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THE GEOGRAPHY OF IRRELIGION
IN CANADA

by

Bruce W. Mitchell, B. A.

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A thesis submitted to the Faculty of Graduate
Studies and Research in partial fulfilment
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ABSTRACT

The Geography of Irreligion in Canada

The proportion of census tract residents reporting "no religion" in the 1971 Census varied greatly within Canada with apparent regional and sub-regional ordering. High levels of "no religion" in British Columbia contrast with low levels in Newfoundland and Quebec. Rural-urban distinctions are not well developed as might be expected and complex patterns exist within most cities.

The paper proposes and tests a social hypothesis which describes this geographic distribution. The hypothesis is developed from a review of reasons for religious involvement and disinvolvement and a micro data analysis of 1971 Census correlates of "no religion". Significant factors are hypothesized to be social cohesion in the community, ethnicity, length of residence, age and education. Size of place of residence is believed to have little significance.

The hypothesis is tested for support using hierarchical multiple regression analysis. The results of this analysis offer support for the hypothesis..

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CHAPTER 1

INTRODUCTION

Information on the religious affiliation of Canadians has been collected as part of the Census since 1851¹. An individual's religious denominational affiliation has been grouped with other social statistics such as ethnicity and mother tongue and used as a tool for the social identification of the population. The census question on religion was designed to provide an accurate measure in this light.

However, religion differs from other population characteristics because it is a learned, essentially voluntary, and changeable feature rather than an inherent trait such as ethnicity. While choice is not involved in inherent traits, the individual does make decisions concerning his religious affiliation which may take several forms ranging from denominational choice to non-affiliation.² The choice of denomination has been available to the Census respondent since the question's introduction. However, provision for the response "I have no religion" has been inadequate. Space was provided on the form beside the "other religions" box in which a "no religion" response could have been written in. Essentially, however, this identified the response as a form of religious activity rather than as rejection of religious beliefs.

To correct this fault the 1971 Census form provided a "no religion" category which the respondent could choose in answering the question "What is your religion?" Probably as a result, the proportion of persons in the population who profess "no religion" increased from 0.52% in 1961 to 4.31% in 1971.

1. Census of the Canadas, 1851-1852.
2. Although at the time of the introduction of the question religion may have in fact been viewed essentially as an inherent trait. The changing status of religion particularly from its social pervasiveness to its present compartmentalization means that the question now probably indicates something different from that which the statistician who originally included it on the form intended.

The revision means a uniform measure of religious non-affiliation is now available for the first time in Canada. The availability of this new information provides a first time opportunity for research into the relationship between religious behavior and a wide range of social influences on the individual. The religion question has an attitudinal dimension not found in other census statistics. Since the religion data can be statistically linked with other census responses, it should be theoretically possible to determine the relation between a "no religion" response and other socioeconomic variables and ultimately discuss what the response seems to indicate based on these relationships.

Religion is a learned and a voluntary practice. In order to maintain its status over time it must offer the individual and society something of continuing value. Belief and organized worship activities serve to fill a variety of spiritual and social needs for individuals and groups. It is widely agreed that spiritual needs include (a) explanations of creation, and existence, and (b) comfort and explanation of misfortunes. Social needs have been filled by religious activity through its promotion of organization in worship that in many cases has extended to a variety of aspects of daily life leading to a general social integration in the community. Religious participation has been historically shown to offer a sense of social belonging to the individual. The social integration effect of religion has been seen to promote social stability and ordering, social control and group cooperation through shaping of individual values, attitudes and behavior.

An individual's rejection of religion or non-participation in religious activity therefore would seem to indicate that those spiritual and social needs which are usually met through religion either do not exist for him or are being satisfied in some other manner. Religious rejection, of course, also puts the individual outside the

religious social group and since this may have spread beyond the immediate sphere of the church, this potentially means broad social exclusion.

The proportion of Canadians with "no religion" is very small compared with Canadians who express a religious choice. Again, census figures indicate 4.3 percent of the population report "no religion", compared to 95.7 percent who profess a religious preference. It can probably be assumed that most of those who respond positively to the religious question on the Census derive at least some spiritual meaning and perhaps additionally a modicum of social belonging from religious participation. Although these needs would seem at the base for any individual's profession of religious attachment, the degree and nature of commitment varies from person to person. This occurs because influences, opportunities and perceptions ultimately relating to religion also vary among individuals.

Before the 1971 non-affiliation data became available, it was very difficult to study the effect of social and spiritual needs on religious involvement. Now that such data exist, it has at least become possible to statistically identify some of individual and group characteristics associated with individual non-participation and disinvolvement and test theories about the motivating influences. For the geographer, spatial aspects of these relationships are of special interest.

The proportion of persons in the population reporting "no religion" varies widely within Canada and examination of the distribution indicates regional ordering. (Mitchell, 1974) This would lead one to hypothesize that the underlying influences which affect individual religious participation and disinvolvement also have a spatial dimension.

This paper hypothesizes that the spatial variation in the "no religion" level in Canada is related to spatial variations

in the social environment and more exactly to differences in the social conditions, characteristics and social processes of places. For example, some social environments may be more receptive than others to the introduction of new ideas that challenge the status quo, in this case, accepted beliefs. As a second example, participation in religion as a social activity may vary from place to place depending on the degree of competition it meets from other activities for the individual's time.

This paper proposes to put forward and test some underlying causes for the spatial variation of the "no religion" level in Canada's population. A first stage will involve identification of a related set of social, physical and economic variables that seem to statistically describe the distribution of the "no religion" population in this country. A second stage will attempt to move from this statistical description of the distribution to an hypothesis for an explanation of the pattern. This hypothesis will take into account the effect of a variety of characteristics of the social environment on the individual's opportunities and perceptions which influence his spiritual and social needs and ultimately determine whether or not he participates in religion. This step involves linking the results from the first stage of this study with the results of other studies that have dealt with variations in individual behavior and the underlying causes.

The geographic unit often used as a base for the study of individual and collective behaviour has been the community of residence. The local community often serves as the social unit most immediate to the individual outside his nuclear family. Within this area a highly developed set of social and family relationships may exist. Even if social ties with other members of the community are not particularly strong, the sharing of certain common interests by virtue of their common residence fosters group cooperation and generates some pressure

on community members to maintain certain acceptable norms of behavior.

A major feature of religion is its social collective aspect. This operates very much at the local community level. Religion provides a variety of services to its members in the community, both religious and non-religious, and in turn draws strength for its maintenance as a viable institution from members' activities.

The integration of the church with the broader social fabric of the community has been abetted by its function as a major focal point for social activity. In turn, focusing local activity through the institution has historically given the church substantial influence on the values and attitudes of the community's members.

The local community then seems to be the logical geographic unit to use for this research project. Geographic comparisons of levels of the "no religion" variable and considerations of related social influences and their effects on individual behavior seem to demand the high degree of disaggregation that the community unit provides. Only if one could argue for a broader hypothesis of determinism resulting in a "no religion" level directly modifiable by changes in the socio-economic state of an area would larger geographic units such as provinces have meaning in an "explanatory" model.

Designing a data collection unit that accurately reflects the concept of the local community presents problems. The term neighbourhood is often used synonymously with community of residence. Because neighbourhood is based on the individual's pattern of social interactions and not a set of broadly based criteria it has been impossible for statisticians and geographers to come up with a completely acceptable method of delimiting it. Much of the data used in this study will come from the Census and therefore Statistics Canada's proxy unit for neighbourhood, the census tract will be used as the basic geographic unit. Because the census tract is defined using recognizable geographic and social features as criteria one hopes that they

come close to representing the local social geography. However, there is no guarantee that these units actually coincide with either the communities or the church parishes as they exist; however, it is believed that these geographic units will provide adequate and fairly accurate information for the research.

The availability of the "no religion" information from the census offers the opportunity for new research in a number of fields. The geography of communities and neighbourhoods has often been studied in this country. The geography of religion however has generally been neglected. A geography of "no religion" has not existed. It is the intention of this paper to establish the geographic foundations of "no religion" in Canada while at the same time making some meaningful contributions to the geographic knowledge of communities and of religion in this country.

CHAPTER 2

GEOGRAPHY, IRRELIGION AND THE COMMUNITY IN CANADA

This chapter discusses a number of subjects of concern to this research. Relevant literature in each area is focused on and the stage is set for analytical chapters which follow. These subsequent chapters draw heavily upon the research of other authors offered here in building a case for the research hypothesis. The discussion here proceeds from a broad review of the relation between geography and religion, through a discussion of concepts relevant to the "geography of irreligion", to reviews of specific subjects such as the reasons for commitment and disinvolvement.

2.1) Geography and Religion

The study of Geography and Religion brings together two concerns that at first glance might appear to be ill at ease with one another. The geographer seeks to overlay a template of spatial pattern and process on his area for study and this is most easily accomplished if some sort of physical form is already present. For example, a landscape is ideally suited to geographic analysis.

In contrast, religion finds its central focus not in physical entities but in the concept of belief. Other fields of social study have at least a base in the physical (sociology with the family or the group, economics with goods) even if other concepts such as belonging or supply and demand also exist. Religion, however, is built on belief and this concept is fundamental in its definition.

Other quasi-social and psychological elements that are also an integral part of the broad sphere of religious study are built on the framework that belief provides. These include human activities that in some way bear the imprint of religious influence and physical entities that have religious significance. The former are often labelled ritual. Ritual conjures up images of religious worship, practices and

2
cultural habits associated with religion such as dietary laws and customs.

Physical manifestations of religion, (churches, mosques, holy places and the concept of sacred space), are a second product of the belief system, and have generally gained their significance through human activity patterns, although in some cases a direct link with the supernatural may have been responsible.

A third socio-religious element with a physical dimension is the individual as a "religious creature". The manner in which each person expresses his beliefs effects patterns of activities and the religious cultural landscape.

The three foregoing aspects of religion, the religious activities of people, features of the religious cultural environment and the people themselves have the characteristics suitable for geographic study and therefore represent the focus for most if not all of work in the geography of religion. The relationship each maintains to the concept of belief makes it possible to explore some of the characteristics and implications of belief by proxy. Together, beliefs, activities, ~~the~~ people and physical entities make up religious systems.

As previously mentioned, the geographic template that overlays a social concern such as religion most often consists of pattern and process. In Geography of Religions (Sopher, 1967:4) identifies three themes that have been used in social studies to differentiate pattern and process for examination. These include (1) distributional characteristics, both geographic and social patterns; (2) the organizational "machinery" that relates to structure in space; (3) growth, diffusion and interaction and their related mechanisms. These themes are generally intertwined in specific research areas that in the past have included: (1) the physical elements of religion in terms of the size, shape and distribution of churches and holy places; (Hotchkiss, 1950),

(2) the impact of particular aspects of religious beliefs and human activities on the cultural landscape such as food taboos, (de Planhol 1970:50-60); (3) human religious activity patterns such as pilgrimages and their relation to the use of the religious landscape, (Sopher, 1967:51-54); (4) trading and diffusion of religiously significant articles, (Isaac, 1959); (5) the person as a religious being, (Meinig, 1965; Shortridge, 1976).

2.2) Irreligion and Geography

The topic for consideration in this paper, Canada's irreligious population, at first glance falls outside the realm of geography of religion. Religions by definition have a systematic nature, the by-products of which, human activities, create or are themselves the phenomena which social scientists study. In contrast, a population's irreligious activity does not result in a church dotted landscape, dietary laws or pilgrimage patterns. Therefore it may not fit a narrowly defined definition of a religious system. However, in a religious environment, irreligious activity may bring about recognizable environmental changes. The fact that these can be linked to activities argues for some sort of systems-type recognition. Irreligion is regarded here as an informal system because it is essentially the opposite of formal religious systems and yet in many ways parallels them. Irreligion for example, has at its very foundation, the disintegrating mechanism of disbelief which functions very similarly to the way in which belief works as an integrating mechanism for religious organizations.

Irreligion is a component of the total religious picture in somewhat the same way that unemployment is a component of the total labor composition of an area. One must be able to understand why people are or are not religious just as one wishes to know why they are not employed. Current geographic work has focused at the religious denominational level or using the analogy, the occupation level. Just

as exclusion of unemployment gives an incomplete view of the labour picture so the lack of work that has been done on irreligion in Canada means the geography of religion in Canada is incomplete.

Viewing irreligion as a type of religious system has its advantages for research because much work has already been done in the field of geography of religion and existing approaches can be applied here. For example, Sopher's three themes for geographic examination of religion also serve the researcher dealing with irreligion:

Irreligion's (1) distribution, (2) organizational mechanisms which have produced the current structure and (3) aspects of growth and change are elements at the heart of the research here.

Little work on irreligion has been carried out by geographers. Those studies which have been undertaken have been designed to study not irreligion but rather geographic variations in frequency of religious practice. Non-practice statistics which are available from these works can provide some insights for the current research. However, statistics on institutional disinvolvement and non-involvement are only part of the total irreligion picture. The more fundamental aspect of non-belief is not included and for the purposes of this study this is a serious information deficiency.

The work of John Gay (1971) in England and Fernand Boulard (1950) in France are the two major geographic studies of church attendance frequency. Gay deals mainly with distributional characteristics of attendance while Boulard's work includes not only this aspect but some discussion of distribution change and growth in church attendance patterns and the social and environmental causative mechanisms involved.

Boulard's (1950, translated by Jackson, 1960) study for France, establishes categories of commitment to the Catholic church. His approach is more valuable for this study than John Gay's because he proceeds beyond descriptions of geographic patterns. He establishes a link between socio-economic conditions and the patterns in an

effort to develop the first descriptive geographic model of religious commitment.

Boulard found that three reasonable distinct regions of religious practice existed in France. The areas in which more than 50 percent of the adult population regularly attended Mass were termed regions of majority practice. Areas of passive commitment, essentially minority practice, largely contained people who continued to maintain some ties with the church but who did not participate regularly. Areas of defection were regions in which a substantial proportion of the population had disassociated itself from the church and was therefore ripe for mission activities.

Boulard's work indicates that most of the majority practice areas were peripherally located in France and generally away from the large urban industrial areas. These included the Pyrenees, Brittany, the Jura and the Massif Central. The area of minority practice covered the south and Corsica plus a wide band of central France from Bordeaux in the south to Lille in the north. The mission areas included the Paris basin and the Garonne Valley but did not necessarily include the major urban industrial concentrations.

Boulard offered a general explanation of these patterns. He believed that religious practice decreased in relation to the strength of the secularizing spirit in an area. He perceived towns to be the nodes generating these attitudes through social interaction with industrial development, tourism and migration as the mechanisms for its broader diffusion.¹ A number of areas of defection and minority practice, however existed in distinctly rural areas.

Boulard offered an explanation that has been echoed by other French sociologists. Certain segments of the French population have

1. From these comments sociologists would conclude that Boulard supports the Louis Wirth Model (1938) of community and local institutions attachment.

historically been noted for their anti-church sentiments as far back as the revolution. For example, LeBras (1955), Pin (1956), and Godin and Daniel (1943) have all noted that people of certain working class occupations have always been in conflict with the church. Boulard concludes that where these groups are well represented, church participation rates tend to be depressed accordingly.

Boulard thus begins to seek causative links from the social environment to explain geographic pattern, an objective which is also the basic aim of this research. He presents some very broad correlations between religious participation and social characteristics that seem to exist in France. That this is probably the foremost research piece in the geography of religious participation indicates the lack of attention paid to this topic in roughly the last twenty years. For the purpose of this study, Boulard's work may provide some clues for building a descriptive model for Canada but it now shows many signs of age with respect to more current literature from other fields.

Sociological, religious and psychological research offers more promise than the geographic literature for an explanation of geographic variations in religious non-affiliation levels. Work from these areas, however, has never been drawn together from the perspective of the geographer. The following sections therefore are an attempt to review the material from other disciplines in such a way that they will provide a conceptual base for the development of the geographic research hypothesis.

To understand irreligion it is essential to have an intimate knowledge of the relationship between the individual and group and religion since rejection of religion is in fact a kind of religious behavior. The topics of concern in the sections that follow reflect this need.

Considered first are aspects of individual commitment to religion, and the reasons for individual religious disinvolvement. (Section 2.4) Two sections which follow offer an historic and geographic perspective

of the nature of religious involvement with particular emphasis in Canada. (Sections 2.5 and 2.6)

Sociological literature emphasizes the significance of the communal nature of religious activities and hints at community based reasons for differences in participation levels. Section 2.7 therefore, will deal with the sociology of the community, particularly with respect to individual behavior. This section also discusses the relationship between the individual and the group from the perspective of religious activity. Preceding these four sections, however, a section discussing and defining some of the concepts used in this study is in order. This includes dealing with the meaning of "no religion", what in fact the religion question of the Census measures and how this measure relates to the concepts of irreligion, atheism, belief, disbelief, religious commitment and religious participation.

2.3) Relevant Concepts and Definitions

Degree of commitment to religion, what Stark and Glock (1968) term religiosity, varies greatly among individuals. They offer five dimensions of commitment. These are 1) degree of participation, 2) degree of orthodoxy, 3) intensity of religious experience, 4) depth of religious knowledge, and 5) capacity for translating belief into practice. With the exception of degree of orthodoxy, religious and irreligious behavior can be viewed as existing on the same continuum for each dimension. These dimensions would not apply for the irreligious person only if he was absolutely disinvolved from religion (an atheist).

Therefore, like religiosity, irreligiosity and irreligious behavior can vary greatly in its scope. For this reason it can be a particularly hard concept to measure. It may take the form of anti-clericism, institutional non-participation or it may involve a denial of belief as well.

What aspects of irreligiosity does the Census "no religion" response capture? The Census question is worded, "What is your religion?" This in effect encourages a positive response from the respondent: (my religion is ...). For the purposes of studies on religious disinvolvement a neutral wording of the question would be, "Do you have a religion? If yes, what is your religion?" The term "no religion" itself seems to beg a statement from the interpreter of the data concerning what is being rejected.

Crysdale and Wheatcroft (1976:8) have studied Gallop poll figures on beliefs. Only 2 percent of Canadians polled stated that they were certain that there is no God or vital force while another 7 percent felt uncertain in answering this question. At the same time in 1971, the Census revealed that slightly over 4 percent of the population had "no religion". The "no religion" group therefore seems to include not only those who dismiss a supernatural power but also a small portion of those who feel this may exist.

The "no religion" response is in the first place a reaction to, and rejection of, organized religion because it is offered more or less as a denominational choice on the form. Some respondents, however, may have chosen to interpret the question, "Do you believe in God?", although this is not asked. This may result because belief has usually been articulated through the institution of the church and to reject the church is for most (but not all) to also reject the set of beliefs it supports. As a result, the "no religion" question may be a reasonably accurate measure of individuals who are at the negative end of the religiosity continuum, persons who do not participate and few of whom hold any religious beliefs.

The interpretation of the question in this paper therefore is that it is at least a rejection of church, the institution, and possibly a rejection of any religious beliefs whatsoever.

A further comment is warranted on the relation between affiliation, levels of individual participation and beliefs. The Census indicates that over 95 percent of Canadians are affiliated with a religion. However, Crysdale and Wheatcroft (1976) cite Gallop poll data which indicates that the percentage of the Canadian population participating in organized religion on a weekly basis dropped from 55 percent in 1965 to 39 percent in 1974.

Obviously, religious affiliation does not coincide with religious participation. Glasner (1977:21) notes that while an individual's church attendance may decline, his beliefs may hold constant or increase. Thomas Luckmann (1967) refers to this as invisible religion. People could conceivably hold fairly strong religious beliefs but these beliefs result in their institutional participation only on occasions when a particular service the church offers is desired. These might include cases in which ceremony marks an event such as marriage, baptism or death.

The low attendance figures contrasting with high percentage of affiliated indicate that invisible religion may prevail in Canada. The results of this study may offer some reasons for this pattern but because Census statistics on belief and participation are not available, research into this dimension of religiosity is difficult.

2.4.) Commitment and Disinvolvement - Theories about Individuals' Actions

The terms commitment and disinvolvement are used throughout the paper to specify individual actions that are ultimately captured in a general way by the dependent variable of this study.

Both commitment and disinvolvement are actions taken by the individual in response to social and psychological influences and needs. A number of attempts have been made by researchers to detail these influences and needs and to link them with mediating social and environmental characteristics in an effort to develop comprehensive theories

for religious commitment and disinvolvement. These theories are particularly relevant for this work because they provide a bridge between individual religious activity and broader social and environmental patterns. Such a bridge is necessary if an hypothesis of "no religion" distribution (a social phenomena with its base in an individual decision) is to be developed.

Sections follow detailing the major theories for individual religious commitment and disinvolvement.

2.4.1 Religious Commitment

The basis for commitment to religions seems to fall into two categories, belief commitments and social commitments.

2.4.1.1 Commitment is Spiritually Based

The commitment to religion due to beliefs is straightforward. Wilson (Wilson, J., 1978:12) reviews the major points. He notes that religious beliefs .

Deal with the World as a totality in time and space, and with the general principles or laws that govern it by reference to a supernatural realm. They provide a general framework for order, endowing particular acts with cosmic significance.

The beliefs in turn influence the way one looks at the world, offering a structure for perceptions and a focus and a path for human actions.

Crysdale and Wheatcroft (1976:12) note that belief serves the individual as a means to cope with and make sense of the inescapable limits of his existence. Three of these limits are mentioned.

(1) Man is ultimately powerless. He faces death as well as a host of natural and man-made forces in life over which he has no control.

(2) Man is uncertain. He is continually concerned about questions of both his existence and his state of physical, mental and social well being due to the impact of natural and social forces. (3) Man faces scarcity. It is not possible for everyone to obtain everything

he wants. However, some people are able to obtain more than others.

Belief involves the application of faith and that faith is generally directed to a superior being who may be able to transcend these limits. Faith offers the believer a way to pass beyond these barriers. He seeks the power of the supreme being, certain of his origins, of existence and of consequence in order to chart a course for his actions in life and the hope for improvement of his existence. (Argyle and Beit-Hallahmi, 1975:180-181). Age has been recognized as a major correlate of spiritual commitment. Stark (1968) has discussed how the increase in one's age brings with it the increased recognition of life's transitory nature and a desire to seek control over situations in which he is powerless.

2.4.1.2 Commitment is Socially Based

The second group of explanations of religious commitment are socially based. Wilson (Wilson, J., 1978:12) feels that the simplest explanation for the continued existence of religious practice is social learning. The individual is introduced to religious activities, concepts and beliefs from parents and other social contacts during his early development. The religious beliefs and concepts become integrated with his broader perceptions and attitudes which shape his view of the world. Religious participation becomes a normal social function in much the same way as school attendance.

Others writing on the social basis for commitment deal with the social service the church provides. It is generally held that social commitments to the church as an institution arise from the desire of individuals to share their faith and other sentiments that may arise out of it. (Roof, 1978:31). The individual may find belief commitments have more value because his views are reinforced by those around him doing likewise. Berger terms this a plausibility structure, a system in which the beliefs and views of reality are made plausible by the common agreement of the group (Berger, 1967:45).

The religious community, the product of this plausibility structure, may or may not have close ties to a wider community. Roof, for example, notes that in contemporary society, religious meanings are not generally shared in the public sectors and that for believers the group becomes especially important for reinforcing their particular view of reality. Often, however, a religious community may be highly integrated (almost one in the same) with the broader community. The plausibility structure serves the institution as well as the individual. The community solidarity displayed in institutional religious activity offers plausibility for individual beliefs and plausibility for the continued existence of the institution. In return, the institution offers the individual a set of guidelines to follow in his daily life, in effect a problem solving tool. Commitment to the use of these guidelines by the community in return further enhances the power of the institution. The result may be a society in which the religious and the secular are intertwined and essentially indivisible. Settlements in 19th century rural French Canada were good examples of this. The nature of the community and its relation to the religious institutions is significant and has further relevance for individual disinvolvement.

Beyond its plausibility value there are other reasons offered for the religious institutions' ability to attract and retain followers. Two theories are particularly prominent in the sociological literature, the socialization theory and deprivation-compensation theory. These are the results of sociologists seeking explanations for the correlations between a variety of socio-economic correlates and religion.

Socialization theory explanations take a number of forms but central to each is the interpretation that being part of a church community offers the individual a variety of social benefits. These range from friendships and leisure activities to social assimilation, group acceptance and respectability. For example, it has been dis-

covered that the church provides a contact point for meeting people, developing and carrying on friendships and involving one's self in a variety of group social activities. This is particularly true for the aged whose opportunities for social contact decrease as they "drop out" from other forms of social activity. Glock, Ringer and Babbie (1967) have discussed this phenomenon in detail. Other authors have studied the increased participation by families with young children. They came to the conclusion that this is motivated by both responsibilities parents feel towards the children and social and kinship pressures to conform to local norms of behavior. (Argyle and Beit-Hallahmi, 1975; Lenski, 1963; Hoge and Carroll, 1978; Lazerwitz, 1964).

Middle class-working class differences in religious commitment have also been discussed by Lenski, (1963), Demerath, (1965) and Goode, (1966) with relation to the socialization theme.

The second theory, the deprivation-compensation theory is an old one that has been the focus of renewed debate in recent years. It is based on the notion that certain elements of the population, the poor, the aged and females have been deprived of self-fulfilment, respect and praise and have sought out religion as a milieu in which some of these things can be obtained.

The theory would hold that women with families who devote substantial amounts of time to the church do so to seek compensation for the self-fulfilment and social contacts they may perceive they are being deprived of by not having a career.¹ The theory has been subject to a great deal of criticism. In the United States, correlate studies (Burchinal, 1958; Lenski, 1953) indicate that the middle class are the major religious participants, not the working class as the theory would seem to predict.

Hobart (1974) tested a number of the supposed correlates of this theory in Alberta and also found they did not relate to church involvement

1. Allport (1950) supports this theme, as well as Glock et al (1967); in the case of the later they in fact see social deprivation as a reason for socialization at church. This links the two theories.

as expected. Argyle and Beit-Hallahmi (1975) note that while there is no conclusive evidence that religion has not prospered in times of economic depression, the post-war economic boom that followed the Second World War, in fact, coincided with an increase in religious activity. However, Demerath (1965) is among those who have reviewed class differences and the deprivation theory and he concluded that the theory was relevant if one considered not the actual numbers who participate but instead the number of people who are intensely committed. For example, he saw the participating poor as more committed to a variety of aspects of religion than the middle class. For the church-going poor, he felt religion was a larger part of their daily lives than for middle income people who put the emphasis on institutional participation only. Stark (1972) has also found that if an individual is religious in the first place, in times of stress (through poverty) he is more likely to turn to religion as a solution (and become more religious).

Wade Roof (1978) offers a key criticism of the deprivation theory. The theory is based on the assumption that all members of society are in a position to take advantage of the compensation offered by religion. Roof, however, argues that in modern society, religion is segregated to such an extent from other institutions that many people in society are never exposed to religious culture and therefore cannot be expected to seek it out when they are more familiar with a host of other types of spiritual and physical compensations. He adds that in a secular society, it is unlikely that many deprived persons will find other worldly rewards sufficient compensation. Therefore, even for a person with knowledge of religion, the religious compensations may not be able to compete with worldly ones.

2.4.2 Religious Disinvolvement

2.4.2.1 Disinvolvement and the Individual

Forces behind religious disinvolvement and non-involvement are complementary to forces involved in religious commitment. It is

assumed that when commitment factors fail to operate or changing conditions force them to break down, non-involvement or disinvolvement results. The "no religion" variable from the Census is essentially an "end product report" of the extent of non-involvement and dis-involvement due to commitment non-operation or breakdowns.

A number of explanations for disinvolvement appear in the literature. Mauss (1973) undertook a study of the dimensions of disinvolvement and determined that three main ones exist; 1) an intellectual dimension, 2) a social dimension and 3) an emotional one. (Campbell, 1971: 26 and 124) The doubts and disbeliefs an individual may hold concerning the central tenets of religion are encompassed by the first dimension. Religion puts forward a particular perspective of reality which the individual may not agree with. Education has often been related to disinvolvement (non-involvement) for intellectual reasons. Nelsen (1973) found a strong negative relationship between intellectual level and church attendance for American Metropolitan Residents. Welch (1978) found that a higher percentage of people not affiliated with a church had attended university than those affiliated with a church.

The second, disinvolvement for social reasons may be the result of a change in the socialization function that religion provides. The individual may cease to attend church if the socializing experience becomes unsatisfactory, if previously strong social bonds with other members of the institution are broken (for example, through relocation) or if alternative social experiences become available outside the church.

The emotional dimension is most complex of the three and includes disinvolvement that is due to disaffection with the institution for a variety of personal emotional reasons. If religion is forced on one as a child, in later life the individual may discard religion in an effort to escape what he sees as a continuing imposition. Somewhat

in the same vein, Wuthnow's research (1976) indicates that generations attempt to differentiate themselves from one another so that a highly religious generation may be followed by an irreligious one. The individual may have also encountered hypocrisy in the beliefs, attitudes and actions of church members. He may have faced a personal tragedy in which a religious faith was ineffectual. Disinvolvement may result from these experiences.

A final dimension that neither Campbell (1971) nor Mauss (1973) has addressed is the effect of apathy and disinterest. An individual may hold beliefs but if he is not interested in displaying them publicly or sees this as irrelevant behavior, there will be no impetus for him to participate. In other words, while he holds beliefs, he is not interested in worship.

The discussion so far has spoken of the disengagement from religion as if this was a change from a norm. But is this necessarily the correct perspective? Many people have never been exposed to religious thought and training in early life. For this group, religious non-involvement is normal and any sort of step toward religious commitment represents a change.

High levels of irreligion that at first might be explained as a reaction to some condition via disinvolvement may in fact be quite normal for the area if one takes into account a lack of religious history, a lack of churches, laws against religious instruction or disinvolvement reactions among earlier generations.

2.4.2.2. Disinvolvement and the Nature of Religious Institutions

The discussion of disinvolvement and non-involvement has been so far focused on the feelings and actions of the individual. It is also worthwhile to examine the issues in terms of a broader social perspective with particular emphasis on the role of the religious institutions and how this role varies. A number of authors, including Roof (1978) have cited a crisis of plausibility that faces

the religious institution in the United States and the Protestant church in particular. He notes that the belief systems of today's churches fail to instill in participants a commitment to the ethical and philosophical teachings of the church and in addition the type of faith that they tend to fashion is not particularly compelling and meaningful in relation to modern culture. Kelley (1972) feels this is due largely, at least in the Protestant churches, to the institution's inability to solve problems of personal meaning to individuals. Other community institutions are better able to do this. This is a product of the secularization process by which, Wilson notes, (Wilson, B., 1966:xiv), religious practice and religious institutions lose their social significance. Glasner (1977:31) sees an element of force in the secularization process. He defines secularization as an attempt to disengage and emancipate certain key aspects of social life from religious tutelage. It was the presence of this strong religious tutelage in certain societies which kept religious belief, participation and particularly meaning and commitment very strong. When this doctrine becomes irrelevant, religion itself loses its ability to control social action.

Unlike many of the Protestant churches, the Catholic church has been very cognizant of this fact and carefully maintains the devices it recognizes are necessary for its continued vitality. It maintains strong links between beliefs, rewards, the church and society. (Westhues, 1976)

Unlike the Protestant church in which redemption comes directly to the individual, in the Catholic church redemption comes to the individual only through the church and its sacraments. The Catholic church has been able to resist secular influences better than the Protestant because it controls its social environment. For example, in Catholic societies such as many of the Latin American countries, the role of the individual and individual competition is downplayed

and the communitarian culture is stressed. In countries in which the church cannot control all social institutions, it creates an insular subsociety with its own hospitals, schools and orphanages to ensure that the church in fact continues to provide social meaning and through this, individual commitment. (Westhues, 1971)

In Catholic societies high levels of institutional participation have tended to reflect correspondingly intense levels of commitment. In contrast, in Protestant societies this may not be the case. The high participation rates that have characterized recent church history, particularly in the United States, do not represent, in the view of several authors, (Argyle and Beit-Hallahmi, 1975:38; Wilson, J., 1978:32; Luckman, 1967) a broad commitment through beliefs to church teachings but rather a socialization response. The church therefore may have some power to control disinvolvement of members if it can successfully create a broader commitment base. This has geographic significance because it seems to indicate that in areas in which the dominant religious group is one which has been successful in establishing this broad base, disinvolvement levels should be low.

2.5) Historical Patterns of Commitment and Disinvolvement

Intensity of Religious Commitment and rate of disinvolvement have varied dramatically over time. The spatial aspects of these longitudinal patterns have particular relevance for this research because they point to correlates and possible explanations for local and regional "no religion" levels. Therefore this section offers an historical perspective on commitment and disinvolvement.

Secularizing trends in society have often been held up as responsible for reducing the role of religion in society and the importance of religion and belief in the lives of individuals. Is this actually the case? Although most people would agree that changes are taking place in the institutions of religion, are these having an effect on the more personal aspects of religion? If the answers are

yes, are these any more than part of a continuous cycle of decline and revival of religion?

Historians of religion record the rise and fall of religious enthusiasm that has taken place in Western Society. The 18th century for example saw the growth of indifference to traditional religion. Sopher (1967:107) believes that this derived from the growing spirit of rationalism that was spreading both as a reaction to the religious wars of earlier centuries and as a result of the growth of knowledge about man and his environment. The medieval form of religion that was strongly tied to the stable but stagnant relationships of the feudal system was unable to adapt to this changing world. LeBras (1955:51), for example, notes that in seventeenth century France the secular influence was strong and growing and that "Fairs provide feast days and pubs were the counter church."

In France this process culminated with the French Revolution, the aftermath of which saw religion suppressed for a time because the institution played a prominent role in the pre-revolutionary power structure. The revolutionary destruction of church power did not affect the situation in French Canada. The arrival of the British several decades earlier had severed links to France and the church did not lose its dominant stature. The physical and cultural isolation of Quebec in fact strengthened religion in the province and the church was able to develop its position as the major mechanism of social integration.¹ The power of the Quebec church and the nature of Quebec society largely prevented the eighteenth and early nineteenth century decline of religion that took place elsewhere. In other parts of North America in the eighteenth and early nineteenth century, in contrast

1. The collaboration of British Governors, Murray and Carleton with the Catholic hierarchy in Quebec brought this about. In return for power, the church was able to provide stability and stifle rebellion in the newly conquered territory.

to Quebec, religion does not seem to have been an important part of the daily lives of most people. Latourette (1941:177 as referenced in Sopher, 1967:108), for example, mentions that only about 15 to 20 percent of Americans were church members. The situation was much the same in Canada, outside Quebec. In 1824, William Bell (1824 as referenced in Cross, 1970) wrote that irreligiosity was general in Canada. Bell felt that this was largely due to the emphasis on individualism and the failure of the church to be a strong socializing institution. He noted that new immigrants will "Feel themselves set free from restraints which were far from pleasant. They will find the neglect of religion quite congenial to their unrenewed minds."

Clark (1948 as referenced in Cross, 1970) offered other reasons for the lack of religion in early Canada, the main one being the inability or unwillingness of the church to adapt to the new Canadian environment. The Anglican church for example was unable to recruit sufficient clergy in England to serve in Canada but would not consent to untrained local people entering the ministry; as a result, much of the country went without churches. Also, the church linked itself to the colonial upper class and thereby alienated the large rural population.

The major reason for the lack of religious participation in early Canada, however, was the nature of settlement and the social structure of communities.

