>
<tr>
<td>Post-War</td>
<td>-0.0293</td>
<td>-0.239</td>
</tr>
<tr>
<td>Migration</td>
<td>0.00163</td>
<td>0.193</td>
</tr>
<tr>
<td>British Columbia</td>
<td>0.0233</td>
<td>0.123</td>
</tr>
<tr>
<td>Daughter-Mother Ratio</td>
<td>-0.00201</td>
<td>-0.032</td>
</tr>
<tr>
<td>Percent Urban</td>
<td>0.000130</td>
<td>0.036</td>
</tr>
<tr>
<td>Intercept</td>
<td>0.464*</td>
<td></td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.949</td>
<td></td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>0.933</td>
<td></td>
</tr>
</tbody>
</table>

Durbin-Watson Statistic 1.99

* significant < .01  
** significant < .05
Table 6. Confidence Intervals for 12 Variable Regression

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income</td>
<td>.0000468</td>
<td>.0000303 , .0000634</td>
</tr>
<tr>
<td>Education</td>
<td>.00517</td>
<td>.00375 , .00659</td>
</tr>
<tr>
<td>Males in Agriculture</td>
<td>.00176</td>
<td>.000780 , .00274</td>
</tr>
<tr>
<td>Quebec</td>
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<td>-.0260 , .0726</td>
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<td>Daughter-Mother Ratio</td>
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<td>-.0118 , .00774</td>
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<td>Percent Urban</td>
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<td>-.00110 , .00136</td>
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Table 7. Tolerances for Independent Variables
for 12 Variable Regression

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<td>Maritimes</td>
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<td>Prairies</td>
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<td>Density</td>
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<td>Post-War</td>
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<td>Migration</td>
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<td>British Columbia</td>
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<td>Daughter-Mother Ratio</td>
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<td>Percent Urban</td>
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Table 8. Regression of $I'_H$ on 10 Variables

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<tr>
<td>Males in Agriculture</td>
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<td>.517*</td>
</tr>
<tr>
<td>Quebec</td>
<td>.0836</td>
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<tr>
<td>Maritimes</td>
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<td>.439*</td>
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<tr>
<td>Density</td>
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<tr>
<td>Post-War</td>
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<td>-.235*</td>
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<tr>
<td>Migration</td>
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<td>.164</td>
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<tr>
<td>British Columbia</td>
<td>.0255</td>
<td>.134</td>
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</tbody>
</table>

Intercept                   | .470*   |
$R^2$                       | .948    |
Adjusted $R^2$              | .936    |

Durbin-Watson Statistic     | 2.016   |

* significant < .01
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<td>Education</td>
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<td>0.00373 , 0.00644</td>
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<tr>
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<td>Maritimes</td>
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Table 10. Tolerances for Independent Variables for 10 Variable Regression

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<td>Migration</td>
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### Table 11. Regression of $I'H$ on 9 Variables

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<td>Quebec</td>
<td>0.0798</td>
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<td>Maritimes</td>
<td>0.0526</td>
<td>.411*</td>
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<td>Prairies</td>
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<td>Density</td>
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<td>Migration</td>
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<td>.284*</td>
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</table>

- Intercept: .488*
- $R^2$: .947
- Adjusted $R^2$: .935

Durbin-Watson Statistic: 1.904

* significant < .01
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<td>0.00119, 0.00224</td>
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<td>0.0798</td>
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Table 13. Tolerances for Independent Variables for 9 Variable Regression

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CHAPTER SEVEN

Summary and Conclusions

7.1 Summary of Findings

The main purpose of this thesis was 1) to describe the time trends and provincial differentials in household structure in Canada between 1901 and 1981 by using a new measure of household headship; and 2) to analyze the effects of industrialization/urbanization, income, kin availability, and tastes and preferences on historical and cross-sectional variations in \[ I^H \] in the Canadian provinces, in the 1921 to 1971 period through multiple regression. The results suggest that there has been considerable variation in household structure in Canada over the 1901 to 1981 period. In Canada as a whole, and in all provinces, except Alberta and Saskatchewan, household headship, net of age, sex, and marital status was considerably higher in 1981 than in 1901.

However, in Canada as a whole, and in the five eastern provinces, household structure remained virtually unchanged until the post-World War II years. After the War, headship in these areas increased, while the co-residence of adults declined. The literature reviewed in Chapter Two suggests that this decline is most probably due to such factors as
the almost complete exclusion of servants and boarders and lodgers from the household and to declines in the co-residence of elderly parents, particularly widowed mothers, with their married children and of unmarried adult children with their parents. The trends in these areas confirm the suggestions of other studies that there was little change in household headship until the post-war period (Beresford and Rivlin, 1966; Carliner, 1975; Michael et al., 1980).