Conditions of backwood settlement in Canada led generally to a very considerable emphasis on individual enterprise in social and economic life. Religious interests weakened with the weakening of social interests generally. The frontier society represented a breakaway from traditional systems of thought and traditional means of control. Folk ties disintegrated in face of the unsettling effects of frontier life, and class ties broke down in face of powerful levelling forces in the frontier community. Folk and class gave way to the social masses. (Clark, 1948 as referenced in Cross, 1970:86)

Although it is clear from this sort of information that the church was not a strong social force and organized religion was not important, we cannot assume that the religious beliefs of individuals were generally weak. In fact, it is likely that a basic belief in God still prevailed among most of the population.

Institutional religion grew tremendously in North America in the middle and later parts of the nineteenth century. If one assumes that widely held religious beliefs made the population receptive to church doctrines then organized religion probably grew as the institution adapted to the lifestyle of North America. Just as important, as well, communities became more stable and structured and so consequently became suited to the institution.

The last half of the nineteenth century saw a general revival of organized Protestant religion that was particularly strong in Canada and the United States. The church re-established its position as the "moral policeman" of the community, a role which for a time gave the church a social role in English Canadian towns not unlike its social power role in French Canadian settlements.

Campbell (1971:4) notes that in late nineteenth century communities, expressions of irreligion brought social ostracism, petty persecution, accusations of immorality and sometimes criminal proceedings. Campbell terms this period an era of excess faith. Excess perhaps, but certainly it was a period of a general expression of faith publicly. The motivation for this religious revival was probably due in part to the church's successful integration with the social community. The church provided both renewed religious meaning for the individual and a sense of group belonging in the community.

The urbanization process that saw much of the population, particularly in Europe, concentrating in medium and large cities presented the church with serious adaption problems. In Britain, for example,

religious participation began to decline slowly after the start of this century. Several writers argue that disinvolvement here arose from secularizing influences generated by class consciousness (Glock and Stark, 1965) and city life style. (Wilson, B., 1966) A certain amount of social radicalism displayed by the working class of this period was reflected in rejection of the church. It is also probably true that the church was finding it increasingly difficult to compete with other social institutions (such as pubs or football) for large segments of the population. Also, unlike the middle and upper classes, the members of the working class did not respond to the same extent to social pressures that might be present to "force" church attendance. Stark's study (1964) reaffirmed that "class" differences in level of attendance have persisted in Britain. Hazelrigg's (1972) study for Italy and Boulard's (1950, translated by Jackson, 1960) research in France also reflect strong anti-clerical traditions among the working classes in these countries.

In the United States, in contrast, religion continued to strengthen after the turn of the century with growth particularly after 1940, according to Argyle and Beit Hallahmi. (1975:16)

Luckman (1967) believes that where as in Europe the church kept a strictly spiritual function and was pushed to the periphery of the social experience, in the United States it underwent a process of internal secularization which kept its functions relevant. The result, however, has been that most of these functions are now secular rather than religious. The church in the United States is no longer a "moral guardian" but merely another compartmentalized social item, Argyle and Beit Hallahmi (1975:29) argue. Conformity in attitude and participation in the institution are seen to be more important than a day to day observance of the moral rules of the church. Both Argyle and Beit Hallahmi (1975) and Wilson (Wilson, J., 1978:398) speak of its theatre-like characteristics.

Wilson (Wilson, J., 1978:398) indicates that the peak of religiosity in the United States occurred in the 1950's as a result of a culmination of middle class growth and a general concern with outward social conformity. It dropped in the 1960's as a result of a dissatisfaction with institutions in general. Wilson indicates that attendance levels remain high (at least 40 percent of Americans attend church once a week and 97 percent identify with an organized religion). However, religious knowledge is generally low (only 35 percent could answer the basic question, "Name the four gospels"). (Wilson, J., 1978:420) Wilson argues that the church has found a place in American society largely through the belonging function it offers its members. (Wilson, J., 1978:421) In doing so, however, it has put itself in the position of being a sort of consumer commodity.

In Canada, the recent pattern has been closer to the American situation than the English. For example, the development of a state of class consciousness that may have kept people away from church in Britain did not take place in Canada. Bryan Wilson (1966) notes that the working class in North America have had a history of church attendance.

Religiosity peaked in Canada in the 1950's as in the United States, and began to decline afterwards. Unlike the United States, however, Canada has always had an extremely large group of people in Quebec who were among the most religious in the world. (Mol, 1976) The level of this religiosity has remained high since Canada's inception. Mol (1976) also notes that in Quebec, religiosity among Protestant non-French groups has also remained high. This is believed to be due to one of the hypothesized causes for high French Catholic religiosity; that religion is a link to an identity and when one is in a minority situation this identity is actively sought.

2.6) Contemporary Churchgoing Comparisons

Denominational differences seem to be relevant to national and regional levels of commitment and disinvolvement. This section examines the relationship in Canada.

Mol (1976) used a 1965 Canadian National Election Study to examine the relationship between regular church attendance, socio-economic condition and denomination. He found that 50.2 percent of Canadians went to church at least twice a month. He also discovered that over 87 percent of French Catholics attended at this rate, compared to 69 percent for English Catholics. Only 19 to 24 percent of members of the three major Protestant denominations attended with this frequency. He also noted that, of all Catholic countries in the world, only Ireland has church attendance figures as high as French Canada. They contrast in particular with the low attendance figures in France and Italy. Attendance figures for English Catholics are comparable for countries in which the Catholic population is a minority (U.S.A., Australia, Netherlands, England). That they are higher than Protestant figures he attributes to the collective nature of the Catholic church and the manner in which it creates an insular subsociety of its own institutions (schools, hospitals) for the use of its adherents. These institutions can put a religious perspective on life's events in a manner not possible in the institutions of the wider society. Mol (1976) found that the fairly low levels of Protestant attendance in Canada was consistent with the international pattern.

Mol (1976) has also studied denominational differences in relation to socio-economic correlates of attendance and affiliation. In the education and income categories results were irregular and largely inconclusive. English Catholics and those affiliated with Protestant denominations who had more than thirteen years of school attended church much more regularly than their less educated counterparts. This relationship did not hold for French Catholics however. Testing income, Mol

found that for United Church affiliates it related negatively with regular attendance but for English Catholics income correlated positively. Occupation was somewhat more significant than income and education. For each of the denominations, increasing occupational status was positively related to regular church attendance.

In studying age and regular attendance for Canada, Mol (1976) confirmed that older people attend church more often than young people. For example, he found that only 14 percent of United Church affiliates between twenty-one and thirty years attended at least every two weeks while of those over sixty years, over 40 percent attended regularly. This general pattern was again in evidence when Anglicans and English Catholics were examined. Among French Catholics there was less of a difference in rate of regular attendance for young and old, figures for each group were high. This may indicate that the French Catholic church has been successful in training the young to express beliefs through the institution. Protestant churches do not seem to be successful in this regard; again this relates back to the discussion of the role of the institution in faith and belief expression.

Mol (1976) also found a notable relationship between sex and religious participation. In the Anglican Church, for example, three times as many female affiliates are regular attenders as male Anglicans. For other denominations, the ratio is much less but is still significant.

2.7) The Individual and his Community

2.7.1 Social theories of religious commitment are grounded in the interactions that take place between the individual and other members of his social community. This section reviews some of the literature which discusses the nature of social interaction in communities, community institutions and how in turn these affect individual behaviour. This is intended to provide a background for subsequent

discussions of community effects on individual religious behavior.

2.7.2 A Highly Integrated Society

K. Ishwaran (1977) provides a worthwhile examination of the mechanisms of community integration in rural agricultural communities in his study of Dutch communities in Ontario's Holland Marsh. The paper represents an examination of what could be termed extreme community integration for Canada. As such it is valuable because it offers a baseline from which comparisons can be made, since most Canadian communities would not be subject to this degree of social integration.

The Holland Marsh communities have developed a high degree of social solidarity and community integration for a number of reasons. Most of the residents are of Dutch descent, having immigrated to Canada within the last twenty-five to fifty years. Their religious background is either Dutch Reformed or Calvinist, both of which have fairly strict rules concerning individual behavior and which place great importance on the roles of community institutions, including family, church and school on the life of the individual. These notions contrast with social perceptions in many of the surrounding communities of the area in which attitudes and values are more liberal. As a result, the residents of the Dutch communities have developed an aggressive religious ethno-centrism. An overriding concern has been the survival of the community as a sub-society by the exclusion of outside influences which may weaken its structure and ultimately lead to its downfall. In addition, many of the residents are farmers and since most of these people are tied to their land, mobility is very low. The community is therefore socially very stable and largely isolated from new ideas that might be introduced by new residents. Among the residents, community attachment is very strong and intra-group activity is both highly coordinated (largely through the church) and quite intense.

Ishwaran's (1977) examination of the residents' social attitudes indicate almost universal intolerance of any form of behavior that deviates from that of the group. In cases where such behavior by a member does take place, he is socially ostracized to such an extent that he will often leave the community. Deviant behavior includes, according to Ishwaran's attitudinal survey, marrying outside the Dutch-Reformed religion, drinking, divorce, working on Sundays, failing to uphold kinship responsibilities and failure to participate frequently in church and church-related activities.

In cases of deviance, exceedingly strong group pressures are put upon the individual to reform. For example, aside from the indirect pressures of social gossip, initial deviant behavior is likely to result in a visit from the church elders. This is one indication of the importance of the role of the church as a social integrator and "watchdog". Religion seems to permeate most other activities in the community from voluntary organizations such as the Calvinist cadets for children and the ladies' auxiliary to education. Children are taught in the Dutch Reformed schools to accept and support the interrelation of religion and society, to accept the church definition of deviant behavior and to support accepted social roles for individuals, (for example, that man is the wage earner and his wife is a homemaker and strictly subordinate to him). Deviant behavior by children is dealt with largely through parental influence. The child is taught to conform to accepted behavior patterns in an attempt to keep him within the group. Social ostracization of either the child or his entire family is not likely to occur.

George was nineteen. He had a connection with a Roman Catholic girl. He refused to give her up. We warned him constantly. The consistory had been there. They talked to him but he was adamant. One day I gave him a sound beating and then he stopped! (Ishwaran, 1977:115)

2.7.3 The Broader Community Pattern

In contrast to the tightly knit society of the Holland Marsh, most communities in Canada have less effective mechanisms of social

control. As a result the relation between the community and the individual is weaker in varying degrees.

The influences of consumer-oriented mass society have been seen to have had a major impact on the social mechanisms of Canadian communities in the last fifty years and it is only by socio-cultural semi-isolation such as in the Holland Marsh case that these influences have been prevented from introducing social change.

Two broad theories that describe the relationship between mass societies' development and social mechanisms have been put forward. Kasarda and Janowitz (1974) have detailed these for their own research purposes. They distinguish between a "Linear Development Model" developed out of the work of Wirth (1938) and Toennies (1887) and a "Systematic Model" taken from Park and Burgess (1925) and Thomas' (1967) research.¹

"The Linear Development Model holds elements of urbanization, including large population concentrations, high population density and social heterogeneity, responsible for generating change in the nature of community attachments. These are hypothesized to be "... a substitution of secondary for primary contacts, a weakening of the bonds of kinship and a declining social significance of local community."

(Kasarda and Janowitz, 1974)

1. The linear development perspective was given this term by Kasarda and Janowitz (1974). They felt Wirth and his colleagues believed that progressive linear advances in urbanization (size) and density would create the consequences Wirth saw as part of urban life. These included substitution of secondary for primary contacts, weakening of kinship bonds and the declining significance of the local community.

The other perspective or model is called a "systematic" one because it views the community as a system of social groups and institutions which have the capacity to adapt to ongoing social change.

In contrast, according to the Systematic Model, the local community maintains an important role in "mass" urbanized society and remains important for the experience of group solidarity relations. However, since mobility is an important aspect of life in mass societies and persons are frequently changing residences in search of new opportunities, there are variations within the community between individuals as far as the degree of social integration one experiences. Because of this, the community in these locations is somewhat akin to a voluntary organization. Residents may develop extensive participation in and attachment to their community but they are not particularly forced by social peer pressure to do so. However, if the community fails to satisfy their immediate needs and aspirations, they may be quite willing to search for a new community that can. This theory therefore sees the community in a "mass" society as something quite different from the "traditional" community as exemplified in the Holland Marsh Study. The individual is not forced to conform to the requirements of the community. Instead if the community conforms to the needs of the individual, then he will choose to become involved. Intensity of commitment in each case may be equal but it does not necessarily have to be. In the "mass" society, according to the Systematic Model, the community group may operate in much the same way as in traditional society; that is, through its institutional base. However, the proportion of the total community involved is likely to be much smaller in the former than the latter and there may be fragmentation of the community into sub groups according to the desire of individuals to involve themselves with certain activities (and institutions).

In an effort to establish the validity of the two theories, Kasarda and Janowitz (1974) constructed and analysed a general model of community attachment which examines the impact of five independent variables measuring friendship, kinship and community attitudes. Their research indicated that in "mass societies", length of residence was the most important predictor of community attachment with age a less important one. In contrast,

population size and density were not found to be significantly related to weakening social ties and kinship bonds. They indicated that the results support the Systematic Model while rejecting the Linear Development Model. Kasarda and Janowitz (1974) concluded that living in large cities does not necessarily weaken kinship and friendship bonds and community attachments but that a long period of residence in one location probably strengthens them,

Since assimilation of newcomers into the social fabric of local communities is necessarily a temporal process, residential mobility operates as a barrier to the development of extensive friendship and kinship bonds and widespread local associational ties. Once established, though, such bonds strengthen community sentiments. (Kasarda and Janowitz, 1974)

The role of an institution such as the church in "mass" communities is considerably different from its role in a highly integrated community such as the Holland Marsh. The Systematic Model seems to allow for the development of small communities in "mass" societies in which the church is able to implement a degree of social control;¹ however, the heterogeneity of "mass" society communities and the voluntary nature of community association would seem to pre-empt social influence over anything but this very small and strongly church-oriented group. The separation of the secular and the religious which has taken place as a result has made "deviant" religious behavior (such as rejection of religion) in the community possible.

Roof (1978) has proposed an integrating theory of community and religious commitment. It is noteworthy because it represents the most ambitious attempt in this area. As the central element of his hypothesis, Roof (1978) employed the local-cosmopolitan distinction of individual character types (also termed orientation) first proposed by Zimmerman (1938) and later elaborated by Merton (1958). This concept recognizes differences that exist among people based on (a) their patterns of social participation and styles of social belonging and (b) their orientation to their environment, particularly their perceptions of the world around them.

1. Geographically concentrated ethnic communities for example

Locals are more attached to their immediate social locale and are quite sensitive to the primary groups in which they interact, such as family, neighbourhood cliques and community organizations. In contrast, cosmopolitans have their commitments centered outside the residential community and tend to be more abstract, generalized groups that may be spatially remote such as profession or the corporation in which they work. (Roof, 1978: 41)

Roof (1978) performed a micro-data analysis of liberal Protestants in North Carolina for the purpose of testing an intensity and style of religious commitment model.

In his model he proposed that a person's orientation (local-cosmopolitan) serves as an intervening social mechanism between a) his attributes, his personal history and the influences of his environment and b) his style and intensity of religious commitment.

Roof (1978) hypothesized that locals should be more involved in religious groups than cosmopolitans because of their strong ties at the family and neighbourhood level. The norms and sanctions operating at this level make the locals' participation in religion (when religion is important in the community) imperative if he is to maintain his social ties and status.

Roof determined an individual's local-cosmopolitan orientation by reviewing his answers for a series of attitudinal questions on the relative importance of local events, the importance of local community in national perspective, the importance of primary ties on decisions taken and the importance of local voluntary organizations. He cross-classified these results with attribute statistics also from the questionnaires and found strong patterns emerged.

Locals tended to be self-employed more often than cosmopolitans. They were more often employed in clerical, sales, and lower status positions than cosmopolitans who were more often managers and in professional positions. More cosmopolitans had incomes of over \$7,500 in 1970 than a similar size sample of locals and more cosmopolitans had completed a college education while more locals had a high school education or less.

Table 3.1

Number of Census Tracts per Province by
Percentage "No Religion" Population

	percent "no religion"						
	<1	1-2.99	3-5.99	6-9.99	10-15.99	16+	Total
Newfoundland	91	12	1	0	0	0	104
P.E.I.	12	9	0	0	0	0	21
Nova Scotia	29	76	43	4	1	0	153
New Brunswick	49	61	37	2	1	0	150
Quebec	724	352	97	35	13	1	1222
Ontario	44 ¹	381	704	254	41	13	1437
Manitoba	6	59	90	35	3	0	193
Saskatchewan	6	68	98	16	2	0	190
Alberta	2 ²	19	102	158	26	1	308
British Columbia	3 ²	1	3	70	231	66	374
Yukon	0	0	1	2	0	0	3
Northwest Territories	0	4	1	1	0	0	6
CANADA TOTAL	966	1042	1177	577	318	81	4161

1. includes several census tracts with very small populations (<500)
2. all these census tracts have very small populations (<500)

strength in the intervening position. Roof felt the results were clear: " ... local community attachments, even when controlling for all other independent influences in the model, help to sustain traditional religious belief and behavior." (Roof, 1978:122).

One of Roof's conclusions is that size of place is a major correlate with the local/cosmopolitan measure. He found that more locals than cosmopolitans lived in small and medium sized communities while cosmopolitans outnumbered locals in medium to large urban centers. Roof notes, however, that these differences are not especially large and that people of both orientations are found in every type of community. From a geographical perspective some analysis of intra-urban variations might prove interesting. From the work of Gans (1962) and others one might expect to find some differences in orientation mix between neighbourhoods of different types.

As an extension of the local-cosmopolitan theory, particularly for urban areas, it seems likely that people who have been determined to be cosmopolitans can in fact, be involved in the local community as are those with local orientations. In fact, those with "broad perspectives" are very frequent participants in neighbourhood planning organizations and a variety of other community activities. The difference between cosmopolitan and local here is that while both have these local ties, the cosmopolitan person may have strong outside ties as well. The local's ties are only local (in theory) and often are more family oriented than the cosmopolitan's local interactions. The cosmopolitan involves himself in neighbourhood activities by choice rather than because of social need. He is probably less responsive to pressures of

local attitudes for this reason since he has a lot of social contacts outside the local area. The result may be that while the cosmopolitan is often deeply involved in the local community, he is willing and able to opt out at any time. In their discussion, Kasarda and Janowitz (1974:329) termed communities with large numbers of people behaving in this manner, communities of limited liability.

Roof's work is important for this research because it offers a conceptual base (open to adaptation) upon which to build.

While this research has a macro-level focus and Roof's study was an analysis at the micro (individual) scale, he points the way to bridging the gap between description and explanation. His use of hypothesis testing using multivariate analysis and the development of a behavioral framework are of particular relevance. A central component of his framework is the recognition of a relationship between attributes, perceptions and actions of the group. Roof's use of orientation as a mediating component between background influences and behaviour captures an element in the individual's decision making process. It is difficult to judge, however, to what degree the responses to orientation measures can be linked to other expected responses (such as an answer to the "no religion" question) for predictive purposes.

Roof's work provides a valuable insight to the relationship between the individual and the community and will be adapted to this research in Chapter 4.

The final result of this research, hopefully, will be a clearer understanding of the geographic patterns of "no religion"

in Canada and the relationships between group behaviour and characteristics of persons and places.

CHAPTER 3

GEOGRAPHIC AND SOCIAL PATTERNS OF "NO RELIGION" IN CANADA

3.1 Geographic Patterns of "No Religion"

3.1.1 General Patterns

The level of "no religion" by census tract varies significantly throughout Canada and the patterns which exist suggest geographic ordering. From zero persons stating "no religion" in a number of scattered Eastern census tracts,¹ the census tract percentage of persons with "no religion" ranges as high as 45 percent and 35 percent in two tracts in the east downtown of Vancouver² and 34 percent in two tracts in the Dundas Street - University Avenue area of west downtown Toronto.³

Of the 4,161 census tracts in Canada, 966 had "no religion" levels below 1 percent, 1042 had levels between 1 percent and 2.99 percent, 1177 had values between 3.0 and 5.99 percent, 577 had values between 6.0 and 9.99 percent, 318 had values between 10.0 and 15.99 percent and 81 census tracts had levels of "No Religion" 16 percent or greater. Table 3.1 indicates the provincial breakdown of these distributions.

The series of Maps, 3.1 to 3.47 illustrates the distribution of "no religion" by census tracts for the Provinces and Territories and all census tracted Census Metropolitan Areas and Census Agglomerations.

The most striking geographic pattern is the general east to west increase in the census tract "no religion" percentage. It ranges from very low levels in Newfoundland, parts of the Maritimes and Quebec, through moderate levels in Ontario, Manitoba and Saskatchewan to moderately high and high levels in Alberta and British Columbia.

1. 34 in Newfoundland, 1 in P.E.I., 1 in Nova Scotia
10 in New Brunswick, 128 in Quebec and 7 in Ontario
2. Tracts 8084, 8045 (57 & 58)
3. Tracts 3414, 3415 (36 & 37)

Table 3.1

Number of Census Tracts per Province by
Percentage "No Religion" Population

	percent "no religion"						
	<1	1-2.99	3-5.99	6-9.99	10-15.99	16+	Total
Newfoundland	91	12	1	0	0	0	104
P.E.I.	12	9	0	0	0	0	21
Nova Scotia	29	76	43	4	1	0	153
New Brunswick	49	61	37	2	1	0	150
Quebec	724	352	97	35	13	1	1222
Ontario	44 ¹	381	704	254	41	13	1437
Manitoba	6	59	90	35	3	0	193
Saskatchewan	6	68	98	16	2	0	190
Alberta	2 ²	19	102	158	26	1	308
British Columbia	3 ²	1	3	70	231	66	374
Yukon	0	0	1	2	0	0	3
Northwest Territories	0	4	1	1	0	0	6
CANADA TOTAL	966	1042	1177	577	318	81	4161

1. includes several census tracts with very small populations (<500)

2. all these census tracts have very small populations (<500)

Map 3.1

Newfoundland

No Religion

percent
census tract
population
reporting

- 0 - 0.99
- 1.0 - 2.99
- 3.0 - 5.99
- 6.0 - 9.99
- 10.0 - 15.99
- > 16.0

0 50 100km

Map 3.2

Nova Scotia and P.E.I.

Map 3.3

New Brunswick

Map 3.4

Eastern Québec

Map 3.5

Central Québec

No Religion

percent
census tract
population
reporting

0 - 0.99

1.0 - 2.99

3.0 - 5.99

6.0 - 9.99

10.0 - 15.99

> 16.0

Map 3.6

Western Québec

Map 3.7

Eastern Ontario

Map 3.8

Southern Ontario

No Religion

percent
census tract
population
reporting

Map 3.9

Northern Ontario

No Religion

percent
census tract
population
reporting

Map 3.10

Manitoba

Map 3.11

Saskatchewan

Map 3.12

Alberta

0 100 200km

No Religion

percent
census tract
population
reporting

- 0 - 0.99
- 1.0 - 2.99
- 3.0 - 5.99
- 6.0 - 9.99
- 10.0 - 15.99
- > 16.0

Map 3.15

St. John's

Map 3.16

Halifax

Map 3.17

Saint John

Map 3.18

Québec

No Religion

percent
census tract
population
reporting

0 5 10 km

- 0 - 0.99
- 1.0 - 2.99
- 3.0 - 5.99
- 6.0 - 9.99
- 10.0 - 15.99
- > 16.0

Map 3.19

Trois Rivières

No Religion

percent
census tract
population
reporting

Map 3.20

Sherbrooke

0 - 40.99

• 1.0 - 2.99

• 3.0 - 5.99

• 6.0 - 9.99

• 10.0 - 15.99

• > 16.0

N

Map 3.21

Outer Montréal

No Religion

percent
census tract
population
reporting

Map 3.23

Ottawa-Hull

Map 3.24

Kingston

Map 3.25

Oshawa

No Religion

percent
census tract
population
reporting

- 0 - 0.99
- 1.0 - 2.99
- 3.0 - 5.99
- 6.0 - 9.99
- 10.0 - 15.99
- > 16.0

Map 3.26

Peterborough

Map 3.27

Brantford

No Religion

percent
census tract
population
reporting

Map 3.28

Outer Toronto

No Religion

percent
census tract
population
reporting

0 - 0.99

• 1.0 - 2.99

• 3.0 - 5.99

• 6.0 - 9.99

• 10.0 - 15.99

• >16.0

Map 3.29

Toronto

Map 3.30

Hamilton

No Religion

percent
census tract
population
reporting

- 0 - 0.99
- 1.0 - 2.99
- 3.0 - 5.99
- 6.0 - 9.99
- 10.0 - 15.99
- > 16.0

Map 3.31

St Catharines-Niagara

No Religion

percent
census tract
population
reporting

Map 3.32

Kitchener

Map 3.33

Guelph

No Religion

percent
census tract
population
reporting

Map 3.34

London

Map 3.35

Sarnia

No Religion

percent
census tract
population
reporting

0 - 0.99

• 1.0 - 2.99

• 3.0 - 5.99

• 6.0 - 9.99

• 10.0 - 15.99

• > 16.0

Map 3.36

Windsor

Map 3.37

Sudbury

Map 3.38

Sault Ste. Marie

Map 3.39

Thunder Bay

No Religion

percent
census tract
population
reporting

Map 3.40

Winnipeg

No Religion

percent
census tract
population
reporting

- 0 - 0.99
- 1.0 - 2.99
- 3.0 - 5.99
- 6.0 - 9.99
- 10.0 - 15.99
- > 16.0

Map 3.41

Saskatoon

No Religion

percent
census tract
population
reporting

0 - 0.99

• 1.0 - 2.99

• 3.0 - 5.99

• 6.0 - 9.99

• 10.0 - 15.99

• > 16.0

Map 3.42

Regina

Map 3.43

Calgary

No Religion

percent
census tract
population
reporting

Map 3.44

Edmonton

No Religion

percent
census tract
population
reporting

0 - 0.99

1.0 - 2.99

3.0 - 5.99

6.0 - 9.99

10.0 - 15.99

>16.0

Map 3.45

Outer Vancouver

No Religion

percent
census tract
population
reporting

• 0 - 0.99

• 1.0 - 2.99

• 3.0 - 5.99

• 6.0 - 9.99

• 10.0 - 15.99

• >16.0

Map 3.46

Vancouver

No Religion

percent
census tract
population
reporting

- 0 - 0.99
- 1.0 - 2.99
- 3.0 - 5.99
- 6.0 - 9.99
- 10.0 - 15.99
- > 16.0

Map 3.47

Victoria

The relatively homogeneous patterns of very low values present in the provincial maps of Newfoundland and Quebec contrast sharply with the more heterogeneous distribution pattern of very high values illustrated in the British Columbia provincial map. The maps of the other Provinces present a variety of complex sub-provincial patterning. In Nova Scotia, values are generally higher in the southern and western part of the province than in the north and east. In New Brunswick values also tend to decrease as one moves from the south and west to the north and east. In Ontario, low values are concentrated in the eastern and southwest portions of the province, while more moderate values occur in a broad band of census tracts surrounding central Ontario's urban areas.

In Alberta, "no religion" levels in census tracts west of Edmonton and Calgary are generally higher than those for census tracts east of these cities. A number of census tracts with unusually low values are concentrated in two areas, one east of Edmonton and the other surrounding Lethbridge.

In British Columbia, the Straits of Georgia - Vancouver Island Region contains census tracts with homogeneously high levels of "no religion". This contrasts with the Fraser Valley and the Okanagan where the levels of "no religion" are more moderate, (although still higher than most of the other census tracts in Canada).

In the North, although the east-to-west trend of increase persists, the range of values is not as great. In Yukon, for example, the two highest tract percentages are about 9.8 percent compared to values well over 10 percent for the majority of British Columbia's tracts.

3.1.2 Inter-Urban and Urban-Rural Patterns

The Census Metropolitan Area Maps and Census Agglomeration Maps also reflect the general east-to-west pattern indicated by the pro-

2

4

vincial maps. Quebec and Atlantic cities, for example, have census tracts with generally low percentages; tract percentages in Ontario and Prairie cities are moderate, while figures for Calgary, Edmonton, Victoria and Vancouver tend to be generally higher than those of other Canadian cities.

High levels of "no religion" are not especially an urban phenomenon. In British Columbia, 19.9 percent of the population in census tract 8239 in the "Sunshine Coast" area reported "no religion". In tract 8297 in the Campbell River area of Vancouver Island, the figure was 17.4 percent and in tract 8345 in Nanaimo, 17.0 percent. At the same time there are twenty-seven census tracts in the urban tracted areas which have "no religion" value higher than these. However, these tracts are not spread through a number of Canadian cities but instead are highly concentrated, twenty-one in Vancouver, five in Toronto and one in Victoria.

Veevers and Cousineau (1980) presented micro-level data for Canada which indicated small, (but they felt significant) differences among the percentage of persons reporting "no religion" in the central municipality of Census Metropolitan area (5.48 percent), in all areas classed as urban by census definition (4.96 percent), in rural non-farm areas (4.07 percent), and in rural farm areas (3.09 percent). Table 3.2 presents province-wide percentages of the population reporting "no religion" and urban-rural breakdown based on the census definition of urban and rural. From the table, one can see that in many provinces the urban percentage is greater than the rural. It is also evident that in some provinces (Ontario, for example) the urban percentage is much closer to the total provincial figure than in others, (Saskatchewan, for example).

Census tract level results are inconclusive regarding support of a relationship between urban-rural and the level of "no religion".

Table 3.2

Persons Reporting "No Religion"
by Urban and Rural for Provinces, 1971

	percent		
	Total	Urban	Rural
Newfoundland	0.44	0.5	0.25
P.E.I.	0.98	1.16	0.4
Nova Scotia	2.43	2.2	2.74
New Brunswick	1.87	1.8	1.96
Quebec	1.27	1.46	0.42
Ontario	4.58	4.71	3.42
Manitoba	4.3	5.1	2.5
Saskatchewan	3.68	4.2	3.1
Alberta	6.66	7.2	5.2
British Columbia	13.15	17.4	12.8
Yukon	8.87	10.44	6.33
Northwest Territories	2.93	4.66	1.29
CANADA	4.31	4.56	3.50

Source 1971 Census of Canada, Population,
"Religious Denominations by Age Groups"

Catalogue No. 92-732, Volume 1; Part 4,
Statistics Canada,
Ottawa, 1974

While about fourteen of the thirty tracted urban areas display census tract values at least slightly higher than the tracts in surrounding areas, sixteen do not. There may be other explanations for Veevers and Cousineau's findings.

In each of the urban maps it is possible to find at least one and often more census tracts with levels of "no religion" greater than all the census tracts in the immediate surrounding rural area. Therefore, the rural-urban differences in the micro-data discovered by Veevers and Cousineau could be the result of much greater than average concentration of persons professing "no religion" in a few census tracts. At the same time, the rest of the census tracts in the urban area may more closely follow a broader regional pattern.

The range of the "no religion" statistic seems to vary greatly from place to place. Some cities have large ranges, others small ranges. Some distributions are normal, others skewed. Given the small numbers of people who report "no religion", any high but localized concentrations of persons with "no religion" will be strongly reflected in statistics for larger geographic areas. This may explain higher urban totals than one would expect from an examination of the general pattern of census tract "no religion".

3.1.3 Intra-Urban Patterns

The most obvious general observation to be made about intra-urban patterns of the "no religion" level is that variation among census tracts is often great, much greater in fact than in the non-metropolitan areas surrounding the city. It is also worth noting that great differences exist between groups of tracts which are often in very close physical proximity, particularly in the central area of the larger CMA's. In Montreal, for example, census tracts in the downtown core, around McGill University and in Westmount have levels of "no religion" more in keeping with census tracts in Alberta than those in Quebec. Blocks away, however, in Verdun, on the east side of St.

Laurent Boulevard and east along Sherbrooke Avenue, the census tract figures are very low, and at levels similar to almost anywhere else in Quebec. In Toronto, census tracts with the highest values are concentrated immediately surrounding the central core and seem to focus on the intersection of Bloor and Yonge. Tracts with high values occur along Yonge Street as far north roughly as Highway 401. In contrast, census tracts with among the lowest values in the Toronto CMA are found immediately west of University Avenue in a wide north-south band extending from Queen Street in the south to Finch in the north and as far west as Keele Street. A localized concentration of tracts with high "no religion" levels exists in the area surrounding the Don Valley Parkway - Highway 401 interchange.

In Ottawa, tracts in the central core have higher than city average proportions of "no religion" while nearby in Hull and Vanier there are concentrations of tracts with dramatically lower than average levels.

In Kingston, several tracts in the downtown area which include Queen's University have much higher than city average levels. Elsewhere in the country as well, census tracts which contain universities seem to have levels of "no religion" much above the levels in surrounding tracts. This pattern is evident in St. Catharines (Brock); Hamilton (McMaster); Montreal (McGill) London (Western); Kitchener (Waterloo); Peterborough (Trent) and Sackville, New Brunswick (Mt. Allison)

Contrasting with the central areas of cities, suburban areas are not marked by a great variation in the "no religion" level. Except where broader geographical patterns exist, (as in Ottawa with the differences between tracts on the Quebec and Ontario sides of the River), the suburbs present a fairly homogeneous group of tracts in which the proportion seldom varies more than a few percentage points.

3.2 Demographic Patterns of "No Religion"

The strength of the geographical patterning seems to provide an indication that socio-economic patterns exist which could provide information for hypothesis development. This section examines Census micro-level data (the individual) aggregated to the province and urban area level. For these units, cross-classification statistics are presented for persons reporting "no religion" and a variety of other social demographic and economic attributes. In light of the results of the geographic distribution analysis, sociological cross-classification, along with the earlier findings of authors reviewed in Chapter 2, should provide the basis for developing a theory of geographical distribution.

3.2.1 Age

Veevers and Cousineau (1980) found that level of "no religion" response in Canada tends to decrease with age, thus supporting the findings of Mol (1976), Glock et al (1967) and others. Table 3.3 shows the Census results. As would be expected from the findings discussed in the preceding chapter, the level peaks with the twenty to twenty-nine age group and begins to decline through the major family formation years. It continues downward in what Veevers and Cousineau found to be a linear relationship with the age groups, reaching its lowest point among the oldest group.

Table 3.4 indicates that as well as having the highest levels of "no religion", the fifteen to thirty-four age groups also include over 40 percent of all the Canadians who reported "no religion".

It is also interesting to note the rather high level of "no religion" among the zero to four age group. This probably reflects the high no religion percentages which are present among the prime parenting group, the twenty to thirty-four age group. It may also be that many parents who have religious affiliations feel that until a child reaches a certain age (or is baptized) that he has "no religion" and report it as such.

Table 3.3

Persons Reporting "No Religion"
by Age in Canada - 1971

percent			
Age	Male	Female	Total
15-19	4.16	3.46	3.95
20-24	7.76	4.85	6.31
25-29	8.02	4.79	6.42
30-34	6.96	3.99	5.50
35-39	6.26	3.50	4.90
40-44	5.59	3.06	4.35
45-49	4.90	2.76	3.82
50-54	4.57	2.48	3.51
55-59	4.36	2.26	3.30
60-64	4.09	2.05	3.05
65-69	3.79	1.71	2.70
70-74	3.66	1.43	2.43
75-79	3.59	1.21	2.23
80-84	3.60	0.99	2.09
85-89	3.42	0.95	1.95
90-94	3.28	0.68	1.66
95+	2.26	0.64	1.16
All Persons 15 and over	5.65	3.25	4.44

Source: Veevers, J. & Cousineau, D., The Heathen Canadians: Correlates of Non-Belief, 1980 p. 205 as taken from 1971 Census of Canada, Population, "Religious Denominations by Age Groups," Catalogue No. 92-732, Volume 1, Part 4, Statistics Canada, Ottawa, 1974.

Table 3.4

Age Breakdown for All Persons Reporting "No Religion", 1971

	"No Religion" Population by Age Groups	Total Population by Age Groups
	percent	percent
0-4	11.0	8.4
5-14	16.4	21.1
15-24	21.8	18.5
25-34	18.7	13.4
35-44	12.6	11.7
45-54	9.1	10.6
55-64	5.9	8.0
65+	4.5	8.1
TOTAL	100	100

Source: 1971 Census of Canada, "Population,
Religious Denominations by Age Groups"
Catalogue 92-732,
Volume 1, Part 4,
Statistics Canada, Ottawa, 1974.

Table 3.5 presents a geographical distribution of the twenty to forty-four and the fifty-five and over age groups by provinces. Nationally, the "no religion" level for the former age group is about twice that of the latter. However, in several provinces, most notably Newfoundland and Quebec, the ratio is considerably higher, indicating what may be geographic variations in the cause-effect mechanisms. For example, if one accepts the hypothesis that with age, persons use the church increasingly as a center for socialization, it seems possible that in Newfoundland, Quebec and Ontario certain aspects of the society may make it particularly attractive for the individual to seek social fulfilment through the church. The differences may also be due to regional variations in the way people of different ages perceive religion and interpret the Census question.

More important than the variations in provincial percentage figures, however, is the fact that the level of "no religion" for both age groups very clearly follows the pattern of east to west increase. Because of this, controlling for the effect of age will probably not reduce geographic variation significantly, although, as indicated by the ratio differences, it may take care of some of it.

3.2.2 Ethnicity

Table 3.6 illustrates "no religion" by ethnicity. National figures indicate that persons of French and Italian ethnicity report "no religion" least frequently. In contrast, persons of Chinese and Japanese, Scandinavian, Dutch, German and British backgrounds most frequently indicate "no religion".

The French and the Italians are overwhelmingly from Roman Catholic backgrounds. Four of the ethnic groups in the "high" "no religion" category are largely Protestant. The contrast in the "no religion" levels between Catholic and Protestant ethnic groups supports the contention (Westhues, 1971) that because of the nature

Table 3.5

"No Religion" for Selected Age Groups
by Province, 1971

	percent		
	20-44	55+	All Ages
Newfoundland	0.73	0.29	0.44
P.E.I.	1.48	0.66	0.98
Nova Scotia	3.21	1.57	2.43
New Brunswick	2.52	1.46	1.87
Quebec	1.94	0.74	1.27
Ontario	6.0	2.49	4.58
Manitoba	5.58	2.83	4.3
Saskatchewan	4.92	2.84	3.68
Alberta	8.35	4.61	6.66
British Columbia	15.90	8.60	13.15
Yukon	9.84	8.74	8.87
Northwest Territories	4.16	1.67	2.93
CANADA	5.60	2.80	4.31

Source: 1971 Census of Canada,
"Population, Religious Denominations
by Age Groups"

Catalogue 92-732,
Volume 1, Part 4,
Statistics Canada, 1974

TABLE 3.6
Persons Reporting "No Religion" by Selected Ethnic Groups

Province	Percent										All Asian Groups	Chinese Japanese	Greek
	British	French	German	Italian	Netherlands	Polish	Scandinavian	Ukrainian	Indian & Inuit				
Newfoundland	0.4	0.6	2.1	1.0	6.7	3.6	2.5	2.7	0	4.8	—	—	
Prince Edward Island	1.0	0.3	6.8	0	0.8	0	0	0	0	0	—	—	
Nova Scotia	2.4	1.2	4.4	1.9	3.1	1.7	4.4	4.8	1.5	7.2	—	—	
New Brunswick	2.6	0.4	3.9	4.4	4.9	2.2	3.2	3.3	1.0	8.9	—	—	
Québec	3.5	0.7	5.2	0.7	12.8	2.8	7.2	3.4	1.2	13.9	—	—	
Ontario	4.8	2.2	4.9	1.0	6.5	3.6	7.4	4.9	3.8	17.0	—	—	
Manitoba	4.8	2.2	4.0	1.9	5.7	3.4	6.6	3.9	1.4	15.7	—	—	
Saskatchewan	4.1	2.0	2.8	2.6	5.8	2.4	3.8	2.5	3.5	18.8	—	—	
Alberta	7.1	4.5	5.7	3.0	9.1	4.9	7.1	4.9	2.5	23.6	—	—	
British Columbia	12.6	11.0	11.2	5.2	14.7	12.1	13.7	13.0	4.3	37.4	—	—	
Yukon	9.8	1.98	8.7	3.1	10.7	8.2	10.1	9.1	5.0	29.0	—	—	
Northwest Territories	4.2	1.2	5.3	0	10.3	3.8	6.7	4.8	0.4	13.3	—	—	
CANADA	5.6	1.1	5.6	1.3	8.2	4.3	8.5	5.1	2.7	22.5	44.15	17.3	1.12

SOURCE: 1971 Census of Canada, Population, "Religious Denominations by Ethnic Groups", Catalogue #92-735, Volume 1, Part 4, Statistics Canada, Ottawa, 1974.

Table 3.7

Ethnic Breakdown for All Persons
Reporting "No Religion", 1971

	Total	Reporting "No Religion"
	percent	
British	44.6	56.0
French	28.7	7.5
German	6.2	7.9
Italian	3.4	1.0
Netherlands	2.0	3.7
Polish	1.5	1.5
Scandinavian	1.8	3.5
Ukranian	2.7	3.2
Chinese	0.6	5.6
Indians and Inuit	1.5	0.9
Others	7.0	9.2
TOTAL	100.0	100.0

Source: 1971 Census of Canada, Population,
Religious Denominations by
Ethnic Groups",
Catalogue No. 92-735,
Volume 1, Part 4,
Statistics Canada, Ottawa, 1974

of mechanisms¹ which link the individual to the institution the Catholic Church is able to retain its associates better than most of the Protestant Churches. French and Italian ethnic groups also have exceptionally strong social networks. The low levels of "no religion" among these groups would also seem to be the result of the operation of community plausibility mechanisms. (Berger, 1967:45)

Fairly high levels of "no religion" among the Dutch and Scandinavians in particular, reflect the generally low level of concern for matters religious among citizens of most North European countries. (Glock and Stark, 1965; Wilson, Bryan, 1966) These secularizing influences also swept through Roman Catholic countries in Europe; however, the impact varied greatly according to location². The church also fought a successful battle in French Canada to keep out secularizing influences until the last thirty years.

The level of "no religion" reported by persons of Chinese ethnicity is particularly interesting. Forty-four percent of all Chinese indicated "no religion", by far the highest level reported by any group. Table 3.7 indicates that although they make up only one-half of one percent of Canada's population, they account for over 5 percent of all Canadians reporting "no religion". One can only speculate about the reasons for this. It may be that the Chinese concept of religion, in that it is largely non-institutional and unfocused, does not coincide with our restricted definition for religion. As with other East Asian faiths, religion is not primarily a participant activity; it is a part of daily life that cannot be easily separated from it.

It is also interesting to note the relatively low "no religion" levels among Indians and Eskimos. This probably reflects the effect of past missionary activities, in combination with current strong plausibility mechanisms arising from local social networks.

1. in particular that salvation in the Catholic Church primarily comes to the individual through the institution, rather than by a direct man-God association as Protestant Churches teach.
2. In Italy, effects of secularization were strongest in Northern Italy. Italian immigrants to Canada, however, were not exposed in any large way to these as most came from the central and southern parts of the country.

Table 3.6 also presents the ethnic groups by province. East-west differences persist. Each ethnic group has its highest provincial percentage of persons reporting "no religion" in British Columbia and the second highest figure generally in Alberta. The lowest figures for each group generally occur in either Quebec or Newfoundland.

The high figures for the Dutch, Scandinavian and German groups in Quebec and Newfoundland are noteworthy.

The high figure for the French ethnic group in British Columbia is also interesting because it indicates regional behaviour patterns that go against a general national trend. It might be attributed to a high degree of assimilation of the relatively few persons of French ethnicity who at the same time are also quite dispersed.

3.2.3 Sex

Table 3.3 indicates that men reported "no religion" much more frequently than women. This correlates with Mol's (1976) findings that significantly more women than men attend church on a regular basis. In light of this, one would expect disinvolvement to be less for women than men. The earlier discussion of commitment hypotheses will be recalled. Glock, Ringer and Babbie (1967) attributed female religious participation largely to the need for social participation felt by a large group of women whose homemaker roles preclude making social contacts in the work place. Spiritual involvement may also be involved. Moberg (1962:399) indicates that women are more pious and that this arises from playing roles in which their behaviour has been expected to be conventional and conforming to social norms.

Despite its sociological significance, sex ratio is not expected to be of major importance in this study. Unlike other variables which have geographic differences, as well as social differences, the ratio of males to females seldom varies significantly between communities.

The exceptions are limited and are generally towns with an economic base in primary resource extraction. These resource based industries, mining and forestry, seem to attract substantially more men than women as workers.

3.2.4 Place of Birth

Table 3.8 indicates that for each of the provinces, persons born outside Canada report "no religion" more frequently than those born within Canada.¹

For those born outside and who immigrated between 1969 and 1971, the figures are higher still and are high for most parts of the country, including Newfoundland and Quebec. Since recent migrants are largely within the young to middle age group, one might expect that this is the result of the age effect. However, when one compares the "born outside and immigrated 1969 to 1971" statistics with the reporting "no religion" figures for the general twenty to forty-four age group in each province, (Table 3.5), one finds that the former is still much greater.

Recall from Chapter 2, section 6 (contemporary churchgoing comparisons), Mol (1976) has indicated that active participation in Europe, (and especially in the largely Protestant nations of North Europe) is substantially lower than in Canada. The figures here seem to indicate that disinvolvement is also correspondingly higher.

Ethnicity figures² have indicated that members of North Europe (largely Protestant) groups including British, Dutch, Scandinavians and German are more frequent reporters of "no religion" than members

1. In Newfoundland, in fact 25 percent of all persons reporting "no religion" were born outside the country, although only 1.7 percent of the total population of the province was born outside Canada.
2. "No Religion" for persons born outside Canada by ethnicity, is not available from the Census summary tapes, hence the attempt to make a link by association.

Table 3.8
Persons Born Outside Canada

	Born Outside Canada Reporting "No Religion" percent	Born Outside Canada and Immigrated 1969-1971 Reporting "No Religion" percent	Persons Born Outside Canada's Proportion of Total Population percent	British, German, Dutch and Scandinavian as Proportion of Total Persons Born Outside Canada percent
Newfoundland	6.5	12.5	1.7	76.7
Prince Edward Island	3.4	5.9	3.3	82.9
Nova Scotia	6.4	11.7	4.7	74.6
New Brunswick	5.8	13.4	3.7	74.9
Québec	4.6	8.3	7.8	25.8
Ontario	5.3	9.0	22.2	51.1
Manitoba	4.8	10.0	15.3	57.1
Saskatchewan	4.5	14.0	12.0	68.4
Alberta	7.9	15.0	17.3	67.1
British Columbia	13.2	20.4	22.7	69.8
Yukon	12.8	18.6	13.8	71.9
Northwest Territories	8.2	10.4	6.5	63.6
CANADA	6.6	11.1	15.3	53.1

of South European groups as represented by Italians and Greeks. One would expect that in provinces with most of the immigrants coming from the former group the percentage of persons born outside reporting "no religion" would be higher than in provinces in which Southern Europeans were well represented. With the exception of Prince Edward Island, this seems to be the case.

A comparison of "total born outside Canada, reporting no religion" and "immigrated 1969 to 1971, reporting no religion" are interesting. The figures for the "immigrated 1969 to 1971" group is higher than the "total born outside" group (usually close to double) in each province and, although part of this is the result of age (and possibly sex structures) of the group, it is likely that other influences are also at work. There are three possibilities:

- (1) As the immigrant's period of residence in Canada increases his social network expands. For social reasons, he may find it convenient to adopt the general behaviour patterns of his adopted country. Particularly, if he came from a secularized society one of these activities might be (renewed) religious participation.
- (2) Ishwaran (1977) noted (see Chapter 2, section 7) that the Dutch community in Holland Marsh developed an aggressive religious ethnocentrism in order to ensure the survival of the group as an ethnic sub-society. This may be a general pattern. Immigrant groups may rally around social vehicles, such as religious institutions, both to increase frequency of contacts with members of their own ethnic group, and because the religion becomes a part of their unique ethnic identity in a larger foreign society.
- (3) The third possibility is that secularization is taking place more rapidly in foreign countries than in Canada. Recent

immigrants, therefore, would be more likely to report "no religion" than their countrymen who have been part of the Canadian society for a longer period.

3.2.5 Education

Table 3.9 presents the percentage of persons reporting "no religion" by level of education. A strong relationship between years of schooling (as indicated by three broad groups), and percentage of the group reporting "no religion" seems to exist.

Mol (1976) found no conclusive relationship between education and regular religious participation. However, the data here, even when age is controlled for, seem to indicate that a strong relationship does exist between education and religious non-involvement.

The east to west pattern of increase in "no religion" levels hold for the "less than Grade nine" and the Grade nine to thirteen" groups. This geographic pattern is not as clear for the University group. In Ontario, Quebec and Manitoba, Provinces with low to moderate levels of "no religion" in the total population, the proportions of the university group reporting "no religion" is quite high:

Quebec is particularly interesting since the University figure is almost seven times greater than the value for the Grades nine to thirteen group.

While there is little difference in most provinces between the first two education categories, the "University" figure is on average double these figures. There may be several reasons for the high percentage of university educated persons reporting "no religion".

The obvious answer is "intellectual defection" as Mauss (1973) terms it; the loss of educated followers because the tenets of belief are inconsistent with established scientific theory.

Stouffer's (1955) work has relevance here. He has examined the effects of exposure of people to new values and points of view - the

Table 3.9

Persons Reporting "No Religion"
by Level of Education

(The Out of School Population 15 and Over and Those
Attending University)

	Reporting "No Religion" less than Grade Nine percent	Reporting "No Religion" Grades Nine to Thirteen percent	University percent	Total Persons with less than Grade Nine percent	Total Persons with Grades Nine to Thirteen percent	Total Persons with University percent
Newfoundland	0.2	0.5	2.8	47.8	43.6	8.7
Prince Edward Island	0.8	0.9	2.8	40.6	47.3	12.1
Nova Scotia	2.1	2.1	6.0	34.5	54.2	11.3
New Brunswick	1.8	1.8	4.8	45.9	44.0	10.1
Québec	0.6	0.8	5.5	46.1	42.8	11.1
Ontario	2.6	4.9	11.0	31.9	50.1	12.5
Manitoba	2.9	4.3	9.2	35.7	52.2	12.1
Saskatchewan	3.4	3.6	7.4	39.9	48.5	11.6
Alberta	5.5	6.3	12.6	27.6	58.8	13.6
British Columbia	11.4	12.0	19.9	25.5	60.2	14.2
Yukon	7.1	9.6	14.2	25.8	61.7	14.5
Northwest Territories	1.1	5.1	10.8	51.8	38.3	9.9
CANADA	2.6	4.5	9.9	36.5	52.0	12.5
15-24	2.6	5.2	11.4	15.3	64.1	20.6
25-44	2.6	5.1	11.6	29.3	56.9	13.8
45 and Over	2.6	3.4	5.7	51.6	41.4	7.0

"contact effect" as he calls it. This may lead to the questioning of established doctrines. When plausibility of beliefs are undermined by the "cognitive incompatibilities" of new ideas, disbelief and disinvolvement result. (Roof, 1978:109)

Lenski, (1953:533), Stark (1964) and others, however, have described how religious participation increases with status and how education is a major element of this. While the data presented here do not support a negative relationship between disinvolvement and education, there are signs that status could be having some effect on the "no religion" levels. For example, in most provinces the levels of "no religion" for the "under grade nine" and the "grade nine to thirteen" groups are very close.

An explanation offered by Roof (1978:110) seeks to blend the status and exposure effects. Roof saw education being positively associated with the belonging components of religious affiliation and, at the same time, being negatively associated with the meaning or belief components. He hypothesized that breadth of perspective of the individual is the factor which leads to the questioning of plausibility mechanisms and this is usually, though not necessarily, the result of education. At the same time, he believed that education acts directly on the propensity of individuals to participate in voluntary social organizations such as the church. Controlling for breadth of perspective and testing three belonging and three meaning measures of individual religiosity in his North Carolina case study, he generated statistics which supported his explanation.

A final explanation could be a sub-element of either of the first two. Religious participation and disinvolvement is a continuum along which there are many categories within which an individual may classify himself. Persons with a higher level of education may be more aware of this variety of classification possibilities than someone with less formal education. Although each may be disinvolved to the same degree

the more educated person may seek to be more precise when reporting affiliation than the less educated person.

3.2.6 Urban Patterns

Tables 3.10, 3.11 and 3.12 present the micro-level cross tabulations for "no religion" and sex, "no religion" and ethnicity and "no religion" and place of birth for a series of Census Metropolitan areas. The patterns closely reflect the results of the provincial level analysis.

A number of variations are noteworthy. In several cities the French ethnic group (Table 3.11) has "no religion" levels which are considerably higher than might be expected from the provincial series. These higher values occur in cities with a small and widely dispersed French population. (Calgary, Vancouver, Victoria, Toronto). They may indicate that in these places, the French group has been assimilated into the larger population.

The data for "persons born outside Canada reporting no religion" shows very little geographical patterning (Table 3.12). The variations may arise because the ethnic composition of the born outside Canada group varies. A large proportion of Italians in Toronto and Hamilton may be depressing levels in those cities while a preponderance of British and Dutch in St. John's, Halifax and Saint John results in unusually high levels for these places.

Obviously ethnicity must be controlled to enable the effect of this variable in the larger study to be determined.

3.2.7 Conclusion

Only a few of the correlates from the micro-data base which exist between the individual's propensity to report "no religion" and his social and demographic attributes have been reviewed here. As the literature review in Chapter 2 suggested there may be many more, including length of residence, mobility, family status, occupation and

Table 3.10

Persons in Census Metropolitan Areas
Reporting "No Religion",
by Sex

	percent		
	Persons Reporting "No Religion"	Males Reporting "No Religion"	Females Reporting "No Religion"
St. John's	0.8	1.0	0.7
Halifax	3.0	3.7	2.3
Saint John	2.0	2.6	1.4
Québec	0.8	1.1	0.6
Chicoutimi, Jonquière	0.5	0.6	0.3
Montréal	2.1	2.5	1.8
Ottawa, Hull	4.2	5.2	3.3
Toronto	6.1	7.3	4.8
Hamilton	4.5	5.6	3.5
Kitchener	4.3	5.4	3.3
London	4.9	6.1	3.8
St. Catharines, Niagara	3.2	4.0	2.4
Windsor	2.5	3.1	1.9
Sudbury	3.0	3.6	2.3
Thunder Bay	3.4	4.3	2.5
Winnipeg	5.5	6.8	4.3
Regina	4.4	5.5	3.4
Saskatoon	5.6	6.9	4.5
Calgary	8.1	9.9	6.4
Edmonton	7.4	8.8	6.1
Vancouver	15.1	17.7	12.6
Victoria	10.8	13.0	8.8

Table 3.11

Persons in Census Metropolitan Areas
Reporting "No Religion"
by Ethnicity

	British	French	Italian	Dutch	Scandinavian	Asian
	percent					
St. John's	0.7	3.0	0	2.5	5.3	6.4
Halifax	2.8	1.9	3.8	3.9	5.5	9.4
Saint John	1.9	1.3	2.4	3.5	1.7	7.9
Québec	1.9	0.7	0.8	6.4	10.2	16.1
Chicoutimi, Jonquiére	1.6	0.4	0	7.7	2.0	6.9
Montréal	4.2	1.2	0.7	15.2	8.0	14.1
Ottawa, Hull	5.7	1.5	1.4	12.0	8.7	16.4
Toronto	6.6	5.5	0.9	25.5	10.3	18.9
Hamilton	4.8	4.0	1.0	6.5	7.1	11.9
Kitchener	4.9	3.1	2.9	8.2	12.3	13.6
London	4.7	5.1	2.4	5.6	9.3	17.0
St. Catharines, Niagara	3.6	1.8	0.6	6.6	5.7	9.4
Windsor	2.9	1.1	0.8	8.0	3.7	8.4
Sudbury	4.5	0.9	0.6	9.1	5.1	14.1
Thunder Bay	3.6	3.8	0.9	3.5	3.4	14.0
Winnipeg	5.9	2.9	1.7	9.5	8.0	17.8
Regina	4.5	3.3	2.0	9.9	4.8	18.1
Saskatoon	6.1	3.6	2.8	6.8	5.6	19.5
Calgary	7.7	6.5	3.1	15.0	8.6	25.0
Edmonton	8.0	5.0	2.5	10.3	8.4	26.2
Vancouver	13.8	12.6	5.9	17.2	24.8	42.1
Victoria	9.6	9.8	6.0	15.4	13.5	36.1

Table 3.12

Persons in Census Metropolitan Areas
Reporting "No Religion"
Born Outside Canada

	Persons Born Outside Canada Reporting "No Religion"	Persons Born Outside Canada and Immigrated 1969-1971 Reporting "No Religion" percent	Persons Between Ages 20-44 Reporting "No Religion"	Persons Born Outside Canada as a percentage of Total Urban Area Population
St. John's	9.2	17.9	1.4	3.0
Halifax	5.5	11.0	4.3	7.2
Saint John	6.6	22.9	3.0	4.9
Québec	6.5	9.6	1.3	2.2
Chicoutimi, Jonquière	6.6	14.0	0.8	1.4
Montréal	4.6	8.1	3.1	14.8
Ottawa, Hull	9.3	14.5	5.9	12.5
Toronto	5.7	8.9	7.8	34.0
Hamilton	4.4	7.6	5.9	26.7
Kitchener	5.3	8.4	6.0	21.8
London	6.1	9.8	6.7	20.0
St. Catharines, Niagara	2.9	6.4	4.1	22.9
Windsor	3.0	5.9	3.4	21.5
Sudbury	4.9	12.7	4.2	12.4
Thunder Bay	3.2	7.3	4.7	21.1
Winnipeg	5.3	9.3	7.0	19.9
Regina	5.7	13.2	5.9	13.1
Saskatoon	7.5	21.2	7.5	13.9
Calgary	9.5	13.4	9.7	20.5
Edmonton	8.8	17.7	9.1	18.3
Vancouver	15.0	23.0	18.4	26.5
Victoria	11.0	21.5	13.8	24.7

religious background. These data, however, are currently not available as cross tabulates at the individual level from the census.

Modelling at the community level only with data series which have been proven significant at the individual level should be a goal in the type of geographic research to be carried out in this sort of study. The lack of these micro-level cross-tabulations demands that a certain amount of reliance be placed on the results of past studies dealing with similar research questions.¹ The hypothesis to be developed in the next chapter is essentially based at the macro level (i.e. the community) and, therefore, while the documentation of commonalities between individual and community patterns is significant where they are possible, the lack of documentation where micro data is not available is not serious enough to undermine the entire research exercise.

1. The sorts of studies discussed in Chapter 2.

CHAPTER 4

MODELLING THE GEOGRAPHY OF "NO RELIGION" IN CANADA

4.1 Introduction

4.1.1 The purpose of this chapter is to propose an explanation for the geographic distribution of persons reporting "no religion" in Canada.

A case for the development of a geography of "no religion" hypothesis arises from the evidence presented in Chapter 3 that there is complex but definite patterning in the geographic distribution of this variable in Canada. The low levels in Quebec and the Maritime Provinces contrast sharply with the high percentages of "no religion" in the West, British Columbia in particular. Communities with perceived social and economic differences often have markedly different proportions of persons reporting "no religion". Intra-urban differences also occurred in all major urban centers, with significant variations in the level of "no religion" often existing in locales separated by only short distances.

Chapter 3 also presented the results of the cross-classification of social characteristics for Canadians reporting "no religion" and for the remainder of the population. These statistics indicated that persons reporting "no religion" tended to be over-represented among certain attribute groupings such as young adults and males and under-represented among others such as the elderly and females.

These results lent weight to the research findings of other authors discussed in the background and literature review chapter, Chapter 2.

4.1.2 The hypothesis for the distribution of persons reporting "no religion" in Canada briefly stated is as follows: the distribution of this variable is not random but instead shows definite patterns which seem to bear some relation with other elements of the social geography. "No religion" in the Census is an attitudinal and

subjective response rather than an attribute measure.

Therefore:

- (1) It is hypothesized that differences in the community levels of "no religion" result from differences in the aggregate of individual plausibilities¹ regarding religion which exist among communities.
- (2) This plausibility decision is taken by each individual and is the product of a host of spiritual and social influences filtered through the perceived needs of the individual.
- (3) It is further hypothesized that for the purposes of geographical analysis, certain critical attributes of the community and the individual can be identified which either act directly upon the plausibility decision or are agents of other phenomena. In other words, these critical attributes are measurable elements of the underlying social and spiritual influences on plausibility.

4.1.3 The hypothesis rests upon three cornerstone assumptions which were drawn largely from the findings of authors reviewed in Chapter 2. First, the hypothesis assumes social causation. That is, the individual's "no religion" response has a social and a psychological basis rather than a physical one. Although this may seem obvious, the adoption of this assumption rejects a notion often involved in geographic models that the individual's response could be the result of living in a particular physical locale, or exposure to physical phenomena such as weather conditions.

Second, the hypothesis is assumed to be an integrated one. In other words, although a variety of diverse components of the hypothesis

1. The notion of plausibility occurs repeatedly in the social and psychological literature. It refers to the individual's psychological rationale or motivation for his actions. Berger and Roof are among the sociologists of religion to use the concept applied to religious commitment and disinvolvement. Its use here is an extension of that work.

can be identified, they ultimately have some degree of inter-relation and complementarity and function as elements of a more generalizable theory. Much of Chapter 2 was devoted to a discussion of the processes of religious commitment and disinvolvement and as such reviewed the leading theories which could sociologically explain individual differences in religious involvement. Under this heading, the spiritual and social roles of religion and the religious institution were discussed, as well as the interactions that may take place between individuals, social groups and institutions. The hypothesis sees these interactions as mediating the degree of "no religion" response coming from "specific generators" such as a person's age; hence the assumption of integration.

The third assumption is that the community is a significant aggregation of individuals and it is at this level that a geographical analysis of the "no religion" phenomenon is most appropriate. Again, this assumption comes from the literature reviewed in Chapter 2, particularly that pertaining to social group behavior. It is at the community level that a variety of institutions (both formal and informal) have been determined by sociologists to affect individual actions.

4.2 Central Elements of the Hypothesis

The hypothesis as presented here is somewhat complex and itself subsumes three elements which are akin to sub-hypotheses of patterns of human behavior. These can be characterized as follows:

- (1) a conceptual framework to operationalize the hypothesis by providing a possible path for cause/effect linkages;
- (2) broad societal forces which are hypothesized to contribute through the framework to the level of "no religion" reported;
- (3) the specific critical attributes, the related social and spiritual influences and their precise operation within the framework.

Each of these elements will be discussed in detail and each comprises a section of this chapter. The end product will be a set of measurable variables framed within an hypothesized model for the distribution of "no religion" in Canada at the community level. A statistical model will reproduce some elements of this larger model and will be tested in an attempt either to discount or lend support to the broader theory.

4.3 Conceptual Framework of the Hypothesis

4.3.1 The purpose of the framework is to offer a plausible explanatory path for the linking of community level "no religion" responses with the characteristics of that community and of the individuals residing there. Chart 4.1 illustrates the hypothesized framework. The framework is split into three sections; response, behavioral framework and influences of critical attributes. It is also divided into two levels of aggregation, the community level and the individual level.

4.3.2 Response and Behavior

The key element of the framework is the mechanism for individual plausibility of religion. That is, in effect, a "black box" for decision-making which is hypothesized to be present in each person. In the course of a decision-making process the individual weighs tangible information and the intangible feelings he has at hand. These condition his response. As Chart 4.1 indicates, the individual plausibility mechanism transforms perceived needs into attitudes and consequent actions, one of these being a response to the Census religion question. In other words, individual plausibility for carrying out a religious action such as attending church regularly, expressing a belief in God or ticking the "no religion" box on the Census form is the result of each person's continued and generally subconscious assessment of the best ways in which to meet the social and spiritual needs which he perceives himself to have.¹

1. and interalia which must therefore have enough importance to be included in his budgeting of time or other resources.

Chart 4.1 Conceptual Framework of the Hypothesis

Seeking needs resolution is usually the basis for any individual decision-making process, and determining the most plausible solution to fit those needs is a central element here. The actual process, of course, is never as formalized as this might imply. As it relates to religious commitment it could be viewed as the constant mental balancing of the perceived arguments for and against as they relate to spiritual and social needs. For example, if personal plausibility for social or spiritual commitment is low due to any number of factors such as knowledge of a strong rational argument against the existence of God, or the absence of social pressures to conform to an accepted religious behavior pattern, then the individual behavior response in a situation involving religion could easily be an irreligious one.

The plausibility mechanism is divided into social plausibility and spiritual plausibility. This reflects, recalling the discussion in Chapter 2, that commitment and disinvolvement reasoning have both social and spiritual aspects. As the sections on commitment and disinvolvement in that chapter indicated, it is not necessary for an individual to have both strong social and spiritual reasons to be committed to religion. In fact as the contemporary and historical comparisons sections there noted, commitment in North America has been largely based upon social needs resolution.

The framework hypothesizes that the individual's perceived social and spiritual needs are the result of his personality and the influence of personal attributes as well as the influence of broader community-wide and community-shared attributes such as social institutions. Personality is particularly important in the model because it is presumed to include the individual's "humanness", that is, the commonality he shares with others, that he is a social and a spiritual animal. In other words, all humans share some indescribable characteristics which generate within everyone the needs for socialization, belonging and

for spiritual satisfaction. This personality box therefore feeds directly into the individual perceived social and spiritual needs cells. At the same time, however, it should also be recognized that because people are different and their social and spiritual needs seem to vary in intensity the "intangible generators" vary in intensity from person to person. When fed through the plausibility mechanism these may be important in determining one's attitudes towards religion. For example, a socially gregarious person may participate in the social aspects of religion more than a person who does not enjoy social activities. Within any community there will be a great mix of individuals with diverse social and spiritual needs which come straight from the intangible characteristics of their personality.

For the purposes of a spatial hypothesis, however, it is not clear whether personality types could have geographic ordering. It is possible that persons who have strong social needs are more often found in large urban communities than in small towns. The employment opportunities best suited to socially-outgoing personality types, sales, advertising and administration are most likely to be found in large cities and this may stimulate selective migration of these kinds of people. No firm evidence of this exists in the literature, however, and such differences would be extremely hard to quantify for use here in any case. Therefore, it must be assumed that while the personality types of individuals vary greatly within each community, the mix of personality types is roughly the same in every community in Canada. For the purposes of this model, aggregate community personality mix will be viewed as a constant.

4.3.3 Critical Attributes

Those characteristics of individuals and the community which it is hypothesized do bear significant relationships to the geographic distribution are referred to here as critical attributes. These attributes have influence elements which can modify the perceived social and spiritual needs of the individual. For example, old age according

to the literature (Glock, Ringer and Babbie, 1967; Mol, 1976) is likely to be a critical individual variable because it seems to alter perceived needs. An increasing awareness of the potential for death causes the individual to look more closely at the spiritual aspects of religion and what religion has to say about death and this seems to come with age.

Critical community attributes operate at the community and the sub-community level. Their prime identifying feature is that they are operating by societal means on the needs of the individual. Community-level influences may originate with institutions, in the collectivity of individuals with shared attitudes, or other social elements of the community.

Critical individual attributes are characteristics of the individual which seem to have some influence upon perceived spiritual and social needs. In some cases, a critical attribute of the individual may also be counted as a critical community attribute. For example, a person's ethnicity may influence his perception of his social and spiritual needs. The extent to which this attribute influences his needs, however, may also be a function of how many other people of the same ethnicity live in the community. If his perceptions are supported by a community he may find certain beliefs plausible, and some methods of behavior acceptable and others discouraged. (Ishwaran, 1977)¹

4.3.4 Community Level and Individual Level Distinction

The hypothesis framework recognizes two levels at which activities take place, the community level and the individual level. Recalling the problem definition, the objective is to move towards an explanation for the geographic distribution of "no religion" responses in Canada at the community level. To achieve this, it is necessary to take activities into account at both levels. As Chart 4.1 indicates, influences and responses are channeled through every individual in the community. Each

1. Ishwaran's work illustrates the different influences of one's ethnicity as an individual attribute and as a societal characteristic,

person is a decision-making unit. However, though the objective is to link a community level response with community level conditions this aim is still achievable if one assumes that each individual is a single decision making unit and that a community is a larger decision making unit composed of the aggregate of the individual units. Whereas the response of the individual is likely measured by a yes or no, community level response is measured as a propensity for the aggregate of individuals to respond in a certain manner. For example, "no religion" is assumed to be stronger in a community in which twenty individuals out of 100 reported that status than in a community in which only two persons out of 100 reported "no religion".

The link between influences and responses at the community level is shown operating through the behavior framework with dashed lines and symbols. This is meant to indicate that while the process does not actually operate through a community-level behavior framework, such a framework can be inferred if one considers it to include the aggregation of behavior framework components of each individual.

The framework's recognition that there are community attribute influences and individual attribute influences is important for this study because it allows the examination of the relationship of each set with the dependent variable "no religion" in turn. Because there is particular interest here in examining the possible effect of the community attributes, the ability to hold many of the individual attributes constant is especially valuable. The results of such an investigation, supported by statistical evidence, would lend weight to a general theory that these critical attributes of community have a broader role in indicating other styles of social participation of the residents in addition to religious commitment/disinvolvement.

4.3.5 Having discussed the hypothesized framework, a few words should be added to describe how it was conceived. The notion of an influence-effect model for religious commitment in communities came from Roof's (1978) work with a Protestant denomination in North Carolina. From

the review of Roof in Chapter 2, it may be recalled that he offered a model in which the individual's "local-cosmopolitan" orientation was an intervening variable between background variables such as education, length of residence and the dependent variable, religious commitment. Roof's model seemed to imply that attitude modification, related to influences associated with the background variables, was responsible ultimately for intensity and style of religious commitment.

The local-cosmopolitan reference notion presented problems, however. If individuals can be classified according to this reference as Roof and others believe, then it implies that a state or style of social participation or activity can be defined for each person. Religious commitment is one element of that overall style. Roof's model implies that community reference leads to religious commitment characteristics when in fact his discussion of local-cosmopolitan orientation seems to indicate that they are largely co-existent and perhaps both indications of something else. The hypothesized framework presented here is an attempt to provide an alternative model in which a key element missing in Roof's study is provided, a general mechanism of individual behavior and decision making.