However, the trends in Western Canada are quite different from those in Eastern Canada. Headship levels in British Columbia were extremely low, the lowest of any of the provinces, during the first two decades of this century. After 1911, headship in this province increased until 1941, then remained stable until 1956, and then increased again. In contrast to British Columbia, headship levels in the Prairie provinces, particularly Alberta and Saskatchewan, were much higher than the national average during the first part of the century. Headship levels in Alberta and Saskatchewan declined until 1931, changed little between 1931 and 1956 and then exhibited the same pattern of rapid increase found in other regions. Headship trends in Manitoba have generally been similar to those in Alberta and Saskatchewan. However, until about 1971, the levels in this province, although higher than the national average, were much lower than in the other two Prairie provinces.
Generally, household headship in the West, with the exception of British Columbia until 1931, has always been higher than in the rest of Canada. Until 1956 there are few consistent differences in headship between the five eastern provinces. Although by 1956 much of the differential between the eastern and the western provinces disappears, an East-West gradient in headship in the post-war era is apparent, with headship being highest in the West, lowest in the Maritimes and intermediate in Central Canada. In one way regional differences in headship since 1956 are even more evident than they were earlier, despite the convergence in levels: The variation in headship levels among provinces of each region has narrowed, while the differential in levels between provinces of different regions has remained or appeared. These trends and patterns in \( I_H \) suggest that the behavioural tendencies of Canadians from different provinces and times toward separate living are very different.

Multiple regression was used to determine whether variations in the levels of industrialization/urbanization, income, kin availability and tastes and preferences could account for provincial differentials in household structure over the 1921 to 1971 period. Time series and cross-sectional data had to be pooled in order for there to be a sufficient number of observations to perform an analysis in which measures of each of the four factors could be
included. Variables used as measures of each factor are as follows:

**Industrialization/Urbanization:** percent urban and the percentage of males employed in agriculture

**Income:** personal per capita income adjusted for the consumer price index for Canada

**Kin Availability:** the daughter-mother ratio (the ratio of women aged 35-44 to widowed and divorced women aged 55 and over) and migration (the percentage of the population of a province born in a different province)

**Tastes and Preferences:** education (% of children enrolled in public elementary and secondary schools), region and a dummy variable for the post-war years.

The results of the regression analysis suggest that the major determinant of provincial variations in household structure in Canada, both historically and cross-sectionally, is income. The higher the income levels in a province at any given time, the higher the tendency toward separate living and conversely, the lower the propensity to co-reside or to double-up. Thus high incomes in a province enable individuals and families in that province to purchase privacy and autonomy in living arrangements.

The second most important predictor of household structure in the Canadian provinces during the period in question are tastes and preferences, as measured by education. The higher the proportion of children and adolescents enrolled
In school, the higher the level of headship. As one purpose of education is to teach independence in thoughts and actions, where the proportion of children enrolled in school is high, the value placed upon independence will also be high and is reflected in high rates of separate living. The strong positive relationship between education and $I^H$ suggests that the relationship between tastes and preferences and household structure is linear.

The results suggest that an abrupt increase in tastes and preferences for separate living did not occur in the post-war period. Instead, the findings in relation to the dummy variable for post-war and education indicate that there were no marked increases in tastes for privacy during the twentieth century other than those associated with education which have been linear.

The coefficient of the dummy variable for post-war was negative suggesting that net of all other factors, tastes for privacy and autonomy may have decreased in the post-war period. But this finding, rather than indicating an increased preference for traditional forms of co-residence in the post-war period, suggests that the prevalence of certain very "modern" types of co-residence such as "living together" or living as room-mates among young people, components of $I^H$, which do not appear to be related to incomes etc., may be depressing the $I^H$ values for the post-war period once all else is held constant.
Tastes and preferences for separate living also appear to vary between regions. The tendency to live apart from others, once all else is controlled, is higher in the Prairies, the Maritimes and Quebec than in Ontario. The regional dummy for British Columbia had to be excluded from the final regression because of multicollinearity problems, however, the coefficient of the variable before its exclusion was positive. What it is about these regions that leads to higher preferences for separate living is a question that should be pursued in future studies. Overall, the findings in relation to time, education and region do support the suggestion that tastes and preferences have an important effect on living arrangements.

The results of this study are not particularly supportive of the industrialization/urbanization explanation. The relationship between percent urban and $I^H$ was small and insignificant. The percentage of males in agriculture, conceptualized as an inverse measure of industrialization, exhibited a strong positive relationship with $I^H$ whereas a negative association had been expected. The explanation for this finding, which is based on Kertzer (1978), is that males employed in agriculture is only high in rural areas, young people from such areas have to leave the parental household in order to take up employment in non-agricultural sectors or attend college or university. However, young adults living in
urban/industrial areas need not leave the parental house-
hold in order to engage in such activities. Therefore, the
co-residence of adult children with parents, a component of
$I'_H$, will be lower in the rural/agricultural than in
urban/industrial areas and $I'_H$ will be higher.