4.4 Hypothesized Broad Societal Forces - (The Environment in which all Influences operate)

It is possible to generalize the environment in which the individual makes decisions relating to religious commitment or disinvolvement. This environment is hypothesized, in its broadest sense, to be one in which the spiritual and the secular operate as opposing forces, one "encouraging" or facilitating commitment and the other "encouraging" or facilitating disinvolvement. Secularizing influences are disinvolvement forces. Many researchers feel that our modern industrial society encourages the individual to develop his perception of his environment along strictly secular (i.e. tangible) lines due to the emphasis it places on rationality and materialism. Bibby is among the

proponents of this position and he succinctly sums up the major elements by describing a secularized perception as "... an outlook which points to observable reality and calls people to abandon questions pertaining to life's meaning and instead pursue ways of making life meaningful." (Bibby, 1979:3)¹

Opposing the secularizing influences are a group of hard to define commitment forces which are the spiritualizing influences. These act upon the individual's need to contemplate and seek solutions to spiritual questions he cannot answer with worldly information. As well as knowledge and insight, the spiritualizing influences demand that faith also be one of the inputs to the individual's decision making process.

In addition to spiritualizing influences, socializing forces also have a positive influence on individual commitment to religion. They do this in two ways. First, they act as an indirect influence on commitment by supporting the spiritual influences. As the discussion of Berger's (1967:45) work in Chapter 2 indicated, the religious institution, the family, the congregation and the community can serve as supporters to provide plausibility for individual beliefs. Second, the disinvolvement influences and commitment (socializing) influences are both linked to ways of making the individual's life more meaningful and therefore are in competition with each other. In other words, the social enjoyment and other benefits an individual derives from his commitment to religion and to a religious community competes with the potential enjoyment he could be deriving by participating in secular activities instead.

In summary, individual plausibility for religion is affected by two broad struggles of influence, 1) secular forces in direct opposition to spiritual forces and 2) secular activities competing with religiously-tied social activities. Within each of these areas exist many specific influences each with identifiable attributes which can be quantified to lend support to theories of explanation.

1. The notion that the broad social environment contains opposing spiritual and secular forces comes largely from Bibby's work.

The next section identifies these influences and places them within the broader context of the hypothesized framework.

4.5 Critical Influences

4.5.1 Critical influences are forces present in the community which are hypothesized to be responsible for the geographic differences in the level of "no religion" reported among places. As the framework discussion (4.3) indicated, these influences are present at the community level either as community-wide influences or as the aggregate of influences which arise from attributes of each individual in the community. These local forces operate within the context of the broader socializing and spiritual forces of Canadian society discussed in the preceding section (4.4). They are hypothesized to influence individual attitudes and responses (including the religious response) by passing through the "needs filter" of the individual's plausibility mechanism. Aggregating individual attitudes and responses produced a measure which reflects the propensity for a certain attitude or response to be present in the community unit. For the purposes of this research, these propensity measures can be viewed as measures of community-level attitudes and responses.

Unlike the broader forces in society which may be responsible for society-wide variations in the "no religion" level, the critical influences discussed in this section are hypothesized to be responsible for local level (i.e. geographic) variations.¹ The attributes of individuals which are hypothesized to be critical in this study are age, ethnicity, religious upbringing, family status, integration within the local community and aspects of educational background. Attributes of the community which are seen to be significant are community stability and social integration, a tendency towards community homogeneity for certain ethnic groups and religious backgrounds, and strong family and neighbourhood bonding.

1. The influences are critical because they are geographically significant. The forces examined in Section 4.4 are broader and cover all of society.

Each of the foregoing are related to influences affecting spiritualization or socialization and belonging which are inputs to the individual plausibility mechanism. The sections which follow discuss specific critical influences delineated on the basis of whether they influence spiritualizing or socializing-belonging and whether they are individual (aggregate) or community in origin.

4.5.2 Critical Individual Influences

4.5.2.1 Critical Individual Influences on Spiritualization

4.5.2.1.1 Age

Statistics in Chapter 3 indicated that the proportion of persons in the "twenty to forty-four" age group reporting "no religion" was about double the proportion of the "over fifty five" age group. It is hypothesized that at least part of this difference is related to increased plausibility of belief with age. (Stark, 1968) Death can seem far away during youth and this may provoke an illusion of immortality. With age, this illusion is shattered by the reality of death all around. Perhaps the individual's instinct for self preservation rekindles or intensifies religious beliefs. The result is that spiritual beliefs, as they relate to the need for self preservation, are more highly valued by the aged than the young.

A second age-related influence on spiritual activity may also be involved. Older persons are more likely than the young to associate the expression of spiritual beliefs with participation in a religious institution. In Canadian society, particularly up until about the 1950's, persons were generally taught to express religious belief through the church. Persons expressing beliefs independent of the institution may be reporting "no religion" and evidence suggests these people are largely from outside the middle age and elderly group. Variables indicating the representation of individuals of "old" and "young" age groups in the community statistically portray these influences. It is hypothesized that the variable illustrating "the community percentage

of persons over sixty-four years" will be significant. A second variable measuring "community percentage of persons between ages twenty and thirty-four" will also be included but it is expected that its relationship with the dependent variable (in the context of spiritualizing effect) will be weak.

4.5.2.1.2 Ethnicity

Ethnicity is hypothesized to influence individual spiritual needs by acting as a surrogate or carrier of the influence of religious upbringing. Chapter 2 discussed the impact of the Roman Catholic church on the individual's perceived need to maintain religious beliefs. (Westhues, 1976) The Catholic church has attempted to control the individual's social environment by creating its own schools and using these to reinforce beliefs espoused by the church. At the same time, this has provided some insulation against secular influences.¹ (Westhues, 1971) The result is that persons with a Catholic upbringing are likely to have more well defined spiritual needs than an individual who did not go through the Catholic system.

Present religious affiliation, as available from the Census, would be a poor measure of this phenomena. Information is required on past, not present religious status. Also, it may be technically incorrect to relate two responses to the same question. The statistics on "no religion" response and "Roman Catholic" response may not be independent.

Fortunately, ethnicity statistics offer a way of measuring the "Roman Catholic upbringing" effect on beliefs. Nearly all persons of French or Italian ethnicity will have been brought up as Roman Catholics. The variables, "persons of French or Italian ethnicity in the community", should therefore capture this effect.

Chapter 3 also indicated that Chinese persons tended to report "no religion" more often than members of any other ethnic group.

1. Or at least in the church's opinion a balanced exposure to the spiritual and secular influences Bibby spoke of.

It was hypothesized that this may be due to differences in religious concepts involving both belief and institutional participation. The variable, "persons of Chinese ethnicity", is to be included in the model.

The statistics in Chapter 3 indicated that persons of certain North European ethnicities, particularly Scandinavians and Dutch, frequently reported "no religion". Both these groups (but the Dutch in particular) seem to be split into conservative and liberal elements. Among the liberal group the rejection of belief is probably high and this may be due to a tradition of rational thought present in these countries.

Two variables, "persons of Scandinavian ethnicity" in the community and "persons of Netherlands ethnicity" are included in the model. The split into conservative and liberal elements, however could produce inconclusive results.

4.5.2.1.3 Place of Birth

Statistics in Chapter 3 illustrated that persons born outside Canada tended to report "no religion" more frequently than Canadian-born, particularly if they had immigrated from a country in northern Europe. From the discussion in Chapter 2, it seems likely that a community with many persons recently immigrated from northern Europe will have a fairly substantial population who have not been exposed to belief traditions. A variable to account for this impact is to be included.

4.5.2.1.4 Education

"Intellectual defection" as discussed in Chapter 3, is believed to result in reduced belief needs. This has been hypothesized by Mauss (1973), Stouffer (1975) and others to be the result of the exposure to new ideas and the development of a broadened perspective through education, particularly at the university level. The exposure to a variety of ideas and the teaching to question established notions,

particularly "cognitive incompatibilities" (Roof, 1978:109) such as the notion of beliefs and faith one receives in university could result in spiritual needs being lower for this group. Two variables are included in an attempt to account for this influence. The first is the number of the persons not presently in school with any university education and the second is the number of students currently attending university. Both are included because there may be some difference in the rate of effect. Departure from the stimulating atmosphere of the university may cause opinion development to be fixed as they were at the time of departure. The current discussions of attitudes toward spirituality and belief among the university population of today could conceivably be quite different from those of fifteen years ago.

4.5.2.2. Critical Individual Influences on Socialization and Belonging

4.5.2.2.1 Age

The presence of a community population heavily weighted with persons in the late middle age and old age range has been hypothesized in the preceding section to be a population who have greater levels of spiritual or belief commitments than a "normally distributed" population. A second reason for the high level of religious commitment among this group is also believed to exist; the influence of the need for socialization and belonging which was discussed in some detail in Chapter 2. Briefly, the argument is that with old age a person's opportunity for socializing may become limited. (Glock, Ringer and Babbie, 1967) For retired persons, in particular, without the work place in which to socialize, this may be a major problem. Ability to participate in voluntary organizations may be restricted by poor health, lack of transportation or by a "young" age structure in these organizations.

The church is one of the more accessible volunteer organizations available to the aged. The church serves as a valuable location in which to meet and socialize with old friends, make new friends and participate in activities with persons of one's own age. For the aged person living alone, these social opportunities are particularly valuable. They engender a sense of belonging, a notion of not being

alone but rather a part of a group. Group activities may give the person living alone a sense of purpose. In contrast, the young and middle aged may have a great variety of social opportunities available to them and enough kinship ties to sustain a feeling of belonging. Unless they have used the church as a social vehicle in their youth, they may not be aware of the "extra-curricular" activities it offers. Even if they are, their use of leisure time will probably reflect the low value they place on church-oriented activities in comparison with other available forms of socializing and recreation.

The variable, "persons in the community over the age of sixty-four", which was selected to represent the influence of age on belief commitment is also hypothesized to be capable of transmitting some of the influence of age on social needs and belonging. In addition, the variable, "persons in the census tract over the age of sixty four living alone" is included in an attempt to model the particularly intense needs which the church may serve for persons in this group. Obviously, the close relation between these two variables will create statistical problems if the results are not treated with caution. It may be necessary to discard one from the final model.

4.5.2.2.2 Ethnicity

A person's ethnicity may affect needs for religiously focused socialization and belonging. Persons of the French-Canadian, Italian, Spanish and Portuguese ethnic groups are generally Roman Catholics. It is hypothesized that the strong mechanisms which link the individual to the Catholic church are fairly successful in allowing this institution to retain its members. While some of these are belief-oriented, (discussed in the preceding section), others are tied to kinship, socialization and belonging. The four ethnic groups above characteristically have strong social and kinship networks. The church is a focal point for these networks and as such contributes to the maintenance

of social ties. The individual derives many social benefits from his participation in the church because he is able to meet friends and relatives each week and socialize as well as being able to develop new contacts. On the other hand, persons who are of Northern European ethnic backgrounds (especially Scandinavians and Netherlanders) come from societies with strong secular traditions. The church is probably of less importance for the maintenance of social ties. While the individual may derive some social benefits and belonging from church participation he likely seeks these from a diversity of sources.

The following four variables are believed to have a relationship with the dependent variable. Each was also deemed significant in the spiritualization section. Some of their effects are probably more closely associated with other factors such as individual's perception of his obligations to family and peers and may be more suitably modelled using variables reflecting these influences. Decisions of these kind will be discussed in the section on variable prioritization. (4.6)

"Persons of French ethnic origin", and "persons of Italian ethnic origin", are variables believed to have a negative relation with the disinvolvement rate and hence the level of community "no religion".

"Persons of Scandinavian ethnicity" and "persons of Netherlands ethnicity" are believed to be prime candidates to disinvolve from religion.

4.5.2.2.3 Length of Residence.

The length of time one spends in a community seems to bear some relation to the propensity to become involved in a local religious institution and probably to a degree of commitment to that church. A person who frequently moves from one community to another may use the church to fulfill his spiritual needs but may find that the church does not successfully compete with other available social activities in the community when he seeks social satisfaction. It is hypothesized that the social network of the church, while not a particularly closed group, may require the newcomer to spend time and effort to break into

it and to be accepted. Once he is a member of the group, the inclination to retain membership is probably strong and will grow over time. For a person who moves frequently, however, his spiritual needs would have to be strong to get him into a position from which he could attempt to participate in church social activities. Second, he would probably have to place some special value on the time spent in church-related social activities unless there were no other suitable forms of recreation available. This special value might come about as a result of previous church social experiences. For the majority of short residence persons, however, participation in the social activities is likely very low.

Two variables are to be included initially; one measuring dwelling occupation by householders and household groups, the other measuring personal mobility. The first, "dwellings in the community which have been occupied by the same household for more than ten years" is hypothesized to be negatively related with the number of persons reporting "no religion". The second, "persons in the community who moved at least twice between 1966 and 1971" is hypothesized to be positively correlated with the dependent variable.

4.5.2.2.4 Family Status

Religious activity tends to be family oriented. Churches aim much of their efforts at the family group and organize social activities which often appeal primarily to persons in families. In Chapter 2 it was noted that Lazerwitz (1964) found religious participation increased slightly among adults in families with young children. It is hypothesized that the responsibility parents feel for educating their children in all elements of their culture induces them to attend church even if their own spiritual commitment is not particularly strong. The coin of responsibility has a second side which takes the form of subtle and not so subtle pressures from parents (grandparents) and other

relatives causing parents to return with their children to church. Family formation probably also has a stabilizing effect on lifestyle and perhaps on attitudes and perspective. Beliefs, that in teen and young adult years seemed without merit, may begin to take on new meaning as the individual settles into the role of a parent and a more active member of an established social community. In general, living in a family situation and particularly in a family extended by the presence of grandparents, aunts, uncles and cousins would seem to have a positive impact on one's propensity to participate in religion and a negative impact on his ability to disinvolve from it.

Aside from the definite impact which growing up in a religious family has on the individual's perception of cultural normality, a person continuing to live in this situation will probably continue to be positively disposed towards religion if for no other reason than to avoid family conflict. Persons living outside families are under much less scrutiny from relatives and less subject to social pressures of these kind. As a result, disinvolvement is likely to be a decision based mainly on spiritual considerations and less so on social and belonging reasons. Especially for young persons establishing themselves outside the family, religious disinvolvement may be a reaction to earlier family-based restrictions. In this situation, the individual may be inclined to report "no religion" in the Census. With the re-establishment of family ties and mellowing attitudes which seem to come with age, he may change his feelings towards religion.

Several variables are to be used in the model in an attempt to capture these hypothesized patterns. "Total number of families in the community" will be used to evaluate the impact of families on religious disinvolvement. Impact of extended families will be studied using the "number of households in the community occupied by families with some extension of the nuclear family". "Number of primary family households", households occupied by families consisting of a husband, wife and one or

more children should help assess whether children in families have a negative impact on disinvolvement as hypothesized. Finally, "single person households in the community occupied by persons less than sixty-five years of age", will be used to evaluate the hypothesis that persons outside families are more prone to report "no religion".

4.5.2.2.5 Labour Force Participation

A final element to be evaluated is the validity of Glock's (Glock, Ringer and Babbie, 1967) deprivation theory in the Canadian situation. Glock hypothesized that religious involvement serves as compensation for persons deprived of social contacts in daily life as one might make in the work place. He felt that this applied particularly to females in the role of homemakers and mothers. A positive relation between two measures of this phenomenon and the dependent variable would offer support for this theory. The variables selected are "the labour force participation rate" and "females in the labor force relative to the total female population".

4.5.3 Critical Community Influences

The characteristics of an individual are one element believed to have an effect on his propensity to report "no religion". It is hypothesized that the characteristics of the social community with which he interacts can also influence his decision. The key elements of community influences are shared beliefs, shared backgrounds, shared experiences and shared perceptions because these conditions lead to group integration. It is hypothesized that the more persons who are group members as a percentage of the total community population, the greater is the strength of community integration and the greater the impact of community influence on persons who, voluntarily or not, are members.

The influence of the group generally¹ has a positive impact on commitment and a negative impact on disinvolvement. The group provides

1. In some cases the influence could conceivably be opposite. As a member of a community in which anti-religious feelings are the norm, religious participation could cause the individual to encounter social problems.

plausibility for beliefs by positively reinforcing those of the individual with the shared beliefs of the larger group. It also provides plausibility for social actions in much the same way. At the same time, the group discourages disinvolvement because it has the ability to ostracize its members. For individuals who have limited social contacts outside the group or who live in a community in which group contacts are the only ones available, this provides a deterrent against deviant behavior.

Extent of community solidarity and integration is the factor being measured by the variables discussed in this section. The aggregate individual attributes were hypothesized to have a linear relationship with percent "no religion". This would infer that as each additional individual is added to the community aggregate it would have an equal incremental effect on the community level of "no religion". Community attributes are believed to bear a somewhat different relationship with the dependent variable. Plausibility influence grows as the proportion of community participation increases. At the same time, the community's ability to generate pressure against deviant behavior increases. A logarithmic relationship between many of the community attributes and the dependent variable is hypothesized because this relationship represents the effect of cumulative social influences and peer pressures as previously described. In these cases, the effect on the individual of the presence of a "strong social network" is hypothesized to increase at a rate much greater than the incremental unit by unit growth of the network.

4.5.3.1 Critical Community Attributes - Spiritualization

4.5.3.1.1 Religious Character of Community

It is hypothesized that belief plausibility (as discussed by Berger, 1967:45) (i.e. reinforcement of beliefs) is most widely generated in communities in which there is extensive homogeneity of religious backgrounds. The presence of a number of competing ideologies in a community

probably weakens the effect of the belief argument of anyone. Where this "competiton" is absent the spiritual ideology is well focused and these beliefs shared by most persons in the community. The reinforcing effect on the individual's own beliefs is probably great. French Canada, particularly that of the past, is a good example of this phenomenon. As Chapter 3 indicated, the level of "no religion" reported in Quebec is low. Moreover, most parts of Quebec are marked by very homogeneous religious populations. Except in the largest cities and some isolated areas, the population is overwhelmingly Roman Catholic. The strong relationship between the individual, his beliefs and the institution has already been described. In French-Canadian communities in Quebec in which there was a strong link between the community of individuals and the religious institution, there were few persons who did not share these convictions, the belief reinforcing effect was great. Consequently, individual beliefs tended to be fairly strong, all other influences considered. Possibly because of the strength of their social and religious integration, Roman Catholic communities have been most successful in retaining their relative homogeneity. There are few communities in Canada in which a religion other than Roman Catholic dominates a local scene. As a result, the degree of Roman Catholic homogeneity modelled using the proportion of persons in the community who report being Roman Catholics¹ will be transformed logarithmically and included in the model.

4.5.3.2 Critical Community Attributes - Socialization and Belonging

4.5.3.2.1 Ethnic Character of the Community

It is hypothesized that the communities' ethnicity characteristics have an effect on the "no religion" response. It has already been noted that a number of ethnic groups, the French, Italian and Portuguese in particular have characteristically strong social and kinship networks.

1. The inclusion of one religious response, Roman Catholic, to model an effect on another response from the same question may provide some technical problems although it is believed that these are avoided because the two never come close to adding up to 100% of all responses. Conceptually there is no problem. The dependent variable models the response and Roman Catholic here models the background community religion "pool", not an individual reply.

Other groups, the Dutch and Scandinavians, for example, place less importance on extended networks of local family and social ties. For groups in which there are these strong networks, it is believed that these serve to effectively deter individual religious disinvolvement. Since this network is largely channeled in some way through the community's local church, severing ties with the institution by dropping out of religion would automatically reduce the opportunity for social contacts. More importantly, such an action might be viewed as unacceptable and deviant behavior, and as a result the individual and his family could be somewhat excluded from a broader range of social activities. Pressures not to disinvolve, coming particularly from the family would probably ensure that the individual would retain his links with the church, (and thereby the community), even if his spiritual commitment was weak.

Two forms of community mix of ethnicities exist which seem to have an influence on the individual's decision to disinvolve from religion. The first form is the community which is ethnically homogeneous. If the ethnic community of this type is French, Italian or Portuguese the strong social and kin links which exist with the church as focal point means that social ostracism could very easily result in the exclusion of the individual from the mainstream of community activities. Even homogeneous British-Canadian communities are likely to display this sort of influence if social opportunities are few outside the local church. Another ethnic group with low rates of religious disinvolvement is the North American Indian. The strong communal ties which exist in the predominantly Indian communities, where many of these people live, again are effective deterrents to disinvolvement. One would expect to find much higher "no religion" rates among Indians who have broken these ties by moving away.

The second form is the community in which a minority of the population are members of one ethnic group and the remainder are of

one or more other ethnicities. In these situations, there is often heightened awareness of one's ethnicity because the group may be perceived as a familiar island in an unknown and perhaps hostile sea. As Ishwaran (1977) discovered, the group tendency here may be to take the "fortress" approach and build up social barriers to protect one's culture. In any case, there is a heightened awareness of the cultural attributes of the minority group among its members. Religion may be included here if it is different from the religion of the surrounding groups. Within this sub-community, social and economic networks may be quite strong while the same links between members of the group and outsiders are quite weak. Here too, social peer and family pressures act as effective deterrents against disinvolvements from religion. Also, because one's ethnic identity and religion are perceived to be strongly linked, there is likely a desire to retain those "cultural" ties. Italian and Portuguese inner city communities are likely examples of this form.

The added value placed on religious identity (as a facet of ethnic identity) because of this so-called "island" effect is not restricted to the community scale. French Canada is something of an "ethnic island" in North America. As a result, distinct cultural attributes of the group, including religion, may have taken on special significance for the members, especially those attributes which could act as vehicles for the transmission of culture. It is hypothesized that part of the reason for the very low levels of religious disinvolvement among Catholic French Canadians is that such an action¹ would be an act of discarding part of their cultural heritage.

The variables, "proportion of the community population belonging to the French ethnic group" and "proportion of the community population belonging to the Italian ethnic group" are hypothesized to be representative of the extent to which the community effect is being transmitted.

1. in the past at least; today there are signs that religion no longer has a major role in the transmission of French Canadian culture.

These have also been identified as relevant variables in the preceding section so it will be recognized that their effect has several dimensions. In this case, they will be logarithmically transformed to represent the hypothesized effect of increasing ethnic homogeneity in the community. The variable, "proportion of the community population belonging to the North American Indian Group", is also included to account for the effect of these communities. Log transformation is again applied. Two other variables are also to be included in the equation to model the "sub-community island" effect. However, because these will exhibit collinearity with other dependent variables, they may not meet significance standards. In these cases, it will be assumed that the "island" effect of community is adequately accounted for. The variables are "the proportion of the community population speaking French at home" and "the proportion of the community population speaking Italian, Portuguese or Spanish at home." These variables identify ethnic communities in which cultural distinctiveness is still maintained, as evidenced by language spoken. It is hypothesized that where these values are high, the inhabitants' perception of religion as a cultural attribute will also be strong.

4.5.3.2.2 Community Stability and Social Integration

The social ties which produce a socially integrated community take time to develop. A stable community in which length of residence of the members is extended and in and out migration minimal, produces a social environment in which the residents have extended local networks of social contacts. Community institutions serve as vehicles for the maintenance and furthering of these contacts and for this reason residents attach themselves to the organizations. Time, of course, is also needed to build up a local network of family ties. Although not everyone in the community develops the same kind and size of social network, it is generally accepted that the longer the stay, the greater the chance of developing strong community attachments. Once strong community attachments are in place, their maintenance becomes of some concern to the

individual. The effect of community attachments among ethnic groups has already been discussed. Among the general population, too, where these attachments are strong, it is hypothesized that they deter individual religious disinvolvement by threatening a degree of social ostracism. This threat may have particular meaning for individuals with little diversity of social contacts, a consequence of a fairly narrow range of personal interests, or for persons living in a community with limited opportunities for socialization.

To measure the degree of population stability, the variables, "dwellings in the community occupied by the same household longer than ten years" and "persons who moved inter-municipally at least twice between 1966 and 1971" are included. Collinearity is likely between the two; they each deal with the same phenomena but from different perspectives. These variables have already been identified in the discussion of individual attributes. In this case, however, they will be logarithmically transformed because it is believed that as a community tends toward homogeneity in these regards, the strength of social ties has a particularly strong influence.

4.6 The Hypothesized Model

4.6.1 Prioritizing Variables - Introduction

The preceding section discussed influences in Canadian society which are hypothesized to be significant for the distribution of persons reporting "no religion" in Canada. A selection of variables which are available at the small area scale and which bear some relation to the hypothesized influences were also discussed. It should be noted that few of the preceding variables are good measures of the influences. This is because the character of each social influence is multifaceted and does not lend itself to quantification. The variables tend to be secondary in that they measure components of the influences which are quantifiable. The result when such variables are used in a statistical model is essentially a descriptive equation. Explanatory value comes only when a series of arguments can be presented which makes a case for a link

between description and explanation for each variable. For a series of such variables to retain any explanatory value in a comprehensive model, the model must be designed so that the various arguments are smoothly integrated into a logical and defensible unit.

This section attempts to provide such a model by discussing the relationships between the variables from the preceding section and by prioritizing them for entry into the equation. Prioritization is based on the nature of their hypothesized effect and how that relates to the hypothesized effect of other variables. The ordering of variables reflects the author's opinion as to which ones represent major and minor influences on the distribution of the dependent variable. This is possible as variables entered towards the end of the sequence have little chance of being included in the equation unless the effect they transmit is unique. In many cases, the effect will have been introduced by a preceding variable which has been determined to be more directly related to the influence.

It will be recalled from Chapter 2, section 7 (The Individual and his Community) that two theories have been put forward to describe the relationship between the individual and social mechanisms in mass society. In the Linear Model, the nature of community attachments change as a result of population density and social heterogeneity. According to the Systematic Model, changes in community attachment do not come about as a result of the size of town one lives in but rather as a result of individual actions and social needs. The model hypothesized by this paper, as it is undoubtedly clear, rejects the Linear Model and is based largely on the Systematic Model as discussed by Kasarda and Janowitz (1974). Therefore, the discussion in this chapter has focused on influences as quantified by the individuals' attributes and those of the local social community and avoided the inclusion of variables such as population density or city size. These would support the linear model and are therefore hypothesized not to be significant

if the influences at the local community level, supporting the Systematic Model, are correctly accounted for. The prioritization of variables here, therefore, is based on construction of an equation which lends credence to the Systematic Model and can be used to discredit the Linear Model. Such a result would weaken the traditional argument that irreligion is higher in cities and that this occurs because cities are centers of secular influences and discreditors of spiritualism. The three assumptions discussed earlier in this chapter, social causation, the significance of the local community and the interrelation of effects are central to the model building exercise.

The model itself is double staged. Variables have to this point been described as being either community-level attributes or aggregate individual attributes. For the practical purposes of building the model, community attribute variables are believed to be primary while individual attribute variables are hypothesized to be secondary. That is, community variables will precede individual variables into the model. This is carried out because the hypothesis recognizes the transcending influence of the social community over those persons who are members of it. It is hypothesized that the effects of social cohesion and other community characteristics can dampen the effects of individual level influences which might contribute to a person's disinvolvement with, or non-participation in religion.

In a number of cases several variables have been recognized to be indicators of more or less the same influence. For example, "proportion of the community population of French ethnicity" and "proportion of the community population speaking French at home". The model will initially be run with only the hypothesized community level attributes and where influences are clearly being replicated as above, variables will be eliminated. Then the aggregate individual variables, recognized to be secondary, will be admitted into the equation. This will constitute a final model. This process allows some selectivity in variable choice

without compromising the overall direction of the model.

Several of the variables which have been hypothesized to bear significant relationships with the level of "no religion" reported in communities have been recognized to transmit both community level and aggregate individual level influences. In these cases, because it is impossible to separate the two effects, some aggregate individual effect will be entering the model where ideally it should not. This introduces the potential for unclear results, if, for example, one individual aggregate attribute is hypothesized to transmit most of the effect of a second. If that second attribute has preceded the individual variable which is believed to be significant into the model in the form of a community variable, the result could be the discrediting of a "true" relationship. If these situations arise, they will be noted and catalogued as technical shortcomings of the model.

4.6.2 The Prioritization Process

The most important influence in the model and the first variable to be entered is the measure of community stability, the length of residence variable. Co-ordinated community actions as a result of social cohesion and integration are central to the hypothesis and the work of authors such as Kasarda and Janowitz (1974) and Roof (1978) indicate that these come about as a result of social ties which develop over time. The entry of the community stability influence into the model first eliminates the possibility that subsequent variables entered could gain significance as a result of a replication of the length of residence distribution. For example, it is hypothesized that this will reduce the strength of the model's second variable, "proportion of the community population belonging to the French ethnic group". The strong social cohesion hypothesized to be present in predominantly French communities is believed to be partly the result of stability of the community population. However, the French ethnic measure is still

believed to be significant for the reasons discussed earlier. In turn, the French ethnic variable will transmit a large part of the effect of the Roman Catholic community influence. This is acceptable because ethnicity and religious affiliation are tied together into a greater social identity here and it is this integrated effect that the author is attempting to measure.

This same phenomenon is also believed to be measurable in communities which are primarily Italian in character. Therefore, the next variable to be entered is "the proportion of the community population of Italian ethnicity". Communities of essentially Italian character are few in Canada and almost exclusively urban. This variable is expected to show some strength, however, because there is likely little collinearity with the "community stability" and "the French community" variables.

The next variable which will be entered is "the proportion of the community population belonging to the North American Indian Group". The stable and socially cohesive Indian communities are expected to report low levels of "no religion" and as a result be significant in the model. Some of the stability effect here is expected to be accounted for by the length of residence measure.

The fifth community variable is an alternate measure of community stability and social cohesion. Measuring population instability and, by inference, lack of social cohesion is the migration variable, "proportion of the population having moved at least twice in five years". One would expect a high degree of association between this and the length of residence variable. There may be enough independence, however, to make this measure worthy for inclusion in the model. This variable and the other three community variables which are described in the following paragraphs will be evaluated for significance and either accepted or rejected before any aggregate individual attribute measures are added.

"The proportion of a community's population reporting Roman Catholic Religion" has been hypothesized to be a significant variable. However, the model has been organized in such a way that the "predominantly French" variable and the "predominantly Italian" variable precede the "Catholic" variable. Significance of the Roman Catholic variable in the model would seem to indicate that there are other communities exclusive of the French and Italian ones in which the Catholic faith is able to perform its cohesive function.

The two other community "ethnic character" variables are also submitted at this point. Given that the measures which precede their entry are believed to be the primary transmitters of any of their influence, "proportion of the community population speaking Italian, Spanish or Portuguese at home" and "proportion of the community population speaking French at home" are not expected to be significant.

In the second stage of the modelling process, the aggregate individual attributes are included in the model following the significant community attributes from stage one. Again, variables are prioritized according to the hypothesized "sequence" of effect.

"The proportion of persons in the community over age sixty-four" is designed to account for the propensity of older people to seek fulfilment of spiritual needs through religion. Socialization effect may be active here also. However, the community stability variable which precedes it should account for much of this.

The next variable, "proportion of single person households occupied by persons under the age of sixty-five" is an indication of the propensity of residents to be in situations which are not conducive to the development of strong kinship ties. These kin ties have been hypothesized to have an influence (for social reasons) on individual religious involvement.

Another variable which accounts for individuals in the community with the propensity for non-involvement is the "proportion of persons born in northern Europe". Since persons of this group have the tendency to be among the most spiritually and socially independent of the church, substantial variations in their distribution across Canada could be reflected in the community "no religion" levels.

A similar variable is "the proportion of persons of Chinese ethnicity" in the community. It has been shown that persons of Chinese ethnicity tend to report "no religion" the most frequently of any group. Where there are large numbers of Chinese persons it is expected that this propensity should result in a "high" community level of "no religion" being reported, everything else being equal. The Chinese variable is expected to be reasonably strong because its effect is rooted largely in a unique cultural perception of spirituality and therefore the other variables introduced previously should not greatly alter its influence.

The next variable to be entered is another measure which seems tied to disinvolvement for spiritual reasons. "The proportion of the population in a community who are university students" has been hypothesized to be significant due to the propensity of this group to have rather low levels of spiritual religious commitment. A second education variable, "proportion of persons in the community, not in school, with at least some university" measures the same influence. Both are included, however, because the locations of universities are not necessarily the communities with large populations of university-educated persons.

The influence of family ties on the individual's spiritual and social behavior has perhaps been accounted for by variables which have already been included, the ethnicity variables and the single person household variable in particular. However, the proportion of extended families in the total number of households has been proposed as a significant variable and will be tested here.

High labor force participation in communities has been hypothesized to contribute to a decline in religious activity. (deprivation - compensation theory) (Glock et al, 1967) The community labor force participation rate is included in the model to test this.

Several other variables are to be provisionally included. Since these are for the most part alternative measures of influences which have supposedly been accounted for it seems unlikely many will be significant. These include a measure to account for the possibility that communities with large numbers of young people contain as a result large potential body of religious disinvolvers. The variable is the "proportion of the community population between twenty and thirty-four". Two ethnicity measures included are the "community percentages of persons of Scandinavian ethnicity" and "the community percentage of persons of Dutch ethnicity". Both these groups according to the results of the micro-level data analysis contained higher than average proportions of persons not involved with religion.

Finally a variable measuring the total number of families is included to capture additional family related effects.

Two Appendices provide the background technical and methodological information relating to the research. Appendix one describes data sources, data base development, the units of observation and geographic data compilation procedures. Appendix two discusses the methodology for hypothesis testing using multi-variate analysis as applied here.

CHAPTER 5

RESULTS OF THE DATA ANALYSIS

5.1 Introduction

The purpose of this chapter is to review the results of the data analysis which has been designed to test the support for the hypothesis for the distribution of "no religion" as put forward in the preceding chapter. In fact, the data analysis was designed to lend support to three items; a broad distributional statement, the hypothesis proper and the validity of the hypothesis versus another possible explanation for the pattern.

The first item was a supposition underlying the main hypothesis, that a recognizable geographic distribution of "no religion" in Canada exists and that this distribution can be statistically described using a selection of socio-economic variables. Chapter 3 provided a great deal of evidence to support this contention. Data analysis can add further weight to this.

The second item for which support was sought was the multi-element hypothesis proposed in the preceding chapter. Briefly, it contends that the geographic distribution of "no religion" in Canada is the result of socialization and spiritualization factors operating at both the individual level and at the level of group interaction, the community in particular.

Chapter 4 suggested a number of "key" reasons for religious involvement and disinvolvement based on socialization and spiritualization rationale. Statistics were proposed which seemed to allow some measurement of these factors. These variables were then structured in such a way that the statistics could be tested to determine if they supported the hypothesis.

A third test was performed in an effort to lend further support to the hypothesis. Here, the relative merits of the two models of the

development of social mechanisms and interaction, the Systematic Model and the Linear Model, were compared as they related to religious involvement and disinvolvement. The hypothesis is, in many ways, a representation of the Systematic Model. It supports the contention that involvement and disinvolvement are the products of the nature of one's social interactions and one's spiritual and social needs. These are not generally tied to the characteristics of the location. Proponents of the Linear Model on the other hand would argue that individual dis-involvement was largely the product, directly or indirectly, of living in urban areas. This has been a long popular notion although little academic work had actually been done to support or discredit it. The statistics available here provided the opportunity.

5.2 Correlation Coefficients

The initial step in evaluating the results of the data analysis is the interpretation of the correlation coefficients of variables included in the data base. A detailed description of the analysis procedure itself is offered as Appendix 2. A complete listing of all correlation coefficients is offered as Appendix 3.

From Chapter 4, it will be recalled that the variables deemed to represent the hypothesis were as follows: a) percentage of dwellings occupied by the same household for more than ten years; b) the logarithmic transformation of the preceding variable; c) percentage of residents who are of French ethnic origin; d) the log transformation of the preceding variable; e) percentage of residents of Italian ethnic origin; f) log (percent Italian); g) percentage of residents of North American Indian ethnic origin; h) log (percent North American Indian); i) percentage of residents who moved at least twice in the preceding five years; j) log (more than two moves in five years); k) percentage of Roman Catholic residents; l) log (percentage Roman Catholic); m) percentage of residents over sixty-four years of age; n) percentage of residents less than sixty-five years of age, living alone; o) percentage of residents born in northern Europe; p) percentage of residents

of Chinese ethnic origin; q) percentage of residents age five and over, not now in school, with at least some university education; r) percentage of residents age five and over who are university students; s) extended family households; t) labour force participation rate; u) percentage of the population aged twenty to thirty-four; v) percentage of the population of Scandinavian ethnic origin; w) percentage of the population of Dutch ethnic origin; x) average family size.

The mean and standard deviations of these variables and several others are presented as Table 5.1. The correlation coefficients of these variables are presented as Table 5.2.

It was expected that most of the variables hypothesized to be important in the model would be strongly correlated with the dependent variable. A weak correlation coefficient does not mean that an hypothesized relationship should be rejected however. A variable might have a strong regional impact which would not be captured by the country-wide statistics. Also the variable, weak when isolated, may turn out to be very strong in conjunction with other variables. This would be the result of variables complementing each other in the equation by removing or suppressing some of their variance which is irrelevant to the dependent variable but which had been up to that point responsible for the indication of "weakness" in the relationship.

The correlation statistics between "no religion" and the independent variable suggested by the hypothesis indicate reasonable relationships except for the following: "percentage Italian"; "percentage North American Indian", "percentage over age sixty-four", "percentage between the ages of twenty and thirty-four" and "average family size". The first two variables were hypothesized to have a non-linear relationship with the dependent variable, however. The correlation coefficient

TABLE 5.1

Mean and Standard Deviation of Selected Variables

	Mean	Standard Deviation
PNR	4.17	4.19
PRES10	35.08	14.59
PFR	30.08	36.66
PIT	3.12	7.03
PNIN	1.42	5.86
PRC	47.40	31.58
PTMOVE	11.52	5.87
PA064	8.46	4.95
YSPHH	6.32	6.22
PBN	6.08	5.28
PCHIN	0.55	2.05
PEDU	6.44	5.33
PEDUSTU	1.79	1.70
PARTR	40.69	7.74
PSCAN	1.74	2.79
PJAPA	0.16	0.61
P4HH	42.80	13.55
PNETH	1.91	2.57
P2034	21.91	5.51
PFRH	27.17	39.28
PITH	1.76	5.45
PEXHH	7.13	3.21
PTOHH	28.11	5.79

TABLE 5.2

Correlation Coefficients of Selected Variables

	1NR	PRESIC	LOGRES	PER	LOGFR	PIT	LOGITAL
PNR		-0.3299	-0.2554	-0.5144	-0.4556	-0.0168	0.2764
PRESIC	-0.3299		0.8461	0.0582	-0.0387	-0.1244	-0.3778
LOGRES	-0.2554	0.8461		0.0734	0.0004	-0.0792	-0.2577
PER	-0.5144	0.0582	0.0734		0.9152	-0.1312	-0.2694
LOGFR	-0.4556	-0.0387	0.0004	0.9152		-0.1015	-0.1529
PIT	-0.0168	-0.1244	-0.0792	-0.1312	-0.1015		0.6467
LOGITAL	0.2764	-0.3778	-0.2577	-0.2694	-0.1529	0.6467	
PNIN	0.0166	-0.0024	-0.0083	-0.1036	-0.1001	-0.0614	-0.1141
LOGNIN	0.2246	-0.0973	-0.0476	-0.1997	-0.1272	-0.0355	0.0163
PRC	-0.5771	0.0505	-0.0612	0.9289	0.8786	0.0811	-0.1291
PTMOVE	0.4137	-0.6221	-0.5673	-0.1792	-0.0779	-0.1125	0.0837
PA064	0.1346	0.2511	0.2342	-0.1732	-0.1733	-0.0717	-0.0661
YSPHH	0.3028	-0.3084	-0.1913	-0.0011	0.0596	0.0073	0.1452
PBN	0.6643	-0.2917	-0.2370	-0.6543	-0.5888	0.0812	0.4302
PCHIN	0.4948	-0.1303	-0.0888	-0.1380	-0.1176	0.0332	0.1340
PEDU	0.4259	-0.3507	-0.3101	-0.2257	-0.1704	-0.0742	0.1775
PEDUSTU	0.3478	-0.1432	-0.0903	-0.2241	-0.1838	-0.0245	0.1490
PARTR	0.4520	-0.3447	-0.2400	-0.4032	-0.3075	0.1936	0.4407
PSCAN	0.4408	-0.0684	-0.0710	-0.3834	-0.3406	-0.1155	-0.0482
PJAPA	0.3286	-0.0840	-0.0586	-0.1697	-0.1750	0.0809	0.1709
P4HH	-0.31634	0.0832	-0.0145	0.1879	0.1271	-0.0330	-0.1991
PNETH	0.2713	-0.0279	-0.0156	-0.4548	-0.4446	-0.0992	0.0282
P2034	0.2104	-0.6073	-0.5318	0.0918	0.1518	0.1434	0.2654
PFRH	-0.5028	0.0527	0.0694	0.9937	0.8850	-0.1174	-0.2625
PITH	-0.0505	-0.1063	-0.0651	-0.0993	-0.0826	0.9796	0.5558
PEXHH	-0.2925	0.2920	0.2076	0.0698	0.0000	0.3308	0.0452
PTOHH	0.3832	-0.2342	-0.1105	-0.2483	-0.1767	0.0406	0.2559

TABLE 5.2 (Cont'd)

	PNIN	LOGNIN	PRC	PTMOVE	PA064	YSPHH	PBN
PNF	0.0166	0.2246	-0.5771	0.4137	0.1346	0.3028	0.6643
PPESIC	-0.0024	-0.0973	0.0505	-0.6221	0.2511	-0.3084	-0.2917
LOGRES	0.0083	-0.0476	0.0612	-0.5673	0.2342	-0.1913	-0.2370
PFF	-0.1036	-0.1997	0.9289	-0.1792	-0.1732	-0.0011	-0.6543
LOGFR	-0.1001	-0.1273	0.8786	-0.0779	-0.1733	0.0596	-0.5888
PIT	-0.0614	-0.0355	0.0811	-0.1125	-0.0717	0.0073	0.0812
LOGITAL	-0.1141	0.0163	-0.1291	0.0837	-0.0661	0.1452	0.4302
PNIN		0.5836	-0.0445	0.0551	-0.0574	0.0228	-0.0744
LOGNIN	0.5836		-0.1822	0.2309	0.0560	0.1806	0.0662
PRC	-0.0445	-0.1822		-0.2263	-0.2178	-0.0116	-0.6711
PTMOVE	0.0551	0.2309	-0.2263		-0.1604	0.2404	0.2813
PA064	-0.0574	0.0560	-0.2178	-0.1604		0.3814	0.2035
YSPHH	0.0228	0.1806	-0.0116	0.2404	0.3814		0.1490
PBN	-0.0744	0.0662	-0.6711	0.2813	0.2035	0.1490	
PCHIN	-0.0023	0.0937	-0.1326	0.0751	0.1675	0.2125	0.1525
PEDU	-0.1089	-0.1452	-0.2691	0.1989	0.1243	0.3069	0.3961
FEDUSTU	-0.1103	-0.1119	-0.2328	0.0660	0.1508	0.2823	0.2597
PARTR	-0.1896	-0.0111	-0.3857	0.2402	0.1978	0.5312	0.5446
PSCAN	0.1354	0.3518	-0.4448	0.2459	0.0598	0.0808	0.2512
PJAPA	-0.0110	0.0688	-0.1627	0.0585	0.0150	0.0553	0.2116
P4HH	0.0826	-0.1212	0.2166	-0.0923	-0.7033	-0.7380	-0.30141
PNETH	0.0008	0.1213	-0.5257	0.1855	0.0044	-0.1046	0.3836
P2034	-0.0630	0.0056	0.1265	0.4952	-0.2177	0.4915	0.1234
PFRH	-0.0998	-0.2050	0.9168	-0.1900	-0.1661	0.0074	-0.6430
PITH	-0.0511	-0.0359	0.1069	-0.1158	-0.0614	0.0034	0.0288
PRXHH	0.0692	-0.1583	0.2245	-0.3500	-0.2321	-0.3574	-0.2723
PTOHH	-0.1192	0.0708	-0.2899	0.1756	0.5060	0.7524	0.4272

TABLE 5.2 (Cont'd)

	PCHIN	PEDU	PEDUSTU	PAPTH	PSCAN	PJAPA	P4HH
FRP	0.4948	0.4259	0.3478	0.4520	0.4408	0.3286	-0.3163
FEETIC	-0.1313	-0.3507	-0.1432	-0.3447	-0.0684	-0.0840	0.0832
LOGRES	-0.0888	-0.3101	-0.0903	-0.2400	-0.0710	-0.0586	-0.0145
FFR	-0.1380	-0.2257	-0.2241	-0.4032	-0.3834	-0.1687	0.1879
LOGFR	-0.1176	-0.1704	-0.1838	-0.3075	-0.3406	-0.1750	0.1271
PIT	0.0332	-0.0742	-0.0245	0.1936	-0.1155	0.0809	-0.0330
LOGITAL	0.1340	0.1775	0.14901	0.4407	-0.0482	0.1709	-0.1991
PNIN	-0.0023	-0.1089	-0.1103	-0.1896	0.1354	-0.0110	0.0826
LOGNIN	0.0937	-0.1452	-0.1119	-0.0111	0.3518	0.0688	-0.1212
PRC	-0.1326	-0.2681	-0.2328	-0.3859	-0.4448	-0.1627	0.21266
PTMCVE	0.0751	0.1989	0.0660	0.2402	0.2459	0.0585	0.0913
PAO64	0.1675	0.1243	0.1508	0.1978	0.0598	0.0150	-0.7033
YSPHH	0.2125	0.3069	0.2823	0.5312	0.0808	0.0553	-0.7380
PPN	0.1525	0.3961	0.2597	0.5446	0.2512	0.21167	-0.3014
PCHIN		0.9336	0.1559	0.1615	0.0740	0.2179	-0.1969
PEDU	0.09386		0.7200	0.5057	0.0570	0.0717	-0.2953
PEDUSTU	0.1559	0.7200		0.4724	0.0463	0.0701	-0.3298
PAPTH	0.1615	0.5057	0.4724		0.1236	0.1614	0.6363
PSCAN	0.0740	0.0570	0.0463	0.1236		0.1152	-0.0814
PJAPA	0.2179	0.0717	0.0701	0.1614	0.1152		-0.0638
P4HH	-0.1969	-0.2953	-0.3298	-0.6363	-0.0814	-0.0638	
PNETH	-0.0242	-0.0165	-0.0148	-0.1473	0.2363	0.1056	0.0170
P2034	0.0968	0.2822	0.2763	0.5049	-0.1149	0.0511	-0.3092
FFRH	-0.1313	-0.2095	-0.2127	-0.3901	-0.3825	-0.1595	0.1764
PITH	0.0259	-0.0982	-0.0473	0.1617	-0.1197	0.0648	-0.0259
PEXHR	0.0102	-0.3117	-0.2053	-0.3386	-0.3340	0.0203	0.3887
PTOMH	0.1104	0.4227	0.3490	0.7193	0.1123	0.0781	-0.8608

TABLE 5.2 (Cont'd)

	INETH	I2034	IFEH	IITH	LEXHH	PTOHH
111	0.2713	0.2104	-0.5022	0.0505	-0.2925	0.7832
11111	-0.02296	-0.6073	-0.0527	-0.1063	0.2920	-0.2348
10000	-0.0156	-0.5318	0.0694	-0.0651	0.2076	-0.1105
111	-0.4542	0.0018	0.9937	-0.0993	0.0698	-0.2483
10000	-0.4446	0.1512	0.8850	-0.0826	0.0000	-0.1767
111	-0.0992	0.1434	-0.1174	0.9796	0.3302	0.0406
10111	0.0282	0.2654	-0.2625	0.5558	0.0452	0.25598
1111	0.0009	-0.0630	-0.0998	-0.0511	0.0692	-0.1192
10011	0.1213	0.0056	-0.2050	-0.0359	-0.1583	0.0708
111	-0.5252	0.1265	0.9162	0.1069	0.2245	-0.2999
11100	0.1855	0.4952	-0.1900	-0.1158	-0.3500	0.1756
14064	0.0044	-0.2177	-0.1661	-0.0614	-0.2321	0.5060
Y31HH	-0.1046	0.4915	0.0074	0.0034	-0.3574	0.7524
111	0.3836	0.1234	-0.6430	0.02880	-0.2723	0.4272
11111	-0.0242	0.0968	-0.1313	0.0259	0.0102	0.1104
1111	-0.0165	0.2822	-0.2095	-0.0982	-0.3117	0.4227
111111	-0.0148	0.2763	-0.2127	-0.0473	-0.2053	0.3490
11111	0.1473	0.5049	-0.3901	0.1607	-0.3386	0.7193
11111	0.2363	-0.1149	-0.3825	-0.1197	-0.3340	0.1123
11111	0.1056	0.0511	-0.1595	0.0648	0.0203	0.0781
11111	0.0170	-0.3092	0.1764	-0.0259	0.3887	-0.8608
11111		-0.1233	-0.4482	-0.1100	-0.2551	0.0458
12034	-0.1233		0.0952	0.1395	-0.1264	0.3747
11111	-0.4482	0.0952		-0.0838	0.0750	-0.2342
1111	-0.1100	0.1395	-0.0838		0.3516	0.0221
11111	-0.2551	-0.1264	0.0750	0.3516		-0.4346
11111	0.0458	0.3747	-0.2342	0.0221	-0.4346	

is linear. The correlations between log transformations of the "Italian" and "Indian" variables and "no religion" are much stronger. It should be noted, however, that $\log(x)$ as correlated here is not a true representation of the relationship since the non-linear equation actually has two elements x and $\log x$. Examinations of these relationships await the regression analysis.

The weak relationships of "no religion" with the age measures are surprising and seem to indicate either that these are not important variables or that suppression through other elements is involved. At this stage one would expect the latter since age has often been identified as one of the strongest hypothesized modifiers of religious-irreligious behavior.

A check of direction of "no religion" and independent variable relationships (signs positive or negative) confirms that all are consistent with the hypothesis except for the following: "percentage North American Indians", "percentage age over sixty-four", and "average family size".

In the case of the "North American Indian variable" the unexpected sign result and the weakness of the relationship may arise from a very limited and localized effect. In locations where Indians have their own viable communities, the "no religion" level may in fact be very low. The few urban locales with substantial Indian populations, however, may be enough to cloud the results for the correlation analysis. However, because the regression analysis will allow the partialling of influences of mobility, age and living alone and because the effect is hypothesized to be a community based rather than an individual one, the result here may still be consistent with the hypothesis. If the North American Indian variable, (composite log-linear representation) does in fact explain a significant amount of additional dependent variable variance when it is added to the regression equation, this will strongly support

the inclusion of the variable for the reason hypothesized.

The unexpected signs for the "old age" variable and the variable of "family size" again may be the result of "statistical interference" from other variables; that is, other mitigating factors may be responsible for higher than expected levels of "no religion" in those census tracts which also have substantial aged populations. Partialling out these effects in the regression analysis will remove the unrelated portion of this variance and will allow an indication of whether or not these variables are significant. There is no reason at this point to believe that "average family size" and "percent population over sixty-five" are not indicators of important influences.

The variables most strongly correlated with "percentage no religion" are "percentage French ethnic origin", "percentage Roman Catholic", "percentage born in northern Europe", and "percentage born outside Canada". Each of these has a coefficient exceeding 0.50 which means that each alone can account for at least 25 percent of the total variance of the dependent variable. The variable with the greatest correlation, (0.66), is "percent born in north Europe" and this variable alone can account for 44 percent of "no religion" variance. This variable, however, has strong relationships with a number of other variables, most notably "percent French ethnic origin" and "percent Roman Catholic". Therefore, one might suspect that the effect of these variables is in part being indicated by "born in northern Europe".

Strong correlations are also present between a number of other variables: "percent French ethnic" and "percent Roman Catholic" (0.92), "percentage dwellings occupied by the same household more than ten years" and "percentage of residents who moved at least twice in the preceding five years" (-0.62), "percentage dwellings occupied by the same household more than ten years" with "percentage of residents aged twenty to thirty-four" (-0.61) and both "percentage of residents aged over sixty-four" and "single person households occupied by persons less than sixty-

"five" with "percentage of households with four or more family members", (-0.70) and (-0.73) respectively. Each of these results is consistent with the relationships as hypothesized in the preceding chapter.

The strong relationship between the "large households" variable and the "single person households" variable is somewhat surprising because it seems to indicate that a strong pattern of family type census tracts and non-family type census tracts seems to exist in Canada. A check of other relevant variables tend to support this. There is a (-0.86) correlation between "percentage of households with four or more members" and the "total number of households" variable and a (0.55) correlation between the "four or more members households" variable and the "percentage of total dwellings that are owner-occupied". The correlation coefficients between "percent no religion" and "percent households, four or more members", and "single person households, occupied by person less than sixty-five" are reasonably high, (-0.32) and (0.30) respectively and in opposite directions. These results offer strong support for the importance of household type characteristics of the census tract as a "no religion" indicator.

Concluding the analysis of correlation coefficients, there is evidence from the results that there is fair to strong statistical support for many of the variables which have been identified as representing elements of the hypothesis. However, there are also indications of "weakness" from variables that were hypothesized to be important. At this stage, though, one cannot discount the significance of these variables. Any conclusions here must await the results of the second part of the hypothesis testing, the hierarchical regression analysis.

5.3 Regression Analysis - Testing the Research Hypothesis

In the hypothesis discussion in Chapter 4 two sets of variables were identified. A first group represented community-level attributes influences and a second the aggregate individual influences. The

community-level variables were deemed to precede the individual-level set into the modelling equation because it was hypothesized that the social community has a transcending influence over those persons who are members of it. Consequently, this first part of the analysis discussion evaluates only those variables identified as representatives of community level influences.

Table 5.3 presents the results of tests performed to determine if the major community level variables demonstrated the hypothesized relationships with the dependent variable. Each set, consisting of the variable and its log transformation, had to meet three criteria to support the hypothesis. These were a negative sign on the estimate for the untransformed variable, a positive sign on the log-transformed variable estimate, and a significant increase in the semi-partial regression coefficient when the log-transformed element was added to an equation containing the primary variable.¹ The first two criteria dictate the shape of the curve. The last, that the transformation improves the degree of fit with the dependent variable's set of points. The "significant increase" in Sr^2 was determined by examining the F value for each value's sum of squares in the equation. A cut off F value of 0.01 was employed for this stage of the analysis. It should be noted that a much stricter level of significance was employed in evaluation of the total model because it was believed that the removal of unwanted influences would produce clear and strong relationships. Any relationships that were not clear and strong were to be discarded.

As Table 5.3 illustrates, the shape and direction of relationship curves for all of the community variables is as hypothesized in the model.

1. With the exception of the two or more moves variable since a positive relationship was hypothesized. Here both estimates should have positive signs.

TABLE 5.3
Results of Modelling "No Religion"
with Selected Hypothesized Community Influence
Variables (Logarithmic Transformations)

Variables in Models	F Value of Incremental Sum of Squares	PR>F	Incremental Square	Semi-partial Coefficient	Estimates
1. MEDIO	503.68	0.0001	0.1088	-	-0.11503
LOGREF	9.18	0.0025	0.1108	0.0020	0.50576
					intercept = 6.4817
2. REF	1483.40	0.0001	0.2646	-	-0.06853
LOGREF	7.94	0.0048	0.2660	0.0014	0.26025
					intercept = 5.60318
3. NNIN	1.23	0.2677	0.0003	-	-0.12399
LOGNNIN	309.94	0.0001	0.0703	0.0700	0.90629
					intercept = 5.55061
4. BIT	1.36	0.2440	0.0003	-	-0.20021
LOGITAL	680.82	0.0001	0.1422	0.1419	1.18959
					intercept = 5.07511
5. REMOVE	852.53	0.0001	0.1712	-	0.21277
LOGTWO	12.00	0.0005	0.1736	0.0024	1.03556
					intercept = -0.68389
6. LPO	2077.06	0.0001	0.3331	-	-0.10110
LOGRC	32.82	0.0001	0.3384	0.0053	1.06914
					intercept = 5.11897

The "two or more moves" variable fits the specified curve criteria. However, the strong correlation of this variable with residence ten or more years and the minimal Sr^2 of the log element argues for its rejection as a community level variable. The fairly strong relationship between its linear portion and "no religion" argues for its retention as a measure of areas of concentrations of individuals with higher than average mobility, i.e. as an individual attribute variable.

As the correlation coefficients indicated and as Table 5.3 shows, the linear elements of the community variables all had reasonable levels of association with the dependent variable. Table 5.3 also shows that when the logarithmic element is added to the linear element of each variable to create a logarithmic curve, the semi-partial coefficients that result are in all cases significant. That is, even though the coefficients are small, they indicate that the addition of the logarithmic element has significantly improved the degree of fit.

Very notable improvements in Total R^2 for some of the variables take place. Adding the transformed element to the "percent North American Indian Origin" variable explains an additional 7 percent of the total Y variance. For the variable "percent Italian ethnic origin" an extra 14 percent of the dependent variable's variance is explained. Finally for the Roman Catholic variable the Sr^2 when the transformed element is included is an additional 0.6 percent of the Y variance.

These results were compared to the results of quadratic transformations of several of the variables. These are presented in Table 5.4. Curve fits of reasonable levels but weaker than those for the logarithmic transformation would be consistent with the hypothesis. As Table 5.4 shows fits are reasonable but weaker for the "length of residence" variable, the "percent North American Indian origin", and for the "Roman Catholic" variable. The quadratic representation of the "percent French ethnic origin" is actually slightly stronger than the log-transformed version. The results for the quadratically transformed "Italian origin variable" carry the wrong signs.

TABLE 5.4

Results of Modelling "No Religion"
With Selected Hypothesized Community Influence
Variables (Quadratic Transformations)

Variables in Models	F Value of Incremental Sum of Squares	PROF	Incremental R Square	Semi-partial Coefficient,	Estimates
1. . PRESIO	502.57	0.0001	0.1088	-	-0.09802
(PRESIO) ²	0.05	0.8242	0.1089	0.0001	0.00004
intercept = 7.54217					
2. PFR	1487.54	0.0001	0.2646	-	-0.09577
(PFR) ²	19.20	0.0001	0.2680	0.0034	0.00039
intercept = 6.17544					
3. PNIN	1.15	0.2832	0.0003	-	0.14385
(PNIN) ²	33.29	0.0001	0.0083	0.0080	-0.00236
intercept = 4.05435					
4. PIT	1.18	0.2772	0.0003	-	0.13697
(PIT) ²	57.09	0.0001	0.0139	0.0136	-0.00367
intercept = 3.96286					
5. PFC	2057.96	0.0001	0.3331	-	-0.096146
(PFC) ²	4.65	0.0312	0.3338	0.0007	0.00017
intercept = 8.15886					

In Chapter 4, several variables were proposed as alternative measures that might be used to replace the five community variables discussed here.

"Percentage of the population speaking French at home" had been proposed as an alternative measure of the French ethnic community effect. The logarithmic transformation of this variable was found to be weaker than the "percent French ethnic origin" variable. "Percentage of persons speaking Italian, Spanish or Portuguese at home" was tested as an alternative for "percent Italian origin". Although the results of the log-transformed form of this variable are sound it explains only 6.5 percent of Y's variance compared to 14 percent for the Italian origin variable. Because of these results, no substitutions are warranted.

On the basis of the test results to this point, support has been found for each of the community-level variables identified by hypothesis statements in Chapter 4 except the logarithmic transformed version of "percent population having made two or more moves in the past five years".

The next step is to determine if this support persists when these elements are entered into the full community-level equation in the hierarchical manner. Table 5.5 presents the results of this part of the analysis. It can be seen that the addition of each variable results in a substantial increase in the regression coefficient. The large Sr^2 for the "percent French ethnic" variable (.249) was to be expected because it was the second variable entered into the equation. The other coefficients, however, also offer strong support for the hypothesis. "Percent Italian" explains an additional 3.7 percent of the variance of Y, "percent North American Indians", an extra 2.1 percent, and "percent Roman Catholic" brings with it a further 4.9 percent of explained Y variance. At this point, the five community-

TABLE 5.5
Results of Hierarchical Modelling
of Community Variables

Variable Sets in Model	Sum of Squares	F-Value	PR>F	Incremental R Square	Semi-Partial Coefficient
PRESIO	7860.93	840.08	0.0001	0.1108	
LOGRES	143.23	15.31	0.0001		
PFP	17955.61	1913.88	0.0001	0.3607	0.2499
LOGFR	90.52	9.67	0.0019		
PJT	1122.69	119.98	0.0001	0.3978	0.0371
LOGITAL	1554.45	166.12	0.0001		
ININ	48.71	5.21	0.0226	0.4188	0.0210
LOGNIN	1462.55	156.30	0.0001		
FIC	3476.72	371.35	0.0001	0.4679	0.0491
LOGRC	74.67	7.98	0.0050		

level variables are able to explain a total of 46.8 percent of the total variance of "percent no religion" at the census tract level in Canada. As the F values in Table 5.5 indicate, all variables in the equation are strong constituents. Some of the variables seem to be carrying out suppression for others. This improves these variables' degree of relationship with the dependent variable. For example, the addition of the "percent Italian ethnic origin" variable seems to have this result on the two variables preceding it..

The effect of the "Roman Catholic variable" is a concern. Its relationship with other variables in the equation indicates that some duplication of the effect is being represented. This was expected. Therefore, although the results here are consistent with the hypothesis, the variable is discarded as a community level variable. Instead, the linear representation of the variable alone will be used as an aggregate individual measure to represent the influence of Catholic affiliation, past or present, on the propensity to disinvolve from religion.

In summary, the results of this part of the analysis are consistent with the hypothesis. The significant relationships which were apparent between individual variables and the "no religion" measure persist when the interrelationships between the variables is taken into account. Table 5.6 details these relationships for the hypothesized community-level variable set.

The next stage of the evaluation process involves the review of the results from the addition to the equation of the aggregate individual variables hypothesized to be significant. Table 5.7 presents the results based on the original prioritization of variables.

The variables "percent Roman Catholic", and "percent having moved at least twice between 1966 and 1971" have been entered as aggregate individual measures as a consequence of the results discussed in the preceding section. These variables are in approximately the same positions

TABLE 5.6
Relationships for Simultaneous
Regression of Community Variables

parameter	Estimate	T	Prob T/
Intercept	9.4024	27.82	0.0001
HEALTH	-0.0924	-13.76	0.0001
LOGGED	0.5386	3.92	0.0001
DEP	-0.0288	-7.77	0.0001
LOGPR	-0.6109	-6.98	0.0001
BIT	-0.1468	-15.39	0.0001
LOGITAL	0.5168	11.75	0.0001
FNIN	-0.0928	-8.72	0.0001
LOGNIN	0.5063	11.96	0.0001

TABLE 5.7

Results of Modelling "No Religion"
by Original Variables Set for
Research Hypothesis

Variables	Sum of Squares	F Value	PR>F	Incremental R Square	Semi-Partial Coefficient
PRESIC	7860.93	1863.02	0.0001	0.1108	
LOGRFS	143.23	33.95	0.0001		
PFF	17955.61	4255.43	0.0001	0.3607	0.2499
LOGFR	90.52	21.45	0.0001		
PIT	1122.69	266.08	0.0001	0.3978	0.0371
LOGITAL	1554.45	368.40	0.0001		
PWIN	48.71	11.54	0.0007	0.4188	0.0210
LOGNIN	1462.55	346.62	0.0001		
PRC	3476.72	823.97	0.0001	0.4669	0.0481
ITMOVE	1383.91	327.99	0.0001	0.4860	0.0191
PA064	561.07	132.97	0.0001	0.4938	0.0078
YSPFH	1680.60	398.30	0.0001	0.5171	0.0233
PBN	4486.45	1063.28	0.0001	0.5723	0.0552
PCHIN	9265.68	2195.94	0.0001	0.7075	0.1352
PEDU	1554.02	368.30	0.0001	0.7290	0.0215
PEDUSTU	58.39	13.84	0.0002	0.7298	0.0003
LEXHH	0.22	0.05	0.8177	0.7298	0.0000
PARTP	-208.47	49.41	0.0001	0.7327	0.0029
P2034	6.48	1.54	0.2151	0.7329	0.0002
PSCAN	2008.74	476.07	0.0001	0.7606	0.0277
FNETH	7.16	1.70	0.1925	0.7607	0.0001
AVTAM	0.14	0.03	0.8521	0.7607	0.0000

in the variable order as they were originally, however, they do not include a logarithmic element.

Each explains significant portions of the total Y variance as it is entered. "Percent Roman Catholic" explains 4.82 percent while the "mobility" variable explains 1.92 percent. It should be noted that in hierarchical analysis the size of this squared semi-partial regression coefficient (Sr^2) is relative. Variables entered early in the model are given priority and thus first chance to explain dependent variable variance. Variables entering later are likely to be able to explain much smaller amounts of the variance. The basis for hierarchical modelling is to give the data the opportunity to support or discredit an hypothesis represented by a set of variables in a particular order. One expects variables or sets of variables entered early to have a larger Sr^2 than variables entered later. These later variables are believed to post-date the first variables in effect or operate as elements of them. Therefore, one expects that the community level set of variables in this study should explain a larger percentage of Y variance than the individual aggregate set. It also follows that as more variables are entered, the increment in R^2 as each new measure is added should generally decline. Only in cases where there are no clear hypothesized links to preceding measures can one be comfortable with the very large semi-partial coefficient of a low priority variable.

The next three variables prove to be valuable additions. The "percent of population over sixty-four years" makes only a modest contribution to the total R^2 (an Sr^2 of 0.78 percent). Some of its effect was expected to be channeled through the "length of residence" and "mobility measures" and this seems to have occurred. "Percent total households, occupied by a single person under sixty-five" adds 2.33 percent to the explained variance of Y. More surprising is the strength of the "born in North Europe" variable which contributes 6.21 percent.

The power of the Chinese variable, however, was not fully anticipated. It explains an additional 12.93 percent of Y's variance when entered. This and the "born in North Europe" variable have some regional patterning in their distributions. Therefore, over and above their effect as it was hypothesized, these variables may be acting as proxies for measures designed to account for regional influences which have not yet been entered.

The two university education measures are hypothesized to be related to the distribution of "no religion" for similar reasons. Therefore, despite the small contribution of Sr^2 made by the variable "percent students in university" it is retained because it is complementary to the variable "percent university educated and not in school".

There were no strong reasons for prioritizing the remaining variables in any particular order. In any event, it will be recalled that concern was expressed that these variables might be fair to poor measures in the equation because their relations with Y might be preempted by preceding "superior" measures.

The "participation rate" and the "percent Scandinavian" turned out to be acceptable variables for inclusion. Due to the pre-emptive effect of other measures in the model, "percent Dutch" and "percent persons aged twenty to thirty-four" were ruled unacceptable. Apparently the impact of the "Netherlands" measure had largely been accounted for by the "born in North Europe" variable. Inherent weakness in the "percent Netherlands ethnicity" variable due to the fundamentalist-liberal division in the country discussed earlier was also likely a factor. The "percent twenty to thirty-four age" variable was weakened, as expected, by the "length of residence" variable, the "mobility" measure, and the "single person household" measure.

The two measures of family were more difficult to summarily reject. Instead, they were replaced by an alternate measure, "percentage of households with four or more persons" and a retest was

performed. Also included in the retest was the variable "percent Japanese". This variable was included for many of the same reasons used to back the inclusion of the "Chinese ethnicity" measure. It was originally expected that a high correlation of distribution might exist between the two and that this would render the "Japanese ethnic" measure insignificant. An examination of coefficients, however, proved that this was not the case; coefficient of relation for the two being only .21. The newly introduced "family" measure and the "Japanese variable" proved valid in the retest.

Table 5.8 presents the results incorporating the minor revisions described above.

Although the final model tested here is marginally different from the set of measures proposed originally, there is no reason to believe that this compromises the support for the hypothesis. The central elements of the hypothesis which were being evaluated were not changed by the minor variable adjustments. The intent was merely to fine tune the model by eliminating the anticipated multi-collinearity and by choosing between statistical measures of the same phenomena for which there had been no clear choice earlier.

The final statistical representation of the tenets of this paper's central hypothesis contains sixteen variables, five of which are composites from the community-level portion of the analysis. The final R^2 is .77, the F value of the total model is a very strong 668.17 and all variables included proved highly significant based on the size of their individual F values.

The resulting R^2 is particularly surprising for its strength. An indication that about half of "percent no religion's" total variance (.50) had been explained would have been considered as fully satisfactory for hypothesis support since over 4100 observations were involved. The result here, .77, first of all fully supports the theory

TABLE 5.8
Results of Modelling "No Religion"
by Final Variables Set for
Research Hypothesis

Variables	Sum of Squares	F Value	PR>F	Incremental R-Square	Semi-Partial Coefficient
PPESIO	7860.93	1944.17	0.0001		
LOGRES	143.23	35.42	0.0001	0.1108	
PFR	17955.61	4440.78	0.0001		
LOGFR	90.52	22.39	0.0001	0.2607	0.2499
PIT	1122.69	277.66	0.0001		
LOGITAL	1554.45	384.45	0.0001	0.3978	0.0371
PNIN	48.71	12.05	0.0005		
LOGNIN	1462.55	361.72	0.0001	0.4188	0.0210
IPC	3476.72	959.86	0.0001	0.4669	0.0481
PTMCVE	1383.91	342.27	0.0001	0.4860	0.0191
PA664	561.07	139.77	0.0001	0.4938	0.0078
YSIH	1680.60	415.65	0.0001	0.5171	0.0233
IBN	4486.45	1109.59	0.0001	0.5723	0.0552
IGHIN	9265.68	2291.59	0.0001	0.7075	0.1352
PJDU	1554.02	384.34	0.0001	0.7290	0.0215
PEDUSTU	58.39	14.44	0.0001	0.7298	0.0008
IAPTH	205.86	50.91	0.0001	0.7327	0.0029
PSCAN	1898.49	469.54	0.0001	0.7590	0.0263
PJALA	732.48	181.14	0.0001	0.7691	0.0101
I4HH	107.33	26.55	0.0001	0.7707	0.0014

that the Geography of "no religion" in Canada can be statistically described using a selection of other variables. (Mapped residuals will show how well this model describes the distribution).

More importantly, the model's very good fit lends credence to the identification of the critical elements and the prioritization of variables representing those elements. The results do not discredit the hypothesis that the distribution "no religion" at the census tract (community) level in Canada is the result of influences on individual socialization and spiritualization arising from both the attributes of the individual and the characteristics of group interaction, both community and sub-community level. Rather, because of the "goodness of fit", this hypothesis gains support from the results.

5.4 Testing Alternatives to the Research Hypothesis

Additional support for the hypothesis was sought by carrying out two further analyses. The first involved developing an alternative predictive regression equation for "no religion". A large data base consisting of fifty-five Census variables was input to a Statistical Analysis System Stepwise regression program. The intent here was to create the best possible equation using the available data. The research hypothesis equation would be evaluated in relation to this "best possible" equation. The second analysis involved the testing of two "urban size" variables as an alternative to the research hypothesis. The urban variables represent the central element of the Linear Model. It will be recalled that the hypothesis is closely aligned to the Systematic Model. The objective was to attempt to gain support for the Linear Model at the expense of the Systematic Model. Failure to achieve this would support the author's contention that where one lives (urban or non-urban) is not as relevant to religious participation and non-participation as is one's particular attributes and the attributes of the local area in which he lives, if these attributes help to tie him to other individuals, groups and the local social community.