Kertzer's (1978) suggestion that differences in the
relationship to the means of production, rather than in the
levels of industrialization and urbanization, per se,
account for variations in household structure is an
important one and merits the attention of future research.
A study that examines the effect of variations in the
relationship to the means of production on household
structure would help clarify whether or not industrializa-
tion/urbanization play a role in the process of household
nuclearization.

The availability of kin is of minor importance in
explaining the macro-level variations in household structure
in the Canadian provinces. The daughter-mother ratio does
not contribute to an understanding of such variations.
However, migration did have a positive effect on $I'_H$ even
when incomes etc. were controlled, suggesting that the
dispersal of kin does constrain the living arrangement
alternatives of Canadians in all provinces. Presumably, the
effect of kin dispersal on household structure would have
been stronger if better measures of migration than life-time
migration had been available.
Finally, density per square mile of land area had a negative effect on household structure. However, the mechanism through which density, as measured in this study, affects household structure is not clear.

Overall, the model utilized in this study was very successful in explaining the cross-sectional and historical variations in household structure in the Canadian provinces over the 1921 to 1971 period. The study suggests that the major determinants of such variations are tastes and preferences and income.

7.2 Conclusions and Implications

The findings of this study suggest that future research should make every effort to include measures of both income and tastes and preferences when attempting to explain variations in living arrangements. Both factors together probably lead to a much better understanding of such variations than either one alone. Better measures of tastes and preferences also need to be derived. There is also an urgent need for theoretical development in relation to the determinants of macro-level household structure.

The underlying causes of the variations in tastes and preferences for separate living in the different regions need to be studied more carefully. Post-war changes in preferences for privacy and autonomy, net of education, need to be clarified. The findings of this study suggest that
such tastes have declined. One way to gain insight into this issue, if data were available, would be to examine tastes for privacy and independence by educational level for successive cross-sections. If tastes for privacy net of education showed declines in the post-war period this would confirm the findings of the present study. An additional route to the clarification of this question would be to determine the extent to which the increase in co-residence of young adults with other young adults in the post-war period has depressed general adult headship rates once other factors have been controlled.

It also needs to be determined whether the model estimated in this thesis on the basis of pooled cross-sectional and time series data really is applicable to independent analyses of cross-sectional and time series data. If the model was used in the analysis of cross-state variations in headship in the United States it would be possible to determine its applicability to cross-sectional data.

One of the major drawbacks of this study is the use of a measure of household structure that reflects so many different types of co-residence. But it is only because of the utilization of this particular measure that the study is able to provide not only descriptions of the trends and differentials in household structure in Canada and the provinces over the twentieth century, but also indicate the
determinants of such variations.

The results of the study suggest that if incomes, educational levels; migration and the proportion of the total population of Canada resident in the Maritimes, Quebec and the Prairies continue to increase, separate living in this country will keep rising. But, to the extent that population density increases and the proportions of the population engaged in agriculture continues to decline the growth in separate living will be retarded. If separate living in Canada continues to rise, then such varied phenomena as the socialization of the young, inter-generational relations, social isolation of certain age-sex groups and the demand for housing and other consumer durables (Harrison, 1977; 1981; Kobrin, 1973; 1976b; Wargen, 1979) will be affected.
Appendix 1 Data Sources

1) I'H:

a) Number of Households:

1901-1966:

1971:

1976:

1981:

b) Household Headship Rates by Age, Sex and Marital Status, 1961:

Household Heads by Age, Sex and Marital Status:


Population in an Age, Sex Marital Status Group:

c) Population Distributions by Age, Sex and Marital Status:

For 1901 population by age, sex and marital status was estimated from the age and sex distribution for 1901 and the age, sex and marital status distribution for 1911.

1901:

Source for Age/Sex Distributions:


Source for Age, Sex, Marital Status Distribution for 1911:


1911-1921:


1931:


1941:


1951:

1956:

1961:

1966:

1971:
For Canada:

For Provinces:

1976:

1981:
2) **Daughter-Mother Ratio:**

Both the number of women aged 35-44 and the number of widowed and divorced women aged 55 and over data were calculated from the tables used for the age/sex/marital status distributions for each year.

3) **Urbanization:**

1921-1931:


1941:


1951:


1961:


1971:


4) **Total Population:**

1981:

1901-1976:

1926-1928:

5) Education:
   a) Population Aged 5-19:
      1921-1971:

   b) Enrollment:
      1921-1971:

6) Density:
   1921-1971:

7) Migration:
   a) Number of Migrants:
      1921-1971:
b) Total Population:

1921-1971:


8) Income:

a) Personal Income of Provinces in Millions of Dollars

1926-1971:


b) Consumer Price Index for Canada:

1926-1971:


c) Population:

1931-1971:


1926-1928:


Personal per capita incomes adjusted for the consumer price index for the years 1926, 1927, 1928 were used to obtain regression estimates for 1921.

9) Percentage of Male Workers Employed in Agriculture:

a) Number of Male Workers Employed in Agriculture:

1921-1971:

b) **Total Male Work Force:**

1921-1971:

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