Table 5.9 presents the results of the stepwise regression conducted through the Statistical System software. An equation is created by relating the best predictive variable to the dependent variable. Subsequent best predictive variables from those remaining are added one at a time until a point is reached at which a specified significance level for the last variable entered cannot be maintained. In this research a significance level of F equals 0.05 was used. The final stepwise model has a coefficient of regression (R^2) of .81. This means that this equation is able to explain about another four percent of the total variance which the research hypothesis equation could not. However, the stepwise model employs thirty-nine variables compared to sixteen by the research hypothesis. Many of the variables included in the stepwise equation are those which were also deemed important by the research hypothesis. The six most influential in the stepwise were identified by the hypothesis and included in the research equation. The stepwise, however, also assigns importance to meaningless variables such as "percent dwellings owner occupied" while it de-emphasizes others such as "percent aged greater than sixty-four" for which a strong relational argument exists.

The comparison of results supports the research hypothesis for the following reasons. The R square of the research hypothesis is only slightly less than the R square of the stepwise which is supposedly the best possible result (given the limitations of the data). Despite the economy of variable use in the former, the close match in R -squares seems to indicate that no major predictive elements have been omitted. Second, the selection procedure for variable identification appears to be confirmed by the results. It probably would have been very difficult to arrive at an equation R -square of .77 by picking sixteen variables at random from the data set of fifty-four. One would expect difficulty in achieving that level of fit even by picking thirty-nine variables at random from the set. The result, therefore, indicates that it is unlikely that the very strong results achieved by the hypothesis could have been attained by any means other than the identification of actual and logical relationships.

TABLE 5.9
Results of Modelling "No Religion" by
Stepwise Regression

Variable	Sum of Squares	R-Value	P-Value
POHIN	6340.24	1234.75	0.0001
PBN	2196.50	600.13	0.0001
PSCAN	1786.94	488.23	0.0001
PTMOVE	848.26	231.76	0.0001
PJATA	542.72	148.29	0.0001
PEDU	522.04	142.63	0.0001
PAG	481.42	131.54	0.0001
POWN	460.02	125.69	0.0001
PTY	458.32	125.22	0.0001
PEDIO	336.04	91.81	0.0001
PSAFH	246.35	67.31	0.0001
PBYO	201.97	55.19	0.0001
PF	169.67	46.36	0.0001
PYLE	164.09	44.83	0.0001
PTENINC	157.95	43.16	0.0001
PFRNAS	155.81	42.57	0.0001
PRESLO	140.31	38.34	0.0001
PARTR	106.35	29.06	0.0001
PFRH	106.23	29.03	0.0001
PAO64	103.58	28.30	0.0001
PBO	96.25	26.30	0.0001
PCHH	89.74	24.52	0.0001
P3564	86.51	23.64	0.0001
PAU20	72.30	19.76	0.0001
PSEC	65.27	17.86	0.0001
PTOHH	42.96	11.74	0.0006
PRES5	35.29	9.64	0.0019

TABLE 5.9 (Cont'd)

Variable	Sum of Squares	F-Value	PR>F
POLDHH	34.89	9.53	0.0020
PNETH	32.86	8.98	0.0027
PEDUSTU	32.40	8.85	0.0029
PIHH10	21.87	5.98	0.0145
PNIN	18.04	4.93	0.0265
AVTFAM	16.48	4.51	0.0339

Final R-Square of Model = 0.7930

Table 5.10 presents the result of the second alternative data analysis, the test of the two measures of urban size. Both measures were binary, using the dummies 1 and 0 to denote whether the census tract was or was not a member of a particular size urban area. One variable indicated if the tract occurred in a Census Metropolitan Area. The other variable denoted whether or not the geographic unit fell within a town of population less than 5,000 which was outside a Census Metropolitan Area.¹ According to the Linear Model, a reasonably strong, positive relationship should exist between "percent no religion" and the "CMA" variable and a negative relationship should be present between the "small town" measure and "percent no religion". The degree of relationship which would have lent support to this theory was set fairly low (an R-square of .20 to .25) because dummy variables were used. As Table 5.10 indicates, the R-square resulting from the two variable models did not approach this level. The final R-square proved to be .06, most of it the result of variance explanation provided by the "CMA" variable. These results however did not totally rule out support because the relation with the research hypothesis equation was as yet unknown. Two further analyses were performed to determine this.

First, a hierarchical regression analysis was performed in which these variables were entered into the model with the variables identified by the research hypothesis but preceding them. The results are presented in Table 5.11. The two urban measures retained their significance in the equation but the R-square remained essentially the same as it was without them. All the other variables in the model remained highly significant. In this equation, the statistics indicate that the urban size variables bear relationships with "the length of residence", "the French ethnic" and the "age greater than sixty-four" variables.

1. If the census tract contained more than one small town, the largest was used for the measurement for this variable.

TABLE 5.10
Results of Modelling "No Religion"
Urban Variables

Equation #1	Variables	Sum of Squares	F-Value	PRF	R-Square	Semi-Partial Coefficient
	CMA	4476.01	272.38	0.0001	0.0621	
	SMALL	0.27	0.02	0.8972	0.0621	0.000004

Equation #2	Variables	Sum of Squares	F-Value	PRF	R-Square	Semi-Partial Coefficient
	SMALL	2094.13	127.44	0.0001	0.0292	
	CMA	2387.14	144.96	0.0001	0.0621	0.0329

TABLE 5.11
Results of Modelling "No Religion"
by Research Hypothesis and Urban Variables
(Priority given to Urban Variables)

Variable	Sum of Squares	F-Value	Prob F
AGE	4479.35	1110.38	0.0001
SEX	0.27	0.07	0.7942
RELIGION	4760.05	1179.96	0.0001
LOGSES	130.78	32.42	0.0001
AGE	17104.21	4239.92	0.0006
LOGSES	79.92	19.81	0.0001
WIT	1595.22	395.45	0.0001
LOGITAL	957.14	237.27	0.0001
WIT	42.57	10.90	0.0010
LOGSES	1628.52	416.00	0.0001
WIT	3705.18	918.47	0.0001
WIT	1789.38	442.32	0.0001
WIT	415.40	102.99	0.0001
WIT	1328.50	329.32	0.0001
WIT	3707.82	941.43	0.0001
WIT	9160.34	2270.74	0.0001
WIT	1586.15	393.19	0.0001
WIT	76.56	18.98	0.0001
WIT	170.14	42.18	0.0001
WIT	1837.61	455.52	0.0001
WIT	725.43	182.30	0.0001
WIT	111.24	27.70	0.0001

Final R-Square of Model=0.7709

The "urban size" variables were then entered into the equation following the variables of the research hypothesis. It was expected that if "urbanness" was a significant contributor to the level of "no religion" the urban variables would retain some strength even when entered last. Table 5.12 presents the results. The variables proved to be very weak and were not significant at the level set for the other variables.

The results of the "urban" variables tests do not seem to be able to support the hypothesis that persons resident in urban areas, especially large urban areas, are more likely than other persons to disinvolve from, or not take part in, "voluntary" activities such as religion. The research hypothesis compares favorably to the foregoing results.

5.5 Shortcomings of the Model - Residuals Analysis

Residuals are the difference between the actual value of the dependent variable and its estimated value based on the regression model. Mapping them points out the locations where the model is not performing as well as might be expected. The model of the research hypothesis is national in scope. It deals primarily with elements which could be important anywhere in the country. As a result, it may miss influences which are very local in nature. Also, it can never be sophisticated enough to consider between-site differences in these influences and variations in the way the hypothesized influences interact. Errors can also be introduced in the process of data collection, compilation and presentation. Rounding, for example, is a major source of problems if one's objective is to achieve the best possible predictive equation.

The residual differences that inevitably result from these kinds of problems are not a major concern if they are minor and tend to be fairly random in pattern. If, however, there is regional ordering of major residual differences, these indicate influences which have not

TABLE 5.12

Results of Modelling "No Religion"

by Research Hypothesis and Urban Variables

(Priority given to Research Hypothesis)

Variable	Sum of Squares	F-Value	PP-F
PPESIC	7806.59	1935.16	0.0001
LOGRES	142.53	35.33	0.0001
PFF	17942.71	4447.78	0.0001
LOGFR	89.41	21.92	0.0001
PIT	1121.96	278.07	0.0001
LOGITAL	1540.78	381.94	0.0001
PNIN	48.38	11.99	0.0005
LOGNIN	1469.74	364.33	0.0001
PRC	3483.58	863.54	0.0001
PTMOVE	1369.46	339.47	0.0001
PA064	559.14	138.61	0.0001
YSPHH	1644.47	407.64	0.0001
PBN	4476.79	1109.74	0.0001
PCHIN	9255.69	2294.37	0.0001
PEDU	1547.37	383.58	0.0001
PEDUSTU	57.20	14.18	0.0002
PARTR	203.67	50.49	0.0001
PSCAN	1894.47	469.62	0.0001
PJAPA	731.21	181.26	0.0001
P4HH	107.30	26.60	0.0001
CMA	2.77	0.69	0.4071
SMALL	48.57	12.04	0.0005

Final R-Square of Model-0.7709

Map 5.1

Newfoundland

No Religion
Model Residuals

standard deviations
1 s.d. = 2.009

0 50 100km

Map 5.2

Nova Scotia and P.E.I.

Map 5.3

New Brunswick

Map 5.4

Eastern Québec

Map 5.5

Central Québec

**No Religion
Model Residuals**

standard deviations
1 s.d. = 2.009

over
prediction

under
prediction

Map 5.6**Western Québec**

3

9

Map 5.7

Eastern Ontario

Map 5.8

Southern Ontario

No Religion
Model Residuals
standard deviations
1 s.d. = 2.009

■	≥ +2.0
■	+1.0 - +1.99
■	+0.5 - +0.99
-	-0.49 - +0.49
•	-0.5 - -0.99
•	-1.0 - -1.99
●	≤ -2.0
- over prediction
- under prediction

Map 5.9

Northern Ontario

Map 5.10

Manitoba

Map 5.11

Saskatchewan

No Religion
Model Residuals
standard deviations
1 s.d. = 2009

over prediction	■	≥ +2.0
	■	+1.0 - +1.99
	■	+0.5 - +0.99
	-	-0.49 - +0.49
	•	-0.5 - -0.99
under prediction	●	-1.0 - -1.99
	●	≤ -2.0

0 100 200km

Map 5.12

Alberta

No Religion
Model Residuals

standard deviations
1 s.d. = 2.009

0 100 200km

Map 5.13

British Columbia

Map 5.14

Northern Canada

Map 5.15

St. John's

Map 5.16

Halifax

**No Religion
Model Residuals**

standard deviations
1 s.d. = 2.009

	■	≥ +2.0
over
prediction	■	+1.0 - +1.99
	■	+0.5 - +0.99
	-	-0.49 - +0.49
under
prediction	•	-0.5 - -0.99
	●	-1.0 - -1.99
	●	≤ -2.0

Map 5.17

Saint John

Map 5.18

Québec

No Religion
Model Residuals

standard deviations
1 s.d. = 2.009

No Religion
Model Residuals
standard deviations
1 s.d. = 2009

Map 5 22

Montréal

Map 5.23

Ottawa-Hull.

Map 5.24

Kingston

Map 5.25

Oshawa

**No Religion
Model Residuals**

standard deviations
1 s.d. = 2.009

Map 5.26

Peterborough

**No Religion
Model Residuals**

standard deviations
1 s.d. = 2.009

Map 5.27

Brantford

Map 5.28

Outer Toronto

Map 5.35

Sarnia

**No Religion
Model Residuals**

standard deviations
1 s.d. = 2.009

Map 5.36

Windsor

Map 5.30

Hamilton

**No Religion
Model Residuals**
standard deviations
1 s.d. = 2.009

Map 5.31

St Catharines-Niagara

Map 5.32

Kitchener

Map 5.33

Guelph

**No Religion
Model Residuals**
standard deviations
1 s.d. = 2.009

Map 5.34

London

Map 5.35

Sarnia

**No Religion
Model Residuals**

standard deviations
1 s.d. = 2.009

Map 5.36

Windsor

Map 5.37

Sudbury

No Religion
Model Residuals
standard deviations
1 s.d. = 2.009

over
prediction

- $\geq +2.0$
- $+1.0 - +1.99$
- $+0.5 - +0.99$
- $-0.49 - +0.49$
- $-0.5 - -0.99$

under
prediction

- $-1.0 - -1.99$
- ≤ -2.0

0 10 20 km

Map 5.38

Sault Ste. Marie

No Religion
Model Residuals

standard deviations
1 s.d. = 2.009

over
prediction

Map 5.39

Thunder Bay

under
prediction

Map 5.40

Winnipeg

Map 5.41

Saskatoon

**No Religion
Model Residuals**

standard deviations
1 s.d. = 2.009

over
prediction

under
prediction

Map 5.42

Regina

N
↑

0 5 10 km

Map 5.43

Calgary

**No Religion
Model Residuals**

standard deviations
1 s.d. = 2.009

over
prediction

- $\geq +2.0$
- $+1.0 - +1.99$
- $+0.5 - +0.99$
- $-0.49 - +0.49$

under
prediction

- $-0.5 - -0.99$
- $-1.0 - -1.99$
- ≤ -2.0

Map 5.44

Edmonton

**No Religion
Model Residuals**

standard deviations
1 s.d. = 2.009

Map 5.45

Outer Vancouver

No Religion
Model Residuals

standard deviations

1 s.d. = 2.009

Map 5.46

Map 5.47

Victoria

been satisfactorily accounted for. They may also reveal variations in the strength of an influence or a synergistic effect between influences which was not anticipated. The logarithmic influence hypothesized here for certain measures representing critical community-level elements is an example of change in strength of a variable.

In geographic hypothesis testing, the inability to satisfactorily account for serious regional weakness in the regression equation places the validity of the conclusions in doubt.

Maps 5.1 to 5.47 present the residual values for all the census tracts considered in this study. The results indicate that generally the model describes the geographic pattern of "no religion" in Canada quite well. There is an exceptionally good fit in most parts of the country and only minor patterning in some regions and locales.

In the Atlantic Provinces residual values are generally very small and without dominant direction. This indicates that the model provides a good description of the dependent variable's distribution. There is very slight over-prediction in some rural Newfoundland tracts. These communities have no persons reporting "no religion" which leads one to suspect that this minor grouping is a statistical problem arising from the random rounding process.

Moderate over-prediction is present for the tracts in Oromocto, New Brunswick (Canadian Forces Base Gagetown). Lower than expected "no religion" levels here may be the result of particular socializing influences of armed forces' lifestyle including a strong sense of community which base living provides.

In the Province of Quebec, the Y estimates are very close to the actual Y values. There are no evident patterns in any of the rural areas or in Montreal, in Quebec or in other cities. The great accuracy of the model here is almost surprising.

In Ontario, residuals are again small although there is some patterning. Slight over-prediction is evident in much of southwestern Ontario except in the city of Windsor where the model performs well. In Toronto, negative residuals roughly balance the number of positive residuals and although they are usually small there are a number which are not. Moderate under-prediction is evident in some but not all the tracts in Toronto which have levels of "no religion" high for Ontario (over 10%). A localized "cosmopolitan effect" in these tracts may be responsible for the higher than expected levels. These tend to be medium to high income inner city tracts populated by a largely young, mobile and affluent population. The model generates high values of Y for these areas based on the variables it has available; however, it has no means to account for localized lifestyle-personality influences which may be active here.

In Central and Eastern Ontario the model provides a good fit with the "percent no religion", particularly in Ottawa. As in New Brunswick the model strongly overpredicts the "no religion" level in the Armed Forces Bases at Borden and Petawawa. Some over-prediction occurs in Northwestern Ontario, being strongest in the Thunder Bay area. The localized effect of a well-represented ethnic group (the Finns) for whom religion is important and who have developed a strong social network may be important here.

In much of Manitoba and Saskatchewan there is a pattern of slight to moderate over-prediction of the Y values. In Winnipeg and Regina, however, the model works well. The lower than expected levels of "percent no religion" in parts of these provinces may be related to the nature of farm and small town life on the Prairies in the past. The need for cooperative effort and the desirability of strong social ties in an isolated environment may have fostered higher than expected participation in the local social institutions such as the church. This may be persisting to some extent. Perhaps the residuals would have been

reduced if some measure of this phenomenon had been included with the other community-level socialization influences. This influence might have also helped to reduce the slight over-prediction in Southern and Eastern Alberta. Residuals in other parts of this province however are small and without pattern. This includes Calgary and Edmonton.

British Columbia exhibited levels of "no religion" which were much higher than anywhere else in the country. Since the research hypothesis resulted in a statistical model that was national in scope one would expect that B.C.'s distinct regional pattern would cause some under-prediction of the Y estimates here. Generally, this has happened. It should be noted, however, that while the Y estimates are often less than the actual value, the differences in most cases are small. Also, the Y estimates in British Columbia are much higher than Y estimates elsewhere in the country and thus they closely reflect the distributional pattern of the dependent variable. The model performs better in some parts of the Province than in others. Estimates are close to actual values and without direction in Victoria, for example. The model also appears to perform well in the Central Fraser Valley and the Okanagan.

Under-prediction, however, reaches moderate levels in the Caribou area and Prince George, much of Vancouver Island, and in many of Vancouver's census tracts.

In Yukon and Northwest Territories the Y estimates are close to the actual Y values although there is slight over-prediction. This is probably the result of a high degree of transiency in the population but a strong community influence in settlements because of the isolation. The model only picks up the "lower than expected" levels of long term residence. While "length of residence" appears to be a good indicator of community cohesion in the south it seems to be less meaningful in Northern Canada.

The reasonably accurate modelling of the "percent no religion" in British Columbia is the most interesting result of the residuals analysis. The high levels of "no religion" in the province set it apart from the rest of the country. The large values of the Y estimates which the model generates for British Columbia come from a number of sources, the four most prevalent being the "length of residence" measure, the measure of multiple moves, the "percentage of the population born in Northern Europe" and the "percent Chinese ethnicity".

The analysis of micro data in Chapter 3 indicated the proclivity of persons of Chinese origin to report "no religion" on the census form. Many British Columbia census tracts have large numbers of Chinese persons and these tracts also have very high "no religion" levels.

The micro data also indicated that persons born outside Canada in Northern Europe were more likely to indicate "no religion" than other persons. It was noted in Chapter 3 that reasons for this relate to past spiritual training and group socialization requirements. The "proportion of persons in the census tract born in North Europe" is generally higher in B.C. than anywhere else in Canada.

The high levels of "multiple moves" and low percentages of households of "ten-year residence" also conform to the levels one would expect in British Columbia based on the hypothesis test results.

According to the hypothesis, social cohesion in the community was expected to have a major dampening effect on the local levels of "no religion". Social cohesion was not expected to be strong in communities in which there was a constant turnover of population. Group pressures to follow a behavior norm were hypothesized to be less effective in this situation. Conversely, tolerance of non-conforming behavior was expected to be greater in these more dynamic communities. If length of residence is a good indicator of "community cohesion" then the relationship between the length of residence measure and

the "percent no religion" probably also means that the high "no religion" levels have a basis in what would seem to be low social cohesion.

The work of Roof (1978) in the area of personal orientation and religious commitment was discussed in Chapter 2. His arguments offer an alternative perspective from which to view the relationship between social cohesion and religious commitment in British Columbia. He felt that persons with certain orientations may be more prone to non-conforming behavior than others and that this would be reflected in higher no religion rates where these people were concentrated.

Roof found that persons with the so-called cosmopolitan orientation tended to change residences and move between different parts of the country freely in an effort to improve their situations. An attractive picture has traditionally been painted of British Columbia. B.C. has been the land of the good life, where high paying jobs are abundant, where the climate is mild and the scenery spectacular. These amenities may have acted as a magnet to draw a disproportionate share of these cosmopolitan types from elsewhere in Canada (or Europe) to British Columbia by 1971. If this has in fact been the case, then perhaps the results of the 1981 census will indicate high "no religion" levels for Alberta because this province has somewhat taken over from British Columbia as the current land of greatest promise.

The model's under-prediction of Y values for many British Columbia census tracts may be the result of its inability to fully capture the scope of the complex elements described above with only a few measures of mobility and place of birth. No data were available to allow an evaluation of the relevance of personal orientation to be made in this study. Further work for British Columbia exploring the value of Roof's hypothesis could be fruitful. The emphasis in future research would be to establish the relationship at the individual level between propensity to migrate, cosmopolitan orientation, non-conformist behavior and characteristics of the communities in which the person

currently resides. Of particular relevance to this research would also be to determine the geographic distribution of persons of different orientations. A detailed attitudinal and attribute survey would be required.

CHAPTER 6

CONCLUSION

This paper substantiates the hypothesis that the distribution of the "no religion" response in Canada is not random but rather is linked to patterns which exist in other elements of the social geography of the country.

A set of critical attributes which seemed to bear a causal relationship with "no religion" were identified through the literature review and micro data analysis. An operational framework was designed which proposed that these attributes were measurable elements (at the aggregate level) of underlying spiritual and social influences on each person's decision about the plausibility of religion. The differences in the aggregate of individual plausibilities for religion in each location were seen to be responsible for the geographic pattern in the community levels of "no religion". The analysis of the relationship of the dependent variable to the set of critical attributes indicated strong statistical support for these measures. While not proving a causal relationship, it lends support to the possibility that it exists as hypothesized. This result, therefore, also supports the operational framework.

The hypothesis discussion of critical influences in Chapter 4 put forward the most likely ways in which the level of "no religion" might be modified as the result of influences on individual plausibilities. The details of variable effect were discussed in Chapter 4 and have been supported except as otherwise indicated in Chapter 5. However, it is worth reviewing what seems to be the major factors influencing the individual plausibility decision and hence the measured aggregate "no religion" response.

Several ethnic measures seemed to be critical. The results support the contention that individuals of French or Italian ethnicity

are less likely to disinvolve for both spiritual and social reasons. At the same time communities that were tending toward homogeneity of French, Italian or North American Indian ethnicities exhibited results consistent with the theory that properties of social cohesions were able to reduce the level of disinvolvement and that the communities' ability to do this increased (logarithmically) as homogeneity was approached.

The results were also consistent with the theory that certain other ethnicities would provide a "greater than average" share of non-involvers or disinvolvers. The strength of the Chinese group was somewhat surprising even though the micro-data analysis had provided an indication that this variable could be an important one.

Age and education elements also proved important as expected. However, because the hypothesis and analysis focused upon the community rather than the individual as the unit of study, the true relationships between these measures and the dependent variable at the level of individual geography remain somewhat clouded.

The presence of elements of social cohesion were expected to be most important in relation to the "no religion" pattern because the hypothesis saw these as central to dampening disinvolvement and non-involvement. Length of residence was believed to be a major indicator of communities with strong social networks that would facilitate "dampened disinvolvement". Mobility measures covered the other side of the coin. If ethnicity of those communities was also French, Italian or North American Indian, the effect was expected to produce even lower "no religion" levels in stable communities. The results support these hypotheses.

The strength of a particular kind of social cohesion in communities seems to have a major role in dictating the "no religion" level. This has some implications for the monitoring of community

characteristics and lifestyles. Due to the findings here it may be possible to use the "no religion" measure in the future as an indicator or descriptor of cohesive or integrative properties in communities. Questions remain concerning the properties of communities which "no religion" seems to be able to indicate. Much more work is needed to establish these with some precision but it seems possible that the level of "no religion" in a community can serve as a rough measure of the level of "traditional" social integration present. "Traditional" social integration is seen as the interplay of agents such as long term, stable social bonds, strong, stable and proximal family networks, some restrictions or reluctance on retiring from the local social networks as well as the influence of particular ethnicities which have a strongly intertwined religious-societal tradition. Studying changes over time in the patterns and levels of these traditional cohesive elements through the use of the "no religion" measure could ultimately lead to a better understanding of the dynamics of social integration and disintegration. Since these bear relationships with social phenomena such as family formation, crime rates, innovation, divorce and host of others there may be further scope along this path for studies of broader social theories.

One possible area for future work was touched upon in the British Columbia residuals discussion in the previous chapter as well as in the earlier discussions of Roof's (1978) work and the research of Kasarda and Janowitz (1974).

There is some reason to believe that innovators and non-conformists are willing to be highly mobile and tend to concentrate in areas of perceived opportunities. In other words, in all communities there may be an ongoing process which sees persons not particularly comfortable with the local amenities and advantages as well as the local constraints, moving to locations where they perceive opportunities to

be greater. If there are particular sites in which these innovative types congregate, this would produce a differential pattern of communities, some with what would appear to be highly stable, and family-oriented populations and others with a more mobile and heterogeneous demographic condition. The results of this paper and a detailed examination of the demographics of census tracts with very low and very high "no religion" levels seem to point in this direction. "No religion" response is particularly high in areas where spiritual rationale is the only reason for most residents to identify with religion, especially if the spiritual tradition is not strong (as it seems to be for most Canadians, particularly non-Catholics).

A great deal of ~~micro~~-level attitudinal and attribute data for a number of communities would be required to study this hypothesis in depth. These would include data about the individual's mobility, history, place of present residence, past and original residences, reasons for moving, attitudinal measures to determine non-conformity, performance measures for innovativeness, and a host of attribute statistics similar to those available from the Census which could be linked to the preceding series. These data are not presently available and are not forthcoming so the theory will remain untested for the near future. Based on the results of this study, however, it appears to be plausible.

The results also seem to point towards a set of community types. This typing at first seemed to be organized largely on a regional and agriculture - non-agriculture - urban basis. The results of this analysis have indicated that ethnicity, cohesion age-mix and other properties underly this apparent pattern. The level of "no religion" in a community could serve as a very rough community type indicator pending further research. High levels seem to indicate highly mobile populations which display a great deal of heterogeneity both in terms of ethnicity and age mix. Very low levels of "no religion" indicate the opposite - homogeneous communities with a great deal of social

and residential stability, close knit subsocieties in which cohesive elements are strong and persistent.

Opportunity for future work in the "geography of no religion" will come with the release of the results of the 1981 Census of Canada. For the first time, it will be possible to carry out time-series analysis of the demographic and geographic patterns. This holds particular significance for the work presented here because the new data can be used to "retest" the model. Results consistent with this paper's findings would lend further support to the model.

Using this studies' results as a guide it is possible to speculate about the 1981 "geography of no religion".

Alberta has become a major focus of in-migration in the past ten years. Therefore, given heterogeneity, high mobility and a decrease in community-level social stability, the "no religion" level could be expected to show a significant increase in 1981. Oil has also been instrumental with rapid development in the St. John's, Newfoundland area. Again, in-migration, increased population heterogeneity and a decline in stability could be expected to boost the level of "no religion" reported. In other parts of Newfoundland, however, the influences which were hypothesized to generate strong social cohesion seem to have persisted and so very low levels of "no religion" should probably be expected again.

In Quebec, French-Canadian society has been rapidly changing in the past 40 years. The trend has not slowed in the past decade. A decline in the strength of spiritual ties, as well as increases in opportunity leading to more residential mobility in the province can be expected to produce higher community levels of "no religion". However, the levels will continue to remain generally the lowest in Canada due to the strong ethno-religious links and persistent spiritual influences.

The general trend will probably be toward higher levels of "no religion" in most communities in the country. National surveys such as the Gallop Poll taken in the intervening ten-year period indicate a decline in religious interest in Canada. However, one could expect that communities which experienced a great deal of out-migration of the young in the period could have somewhat lower "no religion" levels due to a reduction in the proportion of the population who are among the most likely to disinvolve. Based on past results, these could include primarily agricultural communities in Saskatchewan, Manitoba, Ontario and New Brunswick.

This study has shown that the availability of "no religion" response data in the Census has opened the door to many social research paths. It can serve research in a variety of fields including sociology, psychology, religion and geography. The data has significance for research about religion, its nature and the individual's commitment to it. It is also key to studies of secularism in society and processes of religious disinvolvement. More importantly for social scientists it offers a valuable new piece of information for the study of individual and group behavior. The strong geographic patterns which follow other regional trends should make these data a focus for much future research by geographers. A better understanding of regionalism in Canada and community-level localism should be the result.

APPENDIX 1

DATA DEVELOPMENT METHODOLOGY

Preparation of the data to be presented and analyzed in this study proceeded through a number of stages, namely: (1) identification of the concepts to be measured; (2) operationalizing these concepts in terms of available statistics; (3) identification and development of geographic units of observation; (4) reconfirming data availability for these units; (5) data collection; (6) preparation of data for analysis; (7) identification and testing of appropriate statistical packages; and (8) preliminary analysis of statistics by mapping and cross tabulation.

This section reviews the methodological details of steps 3 through 8. Steps 1 and 2 are elements discussed as part of the chapter on hypothesis development.

Identification and Development of Geographic Units of Observation

The Hypothesis outlined in this paper identified "the community" as a key geographic unit. It is believed that the nature of social interactions which take place at this level may strongly influence individual response on the "no religion" question.

Therefore, the task here was to identify a geographic unit for the purpose of data collection which was as conceptually close as possible to the theoretical social definition of a community.

The term community may be defined in several different ways. For the purposes of this paper a community is a limited number of individuals (ideally 5,000 or less) living in close geographic proximity. Further, because of this geographic proximity, these individuals have the opportunity to interact with one another in a variety of activities in which they may share interests. Individuals at a greater geographic distance would find it very difficult to maintain

these regular social links and, in most cases, would instead be drawn into their own local social spheres.

Most of the data used in the analysis came from the Census of Canada. Accordingly, the actual definition of community data collection units had to be compatible with the geographic units for which census data is available. A number of possibilities were considered. Census Divisions were immediately rejected because they were far too large, both in population size and geographical extent. Also, Census Division level data would not permit the study of intra-urban patterns.

Census subdivisions were used by the author in an earlier study of "no religion" in Ontario. (Mitchell, 1974) This research, however, lacked a clear central focus (community) which linked response ("no religion" answer) to individual attributes and social environment. The paper was an investigation of pattern rather than an attempt to support or discredit a particular hypothesis. As a result, the choice of geographic unit was not particularly crucial and subdivisions proved to be a reasonably small unit for which most relevant data was available in published form. For the purposes of the current study, however, subdivisions are unsuitable because they are essentially political rather than social in definition, and are usually too large in terms of both population and area.

The municipality was also considered but rejected. Although their geographic size is generally small, population size of municipalities varies greatly from small municipalities in Saskatchewan of less than 100 people to large cities such as Toronto and Montreal with millions. This variation was not acceptable within the proposed definition of community and could have lead to spurious results.

The Enumeration Area is generally the smallest unit for which data is readily available and serves as the basic building block for all other collection units.¹ It is defined as the area canvassed by

1. that is, it is possible for any unit, such as a subdivision, electoral district or municipality, to identify its set of component Enumeration Areas.

one Census Representative, and may include as many as 300 households. For the 1971 Census, Canada was divided into 42,533 EA's. The small population and restricted size of EA's offered some scope for use in the study. Further investigation, however, revealed that a great many of the Enumeration Areas had very small populations, often below 200 persons. Statistics for Enumeration Areas are derived from Census Summary Tapes. The data on these tapes are random rounded to end in a zero or five. For geographic units with population of 500 persons or more, the error is always one percent or less. For units with less than that number, however, the potential degree of error is higher. The numbers of persons reporting "no religion" tends to be small enough in many parts of Canada that a randomly added or removed five persons might produce a picture which is significantly different from the actual patterns. This was judged unacceptable. Therefore, the use of Enumeration Areas was rejected.

As an alternative, a custom-designed set of geographic units was delineated. The objective here was to avoid the problems associated with having very small populations in the units and at the same time to generally adhere to the three criteria; that the unit would contain less than 5,000 persons, that it would be geographically compact, and that the unit would reflect the individuality of population centers above the 500 person cut-off level. The system made use of Enumeration Areas as building blocks, as well as Census Tracts, municipalities and unincorporated settlement.

The units were defined as follows:

- (1) In Census Metropolitan Areas and Census Agglomerations included in the Census Tract Program:
 - a) all Census Tracts
 - b) incorporated towns and villages outside tracted areas
 - c) census subdivisions included in the urbanized portion of the CMA or CA, less census tracted portions
 - d) unincorporated settlements outside a) and c).
 - e) any EA's which were not included in any of the above were identified and grouped to form larger units (conforming to the definitional criteria).

- (2) In untraced Census Agglomerations and large towns with populations of greater than 5,000, special units were created which were termed pseudo census tracts. City maps containing EA boundaries and reference numbers were used to split up cities into a number of geographic units which contained less than 5,000 people. These units were referenced by their component EA's.
- (3) Incorporated towns and villages with more than 500 persons but less than 5,000 were included as single units.
- (4) Unincorporated settlements of more than 500 persons were also included.
- (5) Any Enumeration Areas not included in any of the above were grouped within the limits of their respective subdivisions

For each of the above, cross-reference listings were prepared. These linked the new unit to its constituent Enumeration Areas (except for Census Tracts, which had their own referencing for data retrieval from the summary tapes.)

For each variable to be included in the study four summary tape access runs were to be made, one for each of the following: Census Tracts, municipalities, unincorporated settlements and Enumeration Areas.

It quickly became apparent, as a result of a detailed review of the procedures involved in extracting data from summary tapes, that creation of the data base for a geographic set defined in the foregoing manner would be extremely complex and time consuming. In addition, much of the data were to be derived from EA summary tapes, which, it was discovered, contained few highly disaggregated data series because of the small population size of Enumeration Areas.

It became evident that this methodology for defining the geographic base was not satisfactory and other alternatives were examined.

A possible geographic base which had been examined at the beginning of the project was the Provincial Census Tract System. Provincial Census Tracts are defined in the same way as Urban Census Tracts, i.e., population around 5,000 where possible, and boundary delineation based on existing physical or cultural features. The set of Provincial Census Tracts encompasses all urban centers and rural areas in Canada not included in the Urban Census Tract Program. The use of this geographic set was rejected initially because this base had only just been introduced with the 1971 Census and was largely experimental. In 1976 the Provincial Census Tract base was well documented and mapped, but for 1971 much of the necessary material did not seem to exist. Even the name was different; in 1971 the units were called Area Aggregates. However, the problems with the multi-component geographic base forced a renewed examination of the PCT set. This review revealed that although experimental, the 1971 set was in fact very similar to the 1976 full production version. The developer of the PCT system was able to offer documentation for the 1971 set required for this project and he also confirmed that most of the requested data was available on summary tapes for 1971 PCT's.

The Provincial Census Tract set, when coupled with the Urban Census Tract set, provided an acceptable solution to the geographic base problem. The earlier plan to use a geographic base made up of a host of geographic units was abandoned in favor of the Urban Census Tract - Provincial Census Tract set.

In 1971 there were 4,161 Urban Census Tracts and Area Aggregates in Canada. Most of these units had populations within 2,000 of the 5,000 optimum. However, there were also 43 tracts with a population of less than 500.¹ Many of these were located in areas of low

1. There are 43 tracts with population less than 500; 989 tracts with population of between 500 and 4,000; 2,063 tracts with population of between 4,000 and 6,000; 1,022 with population of between 6,000 and 12,000; and 44 with population greater than 12,000.

population in central cities. To include these in the larger set was unacceptable due to the possible problems incurred in rounding which were discussed earlier. Therefore, these Census Tracts are excluded from the set used in data analysis. The Geographic Base that results is a fair representation of a set of community-sized areas for the country. It is impossible to judge how well these encompass individual communities. It seems likely that, especially in rural areas, each Area Aggregate includes several communities. It must be assumed that these proximate communities are similar.

Data Collection

A variety of statistical series were required to operationalize the major elements discussed in the research hypothesis. The degree of geographic detail required ruled out data sources other than the Census. Therefore all data used here is taken from the 1971 Census of Canada, the latest year for which the dependent variable percentage of persons in the census tract reporting "no religion", is available.

Data for the census tract area agglomeration geographic base was available only from Summary Tapes. Twenty-five data tapes contain all the information available for these geographic units and they include variables within the areas of population, housing, family, household and the economy. Inevitably, there are many series which one requires which cannot be obtained, despite the diversity of the data available from this source. Other series must be substituted. For example, "persons born outside Canada by ethnicity" was not available. "Persons born outside Canada by place of birth" was substituted for it.

The first step in accessing the data was to identify the appropriate tape for each data series. Further, the data on these tapes is stored in tabular format with as many as twelve tables per tape. For each variable, a master listing of summary tape contents had to be consulted and the appropriate tape and table number for each variable recorded. Twenty of the total available number of twenty-five summary

tapes had to be accessed to pull off data for this study. The work began by acquiring copies of each of these twenty tapes. This was accomplished by writing a tape copy program for each summary tape which copied all material on the tape onto a scratch tape belonging to this researcher.

Data on the summary tapes was organized in the following order: statistics for census tracts in Census Metropolitan areas came first, followed by statistics for Census Tracts in Census Agglomerations. Data for all other Area Agglomerations came third. Each of these geographic units had a four digit Area Aggregate identity code. That is, census tracts in cities had a standard code identifying which urban area they were a part of, a census tract number, and a nationally consistent Area Aggregate code. For the purposes of this study it was important that urban census tracts be combined in an east to west sequence with adjacent Area Aggregate units. Fortunately, the code was basically an east to west increasing series. For each copied tape a short sorting program was written and run. This placed the data in sequence according to area agglomeration identity code.

Preparation of the Data for Analysis

The next step was to lift off the desired variable or group of variables from each tape and store it on another tape in a form that was suitable for analysis. The Statistics Canada Statape program was used to accomplish this. For each variable, a program to access the statape procedure and the appropriate sorted data tape was written. This "request" included the volume number of the sorted scratch tape and variety of other job control language, information on the geographic units used, the summary tape reference number, the table number information on any manipulations to be performed to produce an output variable different from the variables existing on the summary tape and a variety of output JCL. The geographic unit set, for example, included

each of the Area Agglomerations and Census Tracts in Canada. It also specified that a Canada-wide total was to be calculated. This figure was used to check the tape out-put against figures that were available in published form. A discrepancy in the two numbers indicated a Statape specification error which meant the request had to be corrected and rerun.

A number of variables required were not available directly from the summary tapes. However, it was possible to create them by performing manipulations on other variables. For example, to obtain a figure for total population it was necessary to write a statement that would result in the male and female population figures for each Area Aggregate to be added. This figure would be placed on the output tape as well as the male and female totals. In this way, thirty-seven output tapes containing a total of sixty-seven variables were created. For each variable there were 4,162 observations.

The actual production of these output tapes proved to be a time-consuming process. Many of the summary tapes, the Housing tapes, in particular, had been incorrectly documented when the statape program was originally written in the early 1970's and these errors still existed. Therefore following the instructions contained in the summary tape manual when preparing data, requests generated erroneous statistics. Documentation had to be rewritten by the responsible Statistics Canada Division and for those problems which could not be traced, steps were taken to use other tables or tapes to produce the desired series. Each tape access job ran overnight¹ and, as the average number of attempts to get correct statistics from a submission was about four, the creation of thirty-seven output tapes proved to be a lengthy process.

It was also possible to generate printed output from the summary tapes using the Statape procedure. Population totals and numbers persons reporting "no religion" as well as proportion of the total population

1. i.e. turnaround time for each job was one full day

reporting "no religion" were printed for use in the preparation of the Census Tract-Area Aggregate Maps of "no religion".

The next step was to merge the data series on the thirty-seven tapes into a single file for use in analysis. Two possible methods were available. One was the Match 360 program of Statistics Canada and the other was a merging option contained within the data manipulation portion of the Statistical Analysis System (SAS) package. The Match 360 procedure was more complicated than the SAS operation. The output from the SAS run, however, had to be stored in a special data base which required a preliminary run of JCL statements estimating its parameters. The Match 360 output could go directly onto Tape or an O/S disc file.

Ultimately the SAS method was used because data analysis would later be carried out using this package. The output could be taken directly from the special SAS data base without again having to specify its characteristics and file locations.

Tapes were merged by matching the Area Agglomeration reference numbers which each of the tapes contained. Tapes were matched two at a time to reduce the possibility of error. At a first stage, therefore, 18 matching programs were run which reduced the 37 tapes to 18 files plus one unmerged tape. The next pass reduced the number to 9 plus one tape and so on. Repeating this procedure, a single file of 68 variables was created. During the merging process, some series were edited out. These were variables which were not required in themselves, but which were components (subsets) of variables which were required. The Statape procedure did not have the facility to leave these off the tapes on which totalling or other manipulations had been carried out, hence their removal at this stage.

Identification and Testing of Appropriate Statistical Packages

Several packaged sets of programs exist which would have been suitable for use in this study, the two prime candidates being Statistical Package for the Social Sciences (SPSS) and Statistical Analysis System (SAS). Both systems offer information storage and retrieval, data modification, and statistical analysis. Each of these facilities was essential for the research project.

Statistical Analysis System was ultimately chosen for use because statement specification is more flexible in SAS than in SPSS, and because SAS tends to require fewer statements than SPSS to perform the same operation. Also the author judged several of the procedures to be employed in this study (e.g. Frequencies, Correlation, Regression and Editing) to be performed slightly better by SAS.

This assessment was made by performing the above operations on both systems with a set of test data.

Preliminary Analysis of Statistics by Mapping and Cross Tabulation

The cross-tabulations presented in the Social Correlates section of Chapter 3 are intended to illustrate the patterns which exist at a broad level in Canada. These series are meant largely as a guide for hypothesis development and model building. The raw data for these tables were drawn directly from published Census sources.

The mapped statistics, as mentioned earlier, came from Statape submissions which accessed tapes containing series on population, and persons reporting "no religion". Statape was programmed to manipulate these data and produce a variable, "percentage of the total population reporting no religion", on printed output for mapping.

An initial step in the mapping project was the creation of a suitable series of base maps. Due to the large number of Area Agglomerations and Census Tracts which existed, a single map of Canada would not have been suitable because much detail would have been lost. Instead

it was decided that a map for each province, as well as a map focusing on each Census Tracted Urban Area was the minimum acceptable level of detail. Ultimately, forty-seven maps were produced; the coverage was as above except that three maps each were produced for the Provinces of Ontario and Quebec, and the Prince Edward Island map was combined with the Nova Scotia map.

The only available maps of the 1971 Area Agglomerations were mylar 1:250,000 topographic series sheets upon which tract boundaries and identification numbers had been transcribed. These were stored in the Census Map Library but copies were available through a map reproduction service. These maps were used as guides by the author to draft the set of provincial maps. Several maps were drafted for each province on transparent mylar. One contained a provincial base and the set of Area Agglomeration boundaries, a second contained Area Agglomeration identification codes and a third had a small circle symbol at the "eyeballed" centroid in each A.A.. Because the material used was transparent it was possible to overlay these on a light table.

For Census Tracted Urban Areas, published Census Tract maps were used as guides in drafting the base maps. A second overlay contained the circular centroid symbols. A boundary overlay was not prepared in this case. The original maps were drafted in pencil, checked for errors and redrafted with liquid ink. "Working" maps were prepared by taking copies of each of the forty-seven maps. Proportional circles were used to indicate the percentage of persons reporting "no religion" in each geographic unit. The use of chloropleth shading, (i.e. covering the entire zone with a particular screen,) would have been technically incorrect since the size of the area covered bears no relation to total population, but could be unintentionally interpreted as such. A parameter of the symbol, e.g. shading was not used to portray census tract population because, ideally, all A.A.'S and CT's are to be the same size, around five thousand persons. While in fact the size of

the units do vary in population and symbols could have been made to represent this, relating symbol size to population would detract from the major goal which was to display "no religion" patterns. In addition, space on these maps was limited and they would have appeared unsatisfactorily cluttered if many large symbols appeared on them. The circle symbols on the maps were necessarily small and black and white dot screens could not have been used to advantage on such small surfaces. Class breaks for the first four levels were determined by splitting all values of less than 10% into quartiles and then rounding to the nearest whole number. The other two levels above 10% have fewer values than the others; however, this was not viewed as a problem. The author felt it was important to create classes that identified geographic areas with more extreme values. Hence the highest class "greater than sixteen percent" to complement the class of less than "one percent".

A statape printout provided the data for the manual assignment of proportional circles to each Area Agglomeration and Urban Census Tract symbol.

APPENDIX 2

METHODOLOGY OF THE STATISTICAL ANALYSIS

These notes provide a discussion of the methodology used to test for a statistical relationship between "no religion" in Canada and the set of statistics which have been selected to represent the elements hypothesized to be significant in determining "no religion's" distribution. Multiple Regression Analysis was selected as an appropriate means of performing the analysis.

Multiple Regression may be used whenever a quantitative variable is to be examined as a function of, or in relation to, any factors of interest (actual or hypothesized). To study the complex interrelationships which are hypothesized to be involved in the determination of the distribution of the level of "no religion" across Canada requires an analysis system that has the facility to replicate a complex relationship of elements with accuracy. Regression analysis is deemed to have this property because it can deal with multiplicity between potential causal influences and correlations existing between those factors. More specifically, this technique allows the assessment of strength and direction of relationships between a dependent variable and a number of independent variables or sets of variables. Also, the relationship between different independent variables can be determined as they statistically relate to the subject of concern.

A most effective technique for exploring both variable relationships with a dependent variable and independent variable relationships is hierarchical multiple regression analysis. Using this strategy a number of independent variables are entered cumulatively according to a specified hierarchy which is determined in advance by the purpose and logic of the research, usually the substance of a hypothesis to be tested. The hierarchical model allows for the evaluation of the R^2 and the amount of additional variance explained by each

variable at the point at which it is added to the equation (partial coefficients). By building a final representation of an hypothesis one step at a time, it is possible to evaluate each variable's individual relationship with the dependent variable, its relationship to the dependent in terms of other variables and its relationship with the other independent variables. For example, given two independent variables, A and B, statistics from the analysis allow assessment of (1) the degree to which A and B each relate to Y; (2) the degree to which one is a surrogate for the other in a relationship with Y and; (3) the degree to which one enhances the effect of the other in its relationship with Y, the dependent variable.

A particular value of hierarchical analysis is that it allows variables to be examined relative to the logically or temporally determined causal priority set forth in the hypothesis. For example, if for the purposes of an hypothesis, an attribute measure such as ethnicity is deemed to precede an attitudinal measure into the equation, then it is possible to evaluate the effect of the attribute measure alone, the effect of both variables together, the effect of the attitude measure accounting for the other's influence and the nature of the relationship between the two. Therefore, by using hierarchical analysis, it is possible to lend support to both the complete hypothesis and the particular elements which compose it. Conversely this technique also can be used to discredit hypotheses and particular elements of hypotheses. The capability to both support and discredit hypotheses was of major importance for this research because one of the objectives was to assess two conflicting social hypotheses (the Linear vs Systematic Development Models) for the Canadian situation.

The two other regression strategies available, simultaneous and stepwise analysis were felt to be inferior to hierarchical analysis for the objectives of this research. In simultaneous analysis all variables are entered into the equation at once. Such an approach is

appropriate if there is no logical basis for considering one variable prior to another. Although this method allows for the evaluation of relative variable influences, the strength of these effects depend critically upon which other variables are in the equation. As a result, it is not possible to evaluate the nature of relationships between independent variables.

Like hierarchical analysis, stepwise regression follows a staged approach in which variables are entered one at a time into the equation.¹ Stepwise regression, however, is usually governed by computer software, the program typically being told to add the variables, one at a time, which result in the greatest subsequent increase in R^2 . Variable entry stops when a variable's contribution is determined not to be statistically significant at some predetermined level. Because all variables are given equal consideration this technique is inappropriate for hypothesis testing. Still, stepwise regression can serve a purpose in this process. In this research, the complete data base (from which a selection of variables for hierarchical analysis was made) was subjected to stepwise regression, to determine the best possible predictive model (and R^2) that could be obtained. It was then possible to compare these results with the hierarchical analysis results. Because one is a subset of the other, the amount of total dependent variable variance is always less for the hierarchical than that of the stepwise analysis. However a large difference could indicate missing elements in the hypothesis. On the other hand, only a small difference would add further support for the value of the hierarchical model, particularly if the number of variables involved was significantly less than in the stepwise analysis.

The hypothesis as described in Chapter 4 of this paper was the primary subject for regression analysis in this paper. The prioritization of variables in that Chapter set out the logical priority

1. or removed from the equation

required for hierarchical regression analysis. In testing the hypothesis it was decided that, because some variables were interchangeable measures of the same influence, minor variable substitutions, additions and deletions could be made without significantly changing the basic elements of this hypothesis. These possibilities were discussed in Chapter 4.

A set of complete correlation coefficients for the data base provided the first indication of the strength of relationship between the dependent variable and independent variables. On the basis of these results some variable selection decisions were made. If two variables had been identified as being potential measures of the same phenomenon and there had been no clear choice between them at the hypothesis development stage, then the variable with the better "r" of correlation and the least association (orthogonal) with other important independent variables was selected.

The next stage was the actual testing of the hypothesis as described in Chapter 4, using hierarchical regression analysis. The variables, as logically prioritized in that chapter, were added one at a time, cumulatively to the equation. The statistical criteria which were required to indicate support of the hypothesis were:

- (1) over half of the total variance of the dependent variable had to be explained by the set of independent variables, i.e. an R^2 of at least .50;
- (2) each variable which had been identified in Chapter 4 had to make a significant contribution to the total amount of variance of the dependent variable. A semi-partial regression coefficient (Sr^2) was calculated at each stage of the hierarchical analysis which allowed this evaluation. After all variables had been entered into the model according to the hypothesis, individual F values and the related levels of significance were examined. A significant level of 0.0005 was maintained in this study. Although this was an extremely high level, 99.95% probability that the null hypothesis is not being

erroneously rejected, the degrees of freedom and the strength of relationships support this.

Variables could be added or dropped from the equation only if in doing so the suppositions of the hypothesis were not compromised. In fact, variable changes that were actually made were very minor and came about because the available statistics clarified relationships between variables.

A major element of the hypothesis was the notion that the nature of some variable relationships with "no religion" were non-linear. In these cases the relationship was represented as a negative concave logarithmic curve representing an inverse relationship between the variables. This was based on the hypothesis that the variables represented elements of group interactions which were believed to have a negative effect on the propensity of individuals in the community to disinvolved from religion.

Each of these variables was pretested in a small hierarchical equation to determine if this was in fact the case. The linear element was entered first followed by its logarithmic transformation. The semi-partial correlation coefficient (Sr^2) of the second element had to make a substantial increase in the R^2 of this smaller equation for the relationship to be recognized as it was hypothesized in Chapter 4. Also the nature of the relationship (i.e. the direction of the curve) had to be as hypothesized. This required a result with a positive intercept, a negative linear element and a positive log-linear element i.e. as follows: $y=a-b(x)+b(\log x)$. Tests were also made using the quadratic representation of the variables. A quadratic representation of the curve would have been as follows: $y=a-b(x)+b(x^2)$. These were expected to be nearly as strong as the logarithmic equations. However, if they proved to be consistently stronger they would considerably weaken support for the logarithmic nature of the relationship

as hypothesized; consistently weaker and they would strengthen it. These variables were also pretested hierarchically as a subgroup to ensure that significance of each was maintained through the effect of each other's influence. A positive result here would indicate further support for the logarithmic relationships and support for the variables themselves relative to the hypothesis elements measured.

Finally, all variables were hierarchically entered into the equation and results at each stage recorded. The author was concerned that using percentages as variables might introduce some major statistical problems. Because percentages are restricted to a range between 0 and 100, some authors such as Cohen (1975) suggest that the linearity of the variable's relationship with other variables may be affected. Bunching of values at the extremes in relation to the center may take place. For example, Cohen notes that a percentage change from .01 to .05 represents a five-fold increase while from .48 to .52 is only an 8 percent increase.

The solution is to perform a transformation on these variables that stretches the tails. An arcsine transformation is commonly used in these cases and was tested here. The formula is as follows: $A = 2 \times \arcsine \sqrt{\text{proportion}}$. All percentage variables in the study were transformed in this manner and these were used in place of the original percentage values in the multiple regression equation. Little difference was observed between these results and the results from using untransformed variables. For the sake of ease of interpretation this approach was discarded. The author was now fairly confident that the use of percentages in the equation provided accurate results.

To determine whether any support existed for the Linear Development Model, several urban size variables were regressed against the

dependent variable. The main model in this study was deemed to represent the Systematic Model. To test the strength of this model relative to the Linear Model, the variables of the latter were entered first into a regression equation with the main model's variables entered subsequently in an effort to force the latter into non-significance. The procedure was then reversed and in both cases the results were recorded and compared.

The hypothesis put forward in this paper has a significant geographic element. Therefore it was important to know whether the model tested was reasonable in all parts of the country or if there were areas in which it fared badly. To determine this, residuals were generated. Residuals are the difference between the actual dependent variable for an observation and the dependent variable value as estimated from the equation. Large residual values that are geographically clustered may point to shortcomings of the model, either regional influences which have not been taken into consideration or a miscalculation in the nature of the relationship between a dependent variable and a hypothesized causal element.

The residuals were subsequently recalculated in units of standard deviation and these were mapped to help in the identification of clustering. The same set of base maps used to display the distribution of the dependent variable and similar presentation techniques were employed in residual mapping.

Based on the results of the correlation coefficient generation, the hierarchical regression analysis of the model and the plotting of residuals it is possible to reach some fairly general but significant conclusions about the applicability of the hypothesis.

CORRELATION COEFFICIENTS

CORRELATION COEFFICIENTS / PROB > R UNDER H0:RHO=0 / NUMBER OF OBSERVATIONS													
	PNR	PRESIO	LCGRES	PFR	LOGFR	PIT	LOGITAL	PNIN	LOGNIN	PRC	PIMOVE	PAJGA	YSPRH
PNR	1.00000	-0.32994	-0.25544	-0.51440	-0.45561	-0.01682	0.27647	0.31655	0.22460	-0.57718	0.41377	0.13463	0.30284
	0.0000	0.0001	0.0001	0.0001	0.0001	0.2803	0.0001	0.2831	0.0001	0.0001	0.0001	0.0001	0.0001
	4118	4117	4117	4118	4118	4118	4118	4118	4118	4118	4118	4118	4117
PRESIO	-0.32994	1.00000	0.24615	0.05823	-0.03873	-0.12445	-0.37787	-0.00240	-0.05730	0.05050	-0.62218	0.25112	-0.30848
	0.0001	0.0000	0.0001	0.0002	0.0130	0.0001	0.0001	0.8777	0.0001	0.0012	0.0001	0.3001	0.0001
	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117
LCGRES	-0.25544	0.24615	1.00000	0.07304	0.00041	-0.07925	-0.25774	0.00831	-0.04768	0.06123	-0.56731	0.23429	-0.19139
	0.0001	0.0001	0.0000	0.0001	0.0001	0.0001	0.0001	0.5943	0.0022	0.0001	0.0001	0.0001	0.0001
	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117
PFR	-0.51440	0.05823	0.07304	1.00000	0.91320	-0.13129	-0.26941	-0.10350	-0.19977	0.52893	-0.17923	-0.17324	-0.00118
	0.0001	0.0002	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	4118	4117	4117	4118	4118	4118	4118	4118	4118	4118	4118	4118	4117
LOGFR	-0.45561	0.03873	0.00041	0.91320	1.00000	-0.10156	-0.12556	-0.10011	-0.12732	0.87861	-0.07793	-0.17336	0.05966
	0.0001	0.0130	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	4118	4117	4117	4118	4118	4118	4118	4118	4118	4118	4118	4118	4117
PIT	-0.01682	-0.12445	-0.07925	-0.13129	-0.10156	1.00000	0.64673	-0.06149	-0.02556	0.06110	-0.11256	-0.07177	0.00739
	0.2805	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	4118	4117	4117	4118	4118	4118	4118	4118	4118	4118	4118	4118	4117
LOGITAL	0.27647	-0.37787	-0.25774	-0.26941	0.64673	0.64673	1.00000	-0.11412	0.01636	-0.12914	0.08375	-0.06612	0.14528
	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	4118	4117	4117	4118	4118	4118	4118	4118	4118	4118	4118	4118	4117
PNIN	0.01655	-0.00240	0.03873	-0.10011	-0.06149	-0.11412	1.00000	0.58363	0.58363	-0.04453	0.05515	-0.05745	0.02286
	0.2851	0.8777	0.5940	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	4118	4117	4118	4118	4118	4118	4118	4118	4118	4118	4118	4118	4117
LOGNIN	0.22450	-0.09730	-0.034768	-0.19977	-0.12732	-0.03553	0.01636	0.58363	1.00000	-0.18221	0.23093	0.05606	0.15066
	0.0001	0.0001	0.0002	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	4118	4117	4117	4118	4118	4118	4118	4118	4118	4118	4118	4118	4117
PRC	-0.57718	0.05050	0.06123	0.92893	0.87861	0.08110	-0.12914	-0.04453	-0.18221	1.00000	-0.22632	-0.21787	-0.01164
	0.0001	0.0112	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	4118	4117	4117	4118	4118	4118	4118	4118	4118	4118	4118	4118	4117
PIMOVE	0.41377	-0.62218	-0.56731	-0.17923	-0.07793	-0.11256	0.08375	0.05515	0.23093	-0.22632	1.00000	-0.16042	0.24048
	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	4118	4117	4117	4118	4118	4118	4118	4118	4118	4118	4118	4118	4117
PAJGA	-0.13463	0.25112	0.23429	-0.17324	-0.17336	-0.07177	-0.06612	-0.03545	0.05606	-0.21787	-0.16042	1.00000	0.38144
	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	4118	4117	4117	4118	4118	4118	4118	4118	4118	4118	4118	4118	4117

S T A T I S T I C A L A N A L Y S I S S Y S T E M

4:39 WEDNESDAY, NOVEMBER 25, 1981

CORRELATION COEFFICIENTS / PROB > |R| UNDER H0:RHO=0 / NUMBER OF OBSERVATIONS

	PNR	PRESID	LOGRES	PER	LOGR	PII	LOGIAL	PNIN	LOGNIN	PRC	PIMOVE	PADGA	YSPHM
YSPHM	0.30284 0.0001 4117	-0.30242 0.0001 4117	-0.19139 0.0001 4117	-0.30118 0.0001 4117	0.05966 0.0001 4117	0.00739 0.0001 4117	0.14528 0.0001 4117	0.02236 0.0001 4117	0.18066 0.0001 4117	-0.01164 0.4552 4117	0.24048 0.0001 4117	0.38144 0.0001 4117	1.00000 0.0000 4117
PEN	0.65435 0.0001 4118	-0.29170 0.0001 4117	-0.23707 0.0001 4117	-0.65436 0.0001 4118	-0.58887 0.0001 4118	0.08122 0.0001 4118	-0.43021 0.0001 4118	-0.07443 0.0001 4118	0.06625 0.0001 4118	-0.67114 0.0001 4118	0.28139 0.0001 4118	0.20350 0.0001 4118	0.14901 0.0001 4117
PCHIN	0.49489 0.0001 4118	-0.13037 0.0001 4117	-0.08289 0.0001 4117	-0.13801 0.0001 4118	-0.11762 0.0001 4118	0.03323 0.0001 4118	0.12405 0.0001 4118	-0.00230 0.8926 4118	0.09378 0.0001 4118	-0.13268 0.0001 4118	0.07512 0.0001 4118	0.16755 0.0001 4118	0.21258 0.0001 4117
PEDU	0.42599 0.0001 4118	-0.35075 0.0001 4117	-0.31017 0.0001 4117	-0.22579 0.0001 4118	-0.17049 0.0001 4118	-0.07427 0.0001 4118	0.17758 0.0001 4118	-0.10834 0.0001 4118	-0.14326 0.0001 4118	-0.26814 0.0001 4118	0.15292 0.0001 4118	0.12432 0.0001 4118	0.30690 0.0001 4117
PEDUSTU	0.34782 0.0001 4118	-0.14325 0.0001 4117	-0.09031 0.0001 4117	-0.22417 0.0001 4118	-0.18384 0.0001 4118	-0.02457 0.0001 4118	0.14901 0.0001 4118	-0.11037 0.0001 4118	-0.11198 0.0001 4118	-0.23282 0.0001 4118	0.06605 0.0001 4118	0.15087 0.0001 4118	0.28230 0.0001 4117
PARTR	0.45207 0.0001 4118	-0.34474 0.0001 4117	-0.24005 0.0001 4117	-0.40323 0.0001 4118	-0.30754 0.0001 4118	0.19364 0.0001 4118	0.44072 0.0001 4118	-0.18962 0.0001 4118	-0.01118 0.4730 4118	-0.38579 0.0001 4118	0.24028 0.0001 4118	0.19785 0.0001 4118	0.53121 0.0001 4117
PSCAN	0.44085 0.0001 4118	-0.06842 0.0001 4117	-0.07108 0.0001 4117	-0.38341 0.0001 4118	-0.34067 0.0001 4118	-0.11557 0.0001 4118	-0.04820 0.0001 4118	0.13544 0.0001 4118	0.35184 0.0001 4118	-0.44489 0.0001 4118	0.24596 0.0001 4118	0.05989 0.0001 4118	0.08089 0.0001 4117
PJARA	0.32468 0.0001 4118	-0.08491 0.0001 4117	-0.05661 0.0002 4117	-0.16272 0.0001 4118	-0.17501 0.0001 4118	0.08092 0.0001 4118	0.17090 0.0001 4118	-0.01100 0.4835 4118	0.06886 0.0001 4118	-0.16277 0.0001 4118	0.05856 0.0002 4118	0.01504 0.3345 4118	0.05336 0.0004 4117
PAHH	-0.31634 0.0001 4117	0.08322 0.0001 4117	-0.01459 0.3493 4117	0.16757 0.0001 4117	0.12714 0.0001 4117	-0.03305 0.0001 4117	-0.19912 0.0001 4117	0.38253 0.0001 4117	-0.12120 0.0001 4117	0.21661 0.0001 4117	-0.09137 0.0001 4117	-0.79339 0.0001 4117	-0.73807 0.0001 4117
PM	-0.00990 0.5254 4118	0.11648 0.0001 4117	0.05504 0.0004 4117	-0.02342 0.1329 4118	-0.01482 0.0001 4118	-0.01482 0.0001 4118	-0.12388 0.0001 4118	0.14966 0.0001 4118	0.18526 0.0001 4118	-0.00952 0.5412 4118	0.10963 0.0001 4118	-0.31047 0.0001 4118	-0.21113 0.0001 4117
PF	0.00990 0.5254 4118	-0.11648 0.0001 4117	-0.05504 0.0004 4117	0.02342 0.1329 4118	0.01482 0.0001 4118	0.01482 0.0001 4118	0.12387 0.0001 4118	-0.14967 0.0001 4118	-0.18526 0.0001 4118	0.00952 0.5413 4118	-0.10963 0.0001 4118	0.31047 0.0001 4118	0.21113 0.0001 4117
PBS	-0.00895 0.5660 4118	-0.13175 0.0001 4117	-0.07776 0.0001 4117	-0.12533 0.0001 4118	-0.10635 0.0001 4118	0.02553 0.0001 4118	0.57622 0.0001 4118	-0.05289 0.0001 4118	-0.02001 0.1591 4118	0.09153 0.0001 4118	-0.10518 0.0001 4118	-0.34624 0.0001 4118	0.03372 0.0001 4117
PGER	0.24572 0.0001 4118	-0.00563 0.7190 4117	-0.02320 0.1367 4117	-0.44906 0.0001 4118	-0.43714 0.0001 4118	-0.13816 0.0001 4118	-0.04784 0.0001 4118	0.02555 0.1012 4118	0.16759 0.0001 4118	-0.46547 0.0001 4118	0.14522 0.0001 4118	0.05145 0.0001 4118	-0.00812 0.0001 4117

CORRELATION COEFFICIENTS / PROB > |R| UNDER H0:RHO=0 / NUMBER OF OBSERVATIONS

	PNR	PRESIO	LCGRES	PFR	LOGFR	PIT	LOGITAL	PNIN	LOGNIN	PRC	PINOVE	PAO6A	YSPRH
PNETH	0.27139 0.0001 4118	-0.02796 0.0728 4117	-0.01561 0.3167 4117	-0.45423 0.3031 4118	-0.44360 0.3001 4118	-0.05527 0.3001 4118	0.02826 0.0657 4118	0.00093 0.9573 4118	0.12136 0.0001 4118	-0.52573 0.0001 4118	0.18552 0.0001 4118	0.00445 0.7755 4118	-0.10469 0.0001 4117
PBC	0.53268 0.0001 4118	-0.32035 0.0001 4117	-0.23595 0.0001 4117	-0.55785 0.0001 4118	-0.43018 0.0001 4118	0.54489 0.0001 4118	0.66145 0.0001 4118	-0.37567 0.0001 4118	0.37042 0.0001 4118	-0.44100 0.0001 4118	0.11331 0.0001 4118	0.21063 0.0001 4118	0.28146 0.0001 4117
P2034	0.21046 0.0001 4118	-0.60737 0.0001 4117	-0.53181 0.0001 4117	0.09189 0.0001 4118	0.15188 0.0001 4118	0.14345 0.0001 4118	0.26548 0.0001 4118	0.00630 0.0001 4118	0.00569 0.7150 4118	0.12655 0.0001 4118	0.49527 0.0001 4118	-0.21775 0.0001 4118	0.49150 0.0001 4117
PERM	0.50289 0.0001 4118	0.05275 0.0001 4117	0.06942 0.0001 4117	0.93372 0.0001 4118	0.88569 0.0001 4118	-0.11745 0.0001 4118	-0.26258 0.0001 4118	-0.39991 0.0001 4118	-0.20501 0.0001 4118	0.91687 0.0001 4118	-0.19023 0.0001 4118	-0.16615 0.0001 4118	0.00748 0.6314 4117
PITH	-0.05054 0.0001 4118	-0.10636 0.0001 4117	-0.06515 0.0001 4117	-0.09930 0.0001 4118	-0.08362 0.0001 4118	0.97563 0.0001 4118	0.55587 0.0001 4118	-0.35111 0.0001 4118	-0.03592 0.0212 4118	0.1696 0.0001 4118	-0.11583 0.0001 4118	-0.06143 0.0001 4118	0.00347 0.2238 4117
PED10	-0.45322 0.0001 4118	0.35632 0.0001 4117	0.33235 0.0001 4117	0.41807 0.0001 4118	0.35371 0.0001 4118	0.12947 0.0001 4118	-0.18831 0.0001 4118	0.08766 0.0001 4118	0.11235 0.0001 4118	0.46137 0.0001 4118	-0.25587 0.0001 4118	0.19085 0.0001 4118	0.05515 0.0001 4117
POWN	-0.05212 0.0001 4117	0.50200 0.0001 4117	0.35867 0.0001 4117	-0.24485 0.0001 4117	-0.31438 0.0001 4117	-0.11642 0.0001 4117	-0.25123 0.0001 4117	0.08134 0.0001 4117	-0.03134 0.3444 4117	-0.26782 0.0001 4117	-0.22643 0.0001 4117	-0.19419 0.3001 4117	-0.63505 0.0001 4117
PRSMORT	0.35796 0.0001 4117	-0.02624 0.0001 4117	-0.30300 0.0001 4117	-0.03358 0.0001 4117	0.02170 0.1719 4117	0.10559 0.0001 4117	0.35418 0.0001 4117	0.00223 0.8854 4117	0.12739 0.0001 4117	0.07389 0.0001 4117	0.71652 0.0001 4117	-0.20234 0.0001 4117	0.36782 0.0001 4117
PVLF	-0.18191 0.0001 4117	0.36026 0.0001 4117	0.31080 0.0001 4117	0.07035 0.0001 4117	0.00748 0.6312 4117	-0.17559 0.0001 4117	-0.30104 0.0001 4117	0.02630 0.0916 4117	0.04744 0.0023 4117	0.02889 0.0638 4117	-0.16237 0.0001 4117	-0.19547 0.0001 4117	-0.36151 0.0001 4117
PTFLF	0.25790 0.0001 4117	-0.27942 0.0001 4117	-0.20238 0.0001 4117	-0.18797 0.0001 4117	-0.12217 0.3001 4117	0.13947 0.0001 4117	0.32175 0.0001 4117	-0.14534 0.0001 4117	-0.05883 0.3032 4117	-0.16659 0.0001 4117	0.06586 0.0001 4117	0.42571 0.0001 4117	0.49151 0.0001 4117
PFLF	0.23321 0.0001 4117	-0.25483 0.0001 4117	-0.17001 0.0001 4117	-0.15751 0.0001 4117	0.10351 0.0001 4117	0.11800 0.0001 4117	0.30612 0.0001 4117	-0.16552 0.0001 4117	-0.07630 0.0001 4117	-0.13880 0.0001 4117	0.03940 0.0115 4117	0.42472 0.3001 4117	0.45330 0.0001 4117
PAG	-0.11567 0.0001 4117	0.43523 0.0001 4117	0.28753 0.0001 4117	-0.30359 0.0001 4117	-0.13311 0.0001 4117	-0.17854 0.0001 4117	-0.33131 0.0001 4117	0.12902 0.0001 4117	0.15299 0.0001 4117	-0.13575 0.0001 4117	-0.15060 0.0001 4117	0.10809 0.0001 4117	-0.11339 0.0001 4117
AVTFAM	0.16209 0.0001 4118	-0.05635 0.0001 4117	0.01207 0.0001 4117	-0.34447 0.0001 4118	-0.31558 0.0001 4118	0.17179 0.0001 4118	0.31890 0.0001 4118	-0.17316 0.0001 4118	-0.10624 0.0001 4118	-0.36585 0.0001 4118	-0.91237 0.4273 4118	-0.10840 0.0001 4118	-0.26075 0.0001 4117

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STATISTICAL ANALYSIS SYSTEM

4:39 WEDNESDAY, NOVEMBER 25, 1961

CORRELATION COEFFICIENTS / PROB > |R| UNDER H0:RHO=0 / NUMBER OF OBSERVATIONS

	PNR	PRES10	LOGRES	PER	LOGER	PIT	LOGITAL	PNIN	LOGNIN	PRC	PIMOVE	PA064	YSPHM
PSEC	-0.14602 0.0001 4117	-0.0775 0.0001 4117	0.3394 0.0001 4117	0.15075 0.0001 4117	0.14158 0.0001 4117	0.33580 0.0001 4117	0.33221 0.0001 4117	-0.12879 0.0001 4117	-0.15597 0.0001 4117	0.21997 0.0001 4117	-0.12572 0.0001 4117	-0.21265 0.0001 4117	-0.14771 0.0001 4117
POPW	-0.03402 0.0290 4117	0.11615 0.0001 4117	0.04455 0.0042 4117	0.05643 0.0003 4117	-0.05024 0.0013 4117	-0.13870 0.0001 4117	-0.17924 0.0001 4117	0.15197 0.0001 4117	0.16706 0.0001 4117	0.06122 0.0001 4117	-0.03561 0.0110 4117	-0.05858 0.0001 4117	-0.09049 0.0001 4117
PTO	0.25504 0.0001 4117	-0.42317 0.0001 4117	-0.32672 0.0001 4117	-0.38792 0.0001 4117	-0.02201 0.1583 4117	-0.07302 0.0001 4117	0.16564 0.0001 4117	-0.10774 0.0001 4117	-0.09291 0.0001 4117	-0.10022 0.0001 4117	0.23935 0.0001 4117	0.17091 0.0001 4117	0.28394 0.0001 4117
PIH10	0.27621 0.0001 4117	-0.34568 0.0001 4117	-0.32920 0.0001 4117	-0.23769 0.0001 4117	-0.19414 0.0001 4117	-0.31268 0.0001 4117	0.28309 0.0001 4117	-0.08492 0.0001 4117	-0.17423 0.0001 4117	-0.26239 0.0001 4117	0.15465 0.0001 4117	-0.27929 0.0001 4117	-0.18639 0.0001 4117
PEINC	0.28089 0.0001 4117	-0.27168 0.0001 4117	-0.23374 0.0001 4117	-0.21132 0.0001 4117	-0.17555 0.0001 4117	0.07004 0.0001 4117	0.32727 0.0001 4117	-0.11738 0.0001 4117	-0.21109 0.0001 4117	-0.21549 0.0001 4117	0.04352 0.0001 4117	-0.07189 0.0001 4117	-0.03298 0.0001 4117
PTENINC	0.22211 0.0001 4117	-0.44212 0.0001 4117	-0.37655 0.0001 4117	-0.36115 0.0001 4117	-0.18641 0.0001 4117	0.14574 0.0001 4117	0.48566 0.0001 4117	-0.14999 0.0001 4117	-0.18786 0.0001 4117	-0.24251 0.0001 4117	0.16831 0.0001 4117	-0.23024 0.0001 4117	-0.08132 0.0001 4117
POLOHM	0.19425 0.0001 4117	0.19262 0.0001 4117	0.23550 0.0001 4117	-0.26226 0.0001 4117	-0.22564 0.0001 4117	-0.06326 0.0001 4117	-0.03635 0.0197 4117	0.00512 0.7426 4117	0.15884 0.0001 4117	-0.29403 0.0001 4117	-0.06050 0.0001 4117	0.81836 0.0001 4117	0.142735 0.0001 4117
PEXHH	-0.29256 0.0001 4117	0.29203 0.0001 4117	0.20767 0.0001 4117	0.06928 0.0001 4117	0.33080 0.0001 4117	0.33080 0.0001 4117	0.04529 0.0037 4117	0.06920 0.0001 4117	-0.15629 0.0001 4117	0.22459 0.0001 4117	-0.35905 0.0001 4117	-0.21219 0.0001 4117	-0.05746 0.0001 4117
PTOMH	0.38225 0.0001 4117	-0.23486 0.0001 4117	-0.11059 0.0001 4117	-0.24836 0.0001 4117	-0.17679 0.0001 4117	0.04062 0.0051 4117	0.25598 0.0001 4117	-0.11922 0.0001 4117	0.07784 0.0001 4117	-0.28997 0.0001 4117	0.17569 0.0001 4117	0.50607 0.0001 4117	0.75282 0.0001 4117
PNR	0.66435 0.0001 4117	0.49888 0.0001 4117	0.42559 0.0001 4117	0.34782 0.0001 4117	0.45207 0.0001 4117	0.44085 0.0001 4117	0.32868 0.0001 4117	-0.31634 0.0001 4117	0.00990 0.0254 4117	0.00990 0.5254 4117	-0.00285 0.5660 4117	0.24572 0.0001 4117	0.27189 0.0001 4117
PRES10	-0.29170 0.0001 4117	-0.13037 0.0001 4117	-0.35075 0.0001 4117	-0.14325 0.0001 4117	-0.13474 0.0001 4117	-0.06842 0.0001 4117	-0.08401 0.0001 4117	0.08322 0.0001 4117	0.11648 0.0001 4117	-0.11648 0.0001 4117	-0.13175 0.0001 4117	-0.00563 0.7180 4117	-0.02796 0.0001 4117
JLOGRES	-0.23707 0.0001 4117	-0.08888 0.0001 4117	-0.31017 0.0001 4117	-0.09031 0.0001 4117	-0.24035 0.0001 4117	-0.07168 0.0001 4117	-0.05861 0.0002 4117	-0.01459 0.3493 4117	0.05504 0.0004 4117	-0.05504 0.0004 4117	-0.07776 0.0001 4117	-0.02320 0.1367 4117	-0.01561 0.3167 4117

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CORRELATION COEFFICIENTS / PROB > |R| UNDER H0:RHO=0 / NUMBER OF OBSERVATIONS

	PBN	PCHN	PECU	REDUSTU	-PARTR	PSCAN	RPJAPA	P4HH	PM	PF	PBS	PGER	PNEH
PFR	-0.65436 0.0001 4118	-0.13201 0.0001 4118	-0.22575 0.0001 4118	-0.22417 0.0001 4118	-0.40323 0.0001 4118	-0.32341 0.0001 4118	-0.16872 0.0001 4118	0.18737 0.0001 4117	-0.02342 0.1325 4118	0.02342 0.1325 4118	-0.12523 0.0001 4118	-0.44906 0.0001 4118	-0.45483 0.0001 4118
LOGFR	-0.58897 0.0001 4118	-0.11762 0.0001 4118	-0.17049 0.0001 4118	-0.18384 0.0001 4118	-0.30754 0.0001 4118	-0.34067 0.0001 4118	-0.17501 0.0001 4118	0.12714 0.0001 4117	-0.01911 0.2202 4118	0.01911 0.2202 4118	-0.10635 0.0001 4118	-0.43714 0.0001 4118	-0.44460 0.0001 4118
PIT	0.08122 0.0001 4118	0.03323 0.0001 4118	-0.07427 0.0001 4118	-0.02457 0.0001 4118	0.19364 0.0001 4118	-0.11557 0.0001 4118	0.08092 0.0001 4118	-0.03305 0.0340 4117	-0.01482 0.3416 4118	0.01482 0.3417 4118	0.92599 0.0001 4118	-0.10816 0.0001 4118	-0.09327 0.0001 4118
LOGITAL	0.43021 0.0001 4118	0.13405 0.0001 4118	0.17758 0.0001 4118	0.14901 0.0001 4118	0.44073 0.0001 4118	-0.04820 0.0001 4118	0.17090 0.0001 4118	-0.19912 0.0001 4117	-0.1288 0.0001 4118	0.12387 0.0001 4118	0.57622 0.0001 4118	-0.04784 0.0001 4118	0.02326 0.0001 4118
P4HN	-0.07443 0.0001 4118	-0.00270 0.0001 4118	-0.10850 0.0001 4118	-0.11037 0.0001 4118	-0.18962 0.0001 4118	0.13544 0.0001 4118	-0.01100 0.4805 4118	0.08263 0.0001 4117	0.14566 0.0001 4118	-0.14967 0.0001 4118	-0.05288 0.0001 4118	0.02555 0.0001 4118	0.00893 0.0001 4118
LOGMIN	0.06625 0.0001 4118	0.09378 0.0001 4118	-0.14526 0.0001 4118	-0.11158 0.0001 4118	-0.01118 0.4730 4118	0.35184 0.0001 4118	0.06886 0.0001 4118	-0.12120 0.0001 4117	0.15526 0.0001 4118	-0.15926 0.0001 4118	-0.02001 0.1591 4118	0.16759 0.0001 4118	0.12136 0.0001 4118
PRC	-0.67114 0.0001 4118	-0.13268 0.0001 4118	-0.26814 0.0001 4118	-0.21382 0.0001 4118	-0.38575 0.0001 4118	-0.44489 0.0001 4118	-0.16277 0.3004 4118	0.21651 0.0001 4117	-0.00952 0.5412 4118	0.00952 0.5413 4118	0.39153 0.0001 4118	-0.46547 0.0001 4118	-0.53573 0.0001 4118
PTMOVE	0.28139 0.0001 4118	0.07512 0.0001 4118	0.19892 0.0001 4118	0.06605 0.0001 4118	0.24028 0.0001 4118	0.24556 0.0001 4118	0.05856 0.0002 4118	-0.09137 0.0001 4117	0.10963 0.0001 4118	-0.10963 0.0001 4118	-0.10518 0.0001 4118	0.14522 0.0001 4118	0.18553 0.0001 4118
PA064	0.20350 0.0001 4118	0.16755 0.0001 4118	0.12432 0.0001 4118	0.15087 0.0001 4118	0.19783 0.0001 4118	0.05989 0.0001 4118	0.01534 0.3345 4118	-0.70339 0.0001 4117	-0.31047 0.0001 4118	0.31047 0.0001 4118	-0.04624 0.0001 4118	0.05145 0.0001 4118	0.00445 0.0001 4118
YSPMH	0.14901 0.0001 4117	0.21252 0.0001 4117	0.30650 0.0001 4117	0.28320 0.0001 4117	0.53121 0.0001 4117	0.08089 0.0001 4117	0.05538 0.0004 4117	-0.73807 0.0001 4117	-0.21113 0.0001 4117	0.21113 0.0001 4117	0.02572 0.0215 4117	-0.00612 0.6348 4117	-0.13469 0.0001 4117
PBN	1.00000 0.0000 4118	0.17251 0.0001 4118	0.30618 0.0001 4118	0.25972 0.0001 4118	0.54467 0.0001 4118	0.25128 0.0001 4118	-0.21167 0.0001 4118	-0.30141 0.0001 4117	-0.16638 0.0001 4118	0.16638 0.0001 4118	0.05072 0.0001 4118	0.23245 0.0001 4118	0.33362 0.0001 4118
PCHN	0.15251 0.0001 4118	1.00000 0.0000 4118	0.09386 0.0001 4118	0.15595 0.0001 4118	0.16153 0.0001 4118	0.07409 0.0001 4118	0.21791 0.0001 4118	-0.19698 0.0001 4117	0.08743 0.0001 4118	-0.08743 0.0001 4118	0.08835 0.0001 4118	0.01405 0.3672 4118	-0.02426 0.1196 4118
PECU	0.39618 0.0001 4118	0.09796 0.0001 4118	1.00000 0.0000 4118	0.72039 0.0001 4118	0.50572 0.0001 4118	0.35705 0.0001 4118	0.07177 0.0001 4118	-0.29531 0.0001 4117	-0.38762 0.0001 4118	0.38763 0.0001 4118	-0.09326 0.0001 4118	0.00978 0.5474 4118	-0.01657 0.2877 4118

STATISTICAL ANALYSIS SYSTEM

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CORRELATION COEFFICIENTS / PROB > |r| UNDER H0:RHO=0 / NUMBER OF OBSERVATIONS

	PBN	PCIN	PEU	PEUSTU	PATR	PSCAN	PJAPA	PAHH	PM	PF	PBS	PGR	PNEH
PEDUSTU	0.25972 0.0001 4118	0.15595 0.0001 4118	0.72009 0.0001 4118	1.00000 0.0000 4118	0.47240 0.0001 4118	0.04589 0.0001 4118	0.07012 0.0001 4118	-0.32991 0.0001 4117	-0.71519 0.0001 4118	0.71519 0.0001 4118	-0.03531 0.0001 4118	0.04276 0.0001 4118	-0.01487 0.3402 4118
PATR	0.54467 0.0001 4118	0.16153 0.0001 4118	0.50572 0.0001 4118	0.47249 0.0001 4118	1.00000 0.0000 4118	0.12361 0.0001 4118	0.16141 0.0001 4118	-0.63637 0.0001 4117	-0.34102 0.0001 4118	0.74102 0.0001 4118	0.19182 0.0001 4118	0.18528 0.0001 4118	0.14735 0.0001 4118
PSCAN	0.25128 0.0001 4118	0.07409 0.0001 4118	0.05705 0.0002 4118	0.04639 0.0002 4118	0.12361 0.0001 4118	1.00000 0.0000 4118	0.11527 0.0001 4118	-0.08143 0.0001 4117	0.15079 0.0001 4118	-0.15079 0.0001 4118	-0.12422 0.0001 4118	0.43013 0.0001 4118	0.23633 0.0001 4118
PJAPA	0.21167 0.0001 4118	0.21791 0.0001 4118	0.07177 0.0001 4118	0.07312 0.0001 4118	0.16141 0.0001 4118	0.11527 0.0001 4118	1.00000 0.0000 4118	-0.06386 0.0001 4117	0.00021 0.0001 4118	-0.00021 0.0001 4118	0.08178 0.0001 4118	0.07162 0.0001 4118	0.10565 0.0001 4118
PAHH	-0.30141 0.0001 4117	-0.19698 0.0001 4117	-0.29531 0.0001 4117	-0.32981 0.0001 4117	-0.63637 0.0001 4117	-0.08143 0.0001 4117	-0.06386 0.0001 4117	1.00000 0.0000 4117	0.41134 0.0001 4117	-0.41134 0.0001 4117	-0.05328 0.0001 4117	-0.06010 0.0001 4117	0.01701 0.2753 4117
PM	-0.16638 0.0001 4118	0.08742 0.0001 4118	-0.38762 0.0001 4118	-0.31519 0.0001 4118	-0.34102 0.0001 4118	0.15079 0.0001 4118	0.00021 0.0001 4118	0.41134 0.0001 4117	1.00000 0.0000 4118	-1.00000 0.0001 4118	0.00646 0.0001 4118	0.08554 0.0001 4118	0.02423 0.0001 4118
PF	0.16638 0.0001 4118	-0.08742 0.0001 4118	0.38763 0.0001 4118	0.31519 0.0001 4118	0.34102 0.0001 4118	-0.15079 0.0001 4118	-0.00021 0.0001 4118	-0.41134 0.0001 4117	-1.00000 0.0001 4118	1.00000 0.0000 4118	-0.00647 0.0001 4118	-0.08554 0.0001 4118	-0.09423 0.0001 4118
PBS	0.05072 0.0001 4118	0.09835 0.0001 4118	-0.09326 0.0001 4118	-0.03531 0.0001 4118	0.19183 0.0001 4118	-0.12422 0.0001 4118	0.0001 0.0001 4118	-0.05328 0.0001 4117	0.00646 0.0001 4118	-0.00647 0.0001 4118	1.00000 0.0000 4118	-0.10938 0.0001 4118	-0.10940 0.0001 4118
PGR	0.23245 0.0001 4118	0.01405 0.3672 4118	0.00538 0.5474 4118	0.04276 0.0001 4118	0.18928 0.0001 4118	0.43013 0.0001 4118	0.0001 0.0001 4118	-0.41134 0.0001 4117	0.08554 0.0001 4118	-0.08554 0.0001 4118	-0.10238 0.0001 4118	1.00000 0.0000 4118	0.44009 0.0001 4118
PNEH	0.39362 0.0001 4118	-0.02426 0.1166 4118	-0.01657 0.2877 4118	-0.01487 0.3402 4118	0.14735 0.0001 4118	0.23633 0.0001 4118	0.10565 0.0001 4118	0.31701 0.2753 4117	0.08423 0.0001 4118	-0.08423 0.0001 4118	-0.13940 0.0001 4118	-0.44009 0.0001 4118	1.00000 0.0000 4118
PBO	0.67916 0.0001 4118	0.34197 0.0001 4118	0.31527 0.0001 4118	0.29161 0.0001 4118	0.61275 0.0001 4118	0.13013 0.0001 4118	0.23696 0.0001 4118	-0.38954 0.0001 4117	-0.13103 0.0001 4118	0.12102 0.0001 4118	0.55528 0.0001 4118	0.14896 0.0001 4118	0.14588 0.0001 4118
P2034	0.12342 0.0001 4118	0.09683 0.0001 4118	0.28225 0.0001 4118	0.27630 0.0001 4118	0.50438 0.0001 4118	-0.11495 0.0001 4118	0.05119 0.0001 4118	-0.30922 0.0001 4117	-0.19598 0.0001 4118	0.19598 0.0001 4118	0.15878 0.0001 4118	-0.11861 0.0001 4118	-0.12330 0.0001 4118
PFRH	-0.64301 0.0001 4118	-0.13115 0.0001 4118	-0.20955 0.0001 4118	-0.21274 0.0001 4118	-0.39011 0.0001 4118	-0.38255 0.0001 4118	-0.15958 0.0001 4118	0.17642 0.0001 4117	-0.03637 0.0001 4118	0.03637 0.0001 4118	-0.10894 0.0001 4118	-0.44249 0.0001 4118	-0.44828 0.0001 4118

STATISTICAL ANALYSIS SYSTEM

CORRELATION COEFFICIENTS / PROB > |R| UNDER H0:RHO=0 / NUMBER OF OBSERVATIONS

	PBN	PCHN	PEDU	PEDUSTU	PARTR	PSCAN	PJAPA	PAHH	PM	PF	PBS	PGR	PNETP
PITH	0.02890	0.02590	-0.09827	-0.04737	0.16076	-0.11977	0.06480	-0.02596	-0.01004	0.01003	0.93662	-0.10809	-0.11003
	0.06166	0.0965	0.0001	0.0024	0.0001	0.0001	0.0001	0.0959	0.5196	0.5197	0.0001	0.0001	0.0001
	4118	4118	4118	4118	4118	4118	4118	4118	4118	4118	4118	4118	4118
PEDIO	-0.58294	-0.00377	-0.74724	-0.53233	-0.39501	-0.18511	-0.10413	-0.07154	0.23663	-0.23663	0.18685	-0.15177	-0.21364
	0.0001	0.0090	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	4118	4118	4118	4118	4118	4118	4118	4118	4118	4118	4118	4118	4118
PCWN	0.01627	-0.16003	-0.17450	-0.17239	-0.38538	0.15885	0.00842	0.55595	0.29572	-0.29572	-0.15085	0.21016	0.25668
	0.2967	0.0001	0.0001	0.0001	0.0001	0.0001	0.5893	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117
PRSHORT	0.0041	0.14586	0.33154	0.14955	0.37659	0.06034	0.07871	-0.18019	-0.16167	0.16167	0.12272	0.00035	0.03047
	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.9820	0.0506
	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117
PYLF	-0.28040	-0.12659	-0.38628	-0.23019	-0.34885	0.16111	-0.04973	0.35115	0.25768	-0.25768	-0.18023	0.18336	0.16936
	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117
PTFLF	0.38331	0.13680	0.45745	0.42578	0.70001	-0.04106	0.09599	-0.65356	-0.65356	0.65690	0.14201	0.02196	-0.03692
	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.1529	0.6570
	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117
PFLF	0.35346	0.13001	0.41576	0.42000	0.66370	-0.04727	0.09047	-0.61827	-0.61827	0.68387	0.12503	0.01545	-0.00849
	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.3213	0.5260
	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117
PAG	-0.16799	-0.08996	-0.24929	-0.19877	-0.13809	0.35575	-0.05241	0.06335	0.28503	-0.28502	-0.16253	0.39504	0.24583
	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117
AVTEAM	0.37550	-0.11291	0.15870	0.09714	0.36731	0.38589	0.07671	-0.14242	-0.23491	0.23491	0.11403	0.16418	0.19195
	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	4118	4118	4118	4118	4118	4118	4118	4118	4118	4118	4118	4118	4118
PSEC	-0.01105	-0.04867	-0.31623	-0.28271	-0.07145	-0.35574	0.03356	0.11244	0.03871	-0.03871	0.32153	-0.22437	-0.06711
	0.4785	0.0018	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0655	0.0654	0.0001	0.0001	0.0001
	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117
POPW	-0.18265	-0.05077	-0.17327	-0.14923	-0.34007	0.08213	-0.02349	0.24040	0.25672	-0.25672	-0.11204	-0.06824	-0.08931
	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117
PTO	0.26271	0.15362	0.60319	0.51381	0.37130	-0.06082	0.03157	-0.29088	-0.42646	0.42646	-0.07267	-0.12448	-0.12262
	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0428	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117
DIMHIO	0.40201	-0.03570	0.67722	0.38431	0.21345	0.03563	0.6181	0.24634	-0.10028	0.10028	-0.07890	0.03449	0.11189
	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0269	0.0001
	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117

S T A T I S T I C A L A N A L Y S I S S Y S T E M

CORRELATION COEFFICIENTS / PROB > |R| UNDER H0:RHO=0 / NUMBER OF OBSERVATIONS

	PRN	PCHN	BEQ	PEDESTU	PARTR	PSCAN	PJAPA	PAHH	PM	PF	PBS	PCER	PNEIM
PFINC	0.39586	0.02662	0.78867	0.51570	0.34676	-0.05010	0.08241	0.02491	-0.23383	0.23383	0.03316	-0.04141	0.01747
	0.0001	0.0001	0.0001	0.0001	0.0001	0.0013	0.0001	0.1101	0.0001	0.0001	0.0334	0.0079	0.2625
PTENVC	0.51942	0.02126	0.66583	0.41359	0.43705	-0.03583	0.11590	0.07693	-0.22868	0.22868	0.08676	-0.01033	0.08548
	0.0001	0.1737	0.0001	0.0001	0.0001	0.0215	0.0001	0.0031	0.0001	0.0001	0.0001	0.5077	0.0001
POLDMH	0.22345	0.18714	0.08768	0.12568	0.25725	0.12890	0.01601	-0.72129	-0.24378	0.24378	-0.03402	0.11219	0.06900
	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.3045	0.0031	0.0001	0.0001	0.0259	0.0001	0.0001
PEXHH	-0.27234	0.01022	-0.31176	-0.20535	-0.33369	-0.13409	0.02032	0.38870	0.12111	-0.12712	0.36388	-0.31700	-0.25816
	0.0001	0.5122	0.0001	0.0001	0.0001	0.0001	0.1925	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
PTOMH	0.42725	0.11042	0.42276	0.34925	0.71939	0.11236	0.07811	-0.36094	-0.45258	0.45258	0.03294	0.10339	0.04589
	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0346	0.0001	0.0032
PNO	-0.23505	-0.51181	0.06942	-0.06515	0.33235	0.35867	-0.80300	0.31040	-0.29238	-0.17001	0.26753	0.01207	0.03994
	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0031	0.0001	0.0001	0.0001	0.4387	0.0104
PNR	0.57266	0.21046	-0.50889	-0.39354	-0.45322	-0.05212	0.35756	-0.18191	0.25790	0.23321	-0.11597	0.16269	-0.14602
	0.0001	0.0001	0.0001	0.0001	0.0001	0.0008	0.0001	0.0031	0.0001	0.0001	0.0001	0.0001	0.0001
PRES10	-0.32035	-0.60737	0.05275	-0.10626	0.35632	0.50260	-0.92624	0.36026	-0.27942	-0.25483	0.40523	-0.05635	-0.01775
	0.0001	0.0001	0.0007	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0003	0.2548
LOGRES	-0.23505	-0.51181	0.06942	-0.06515	0.33235	0.35867	-0.80300	0.31040	-0.29238	-0.17001	0.26753	0.01207	0.03994
	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0031	0.0001	0.0001	0.0001	0.4387	0.0104
PFR	-0.55765	0.09185	0.99372	-0.05933	0.41837	-0.24485	-0.06358	0.07025	-0.18797	-0.15751	-0.08088	-0.34447	0.15075
	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0031	0.0001	0.0001	0.0001	0.0001	0.0001
LOGFR	-0.49019	0.15198	0.28509	-0.05262	0.35371	-0.31408	0.02130	0.00748	-0.12217	-0.10351	-0.13911	-0.31958	0.14158
	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.1719	0.6312	0.0001	0.0001	0.0001	0.0001	0.0001
PIT	0.54489	0.14345	-0.11745	0.97363	0.12947	-0.11242	0.10559	-0.17959	0.12047	0.11800	-0.17854	0.17179	0.33580
	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0031	0.0001	0.0001	0.0001	0.0001	0.0001
LOGITAL	0.66145	0.26548	-0.26259	0.35587	-0.18831	-0.25123	0.35418	-0.30134	0.32175	0.30612	-0.35131	0.31850	0.33221
	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

STATISTICAL ANALYSIS SYSTEM

4:19 WEDNESDAY, NOVEMBER 25, 1981

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CORRELATION COEFFICIENTS / PROB > |R| UNDER H0:RHO=0 / NUMBER OF OBSERVATIONS

	PRO	P203A	PFRH	RTH	PEDIO	FCMN	PRSHORT	PYLF	PTFLF	PFLF	PAG	ANIFAN	PSEC
PNTN	-0.07567	-0.06301	-0.09581	-0.05111	0.09766	0.08134	0.00223	0.02630	-0.14534	-0.16552	0.12902	-0.17316	-0.12879
	0.0001	0.0001	0.0001	0.0010	0.0001	0.0001	0.0001	0.0916	0.0001	0.0001	0.0001	0.0001	0.0001
	4118	4112	4118	4118	4118	4117	4117	4117	4117	4117	4117	4118	4117
LGNIN	0.07042	0.00565	-0.20501	-0.03592	0.11335	-0.03134	0.12739	0.04744	-0.05883	-0.07630	0.15299	-0.16624	-0.15597
	0.0001	0.7150	0.0001	0.2212	0.0001	0.0444	0.0001	0.0023	0.0002	0.0001	0.0001	0.0001	0.0001
	4118	4118	4118	4118	4118	4117	4117	4117	4117	4117	4117	4118	4117
PRC	-0.44100	0.12655	0.51687	0.10655	0.45137	-0.26782	-0.07389	0.02892	-0.16659	-0.12880	-0.13575	-0.36585	0.21997
	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0636	0.0001	0.0001	0.0001	0.0001	0.0001
	4118	4118	4118	4118	4118	4117	4117	4117	4117	4117	4117	4118	4117
PTMOVE	0.11331	0.49527	-0.19003	-0.11583	-0.25587	-0.23641	0.71662	-0.16237	0.06986	0.03940	-0.15069	-0.01237	-0.13572
	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0115	0.0001	0.4273	0.0001
	4118	4112	4118	4118	4118	4117	4117	4117	4117	4117	4117	4118	4117
PAC6A	0.21063	-0.21775	-0.16615	-0.36140	0.19085	-0.19410	-0.20234	-0.10547	0.43571	0.42472	0.10809	-0.10840	-0.21265
	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	4118	4118	4118	4118	4118	4117	4117	4117	4117	4117	4117	4118	4117
YSPHM	0.28146	0.49150	0.60748	0.30347	0.05315	-0.63905	0.36782	-0.36151	0.45151	0.45330	-0.11239	-0.26075	-0.14771
	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117	4117
PBN	0.67916	0.12742	-0.64701	0.02880	-0.54254	0.01627	0.30941	-0.22940	0.38333	0.35946	-0.16799	0.37550	-0.01105
	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	4118	4118	4118	4118	4118	4117	4117	4117	4117	4117	4117	4118	4117
PCHIN	0.34397	0.09693	-0.13135	0.02590	-0.00377	-0.16203	0.14586	-0.12659	0.12680	0.13001	-0.08996	-0.11281	-0.04867
	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	4118	4118	4118	4118	4118	4117	4117	4117	4117	4117	4117	4118	4117
PEDU	0.33527	0.28225	-0.20955	-0.09827	-0.74724	-0.17450	0.33154	-0.38628	0.45345	0.41576	-0.24929	0.15870	-0.31623
	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	4118	4118	4118	4118	4118	4117	4117	4117	4117	4117	4117	4118	4117
PEDUSTU	0.29161	0.27630	-0.21276	-0.04737	-0.53233	-0.17239	0.14955	-0.23019	0.42578	0.42000	-0.15277	0.09714	-0.23271
	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	4118	4118	4118	4118	4118	4117	4117	4117	4117	4117	4117	4118	4117
PARTR	0.61275	0.50458	-0.39011	0.16076	-0.39501	-0.38528	0.37659	-0.34835	0.70001	0.66370	-0.13809	0.36731	-0.07145
	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	4118	4118	4118	4118	4118	4117	4117	4117	4117	4117	4117	4118	4117
PSCAN	0.13013	-0.11495	-0.39255	-0.11577	-0.18511	0.15685	0.06034	0.16111	-0.04106	-0.04727	0.35575	0.08589	-0.35534
	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	4118	4118	4118	4118	4118	4117	4117	4117	4117	4117	4117	4118	4117
PJAPA	0.25895	0.05179	-0.15458	0.06480	-0.10413	0.33842	0.07871	-0.34973	0.04599	0.05047	-0.05241	0.07671	0.03356
	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	4118	4118	4118	4118	4118	4117	4117	4117	4117	4117	4117	4118	4117

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STATISTICAL ANALYSIS SYSTEM

CORRELATION COEFFICIENTS / PROB > |P| UNDER H0:RHO=0 / NUMBER OF OBSERVATIONS

	PRO	P2034	PFPM	PITH	PEDIO	PQNN	PRSHORT	PVLF	P1FLF	PFLF	PAG	AVTEAM	PSEC
PAHM	-0.38954 0.0001 4117	-0.30922 0.0001 4117	0.17642 0.0001 4117	-0.02556 0.0959 4117	-0.07154 0.0001 4117	0.55505 0.0001 4117	-0.18019 0.0001 4117	0.35115 0.0001 4117	-0.65356 0.0001 4117	-0.61827 0.0001 4117	0.06335 0.0001 4117	-0.14242 0.0001 4117	0.11244 0.0001 4117
PM	-0.13103 0.0001 4118	-0.19598 0.0001 4118	-0.03637 0.01004 4118	0.01004 0.5196 4118	0.23463 0.0001 4118	0.25572 0.0001 4117	-0.10167 0.0001 4117	0.25768 0.0001 4117	-0.65690 0.0001 4117	-0.68387 0.0001 4117	0.28503 0.0001 4117	-0.23491 0.0001 4118	0.02871 0.0001 4117
PF	0.13102 0.0001 4118	0.19598 0.0001 4118	0.03637 0.01004 4118	0.01004 0.5196 4118	0.23463 0.0001 4118	-0.29572 0.0001 4117	0.10167 0.0001 4117	-0.25768 0.0001 4117	0.65690 0.0001 4117	-0.68387 0.0001 4117	0.28502 0.0001 4117	0.23491 0.0001 4118	-0.02871 0.0001 4117
PBS	0.59528 0.0001 4118	0.15878 0.0001 4118	-0.10894 0.0001 4118	0.93662 0.0001 4118	0.18685 0.0001 4118	-0.15085 0.0001 4117	0.12272 0.0001 4117	-0.18023 0.0001 4117	0.14201 0.0001 4117	0.12903 0.0001 4117	-0.16293 0.0001 4117	0.11403 0.0001 4118	0.32153 0.0001 4117
PGR	0.14896 0.0001 4118	-0.11861 0.0001 4118	-0.44248 0.0001 4118	-0.19839 0.0001 4118	-0.15177 0.0001 4118	0.21016 0.0001 4117	0.00935 0.9820 4117	0.18536 0.0001 4117	0.02196 0.1589 4117	0.01546 0.3213 4117	0.38504 0.0001 4117	0.16418 0.0001 4118	-0.22437 0.0001 4117
PNETH	0.14589 0.0001 4118	-0.12330 0.0001 4118	-0.44828 0.0001 4118	-0.11033 0.0001 4118	-0.21366 0.0001 4118	0.25668 0.0001 4117	0.03347 0.0506 4117	0.16936 0.0001 4117	-0.00692 0.6570 4117	-0.00849 0.5860 4117	0.24583 0.0001 4117	0.19195 0.0001 4118	-0.05711 0.0001 4117
PBO	1.00000 0.0000 4118	0.24900 0.0000 4118	-0.53402 0.0001 4118	0.51542 0.0001 4118	-0.25151 0.0001 4118	-0.19672 0.0001 4117	0.33015 0.0001 4117	-0.35104 0.0001 4117	0.46289 0.0001 4117	0.42261 0.0001 4117	-0.15106 0.0001 4117	0.29245 0.0001 4118	0.12328 0.0001 4117
P2034	0.24900 0.0001 4118	1.00000 0.0000 4118	0.24900 0.0001 4118	0.13957 0.0001 4118	-0.14359 0.0001 4118	-0.57715 0.0001 4117	0.70441 0.0001 4117	-0.48605 0.0001 4117	0.40314 0.0001 4117	0.36240 0.0001 4117	-0.40802 0.0001 4117	0.00528 0.7350 4118	0.10410 0.0001 4117
PFPM	-0.53402 0.0001 4118	0.09525 0.0001 4118	1.00000 0.0000 4118	-0.03484 0.0001 4118	0.41536 0.0001 4118	-0.25264 0.0001 4117	-0.08253 0.0001 4117	0.05734 0.0001 4117	-0.17473 0.0001 4117	-0.14554 0.0001 4117	-0.07619 0.0001 4117	-0.33122 0.0001 4118	0.15399 0.0001 4117
PITH	0.51542 0.0001 4118	0.13957 0.0001 4118	-0.03484 0.0001 4118	0.00000 0.0000 4118	0.17720 0.0001 4118	-0.11544 0.0001 4117	0.09107 0.0001 4117	-0.16651 0.0001 4117	0.11853 0.0001 4117	0.10550 0.0001 4117	-0.14339 0.0001 4117	0.13971 0.0001 4118	0.31214 0.0001 4117
PEDIO	-0.25151 0.0001 4118	-0.14399 0.0001 4118	0.41536 0.0001 4118	0.17720 0.0001 4118	1.00000 0.0000 4118	-0.15677 0.0001 4117	-0.30648 0.0001 4117	0.17017 0.0001 4117	-0.23042 0.0001 4117	-0.21758 0.0001 4117	0.19765 0.0001 4117	-0.33384 0.0001 4118	0.26983 0.0001 4117
PQNN	-0.18672 0.0001 4117	-0.57715 0.0001 4117	-0.25264 0.0001 4118	-0.11244 0.0001 4117	-0.15677 0.0001 4117	1.00000 0.0000 4117	-0.54511 0.0001 4117	0.34769 0.0001 4117	-0.48266 0.0001 4117	-0.47232 0.0001 4117	0.34940 0.0001 4117	0.13836 0.0001 4117	-0.05037 0.0001 4117
PRESMCPT	0.33015 0.0001 4117	0.70441 0.0001 4117	-0.08253 0.0001 4117	0.09137 0.0001 4117	-0.30648 0.0001 4117	-0.54511 0.0001 4117	1.00000 0.0000 4117	-0.38939 0.0001 4117	0.31117 0.0001 4117	0.27893 0.0001 4117	-0.41488 0.0001 4117	0.05162 0.0001 4117	0.01945 0.0001 4117

STATISTICAL ANALYSIS SYSTEM

CORRELATION COEFFICIENTS / PROB > |R| UNDER H0:RHO=0 / NUMBER OF OBSERVATIONS

	PBO	P203A	PFRH	PITH	PED10	PCWN	PRSHORT	PYLF	PTFLF	PELF	PAG	AVTEAM	PSEC
PVLF	-0.36104 0.0001 4117	-0.48605 0.0001 4117	0.05704 0.0003 4117	-0.16651 0.0001 4117	0.17017 0.0001 4117	0.34769 0.0001 4117	-0.38959 0.0001 4117	1.00000 0.0000 4117	-0.46689 0.0001 4117	-0.31597 0.0001 4117	0.38077 0.0001 4117	-0.18809 0.0001 4117	-0.11033 0.0001 4117
PTFLF	0.46289 0.0001 4117	0.40314 0.0001 4117	-0.17473 0.0001 4117	0.11853 0.0001 4117	-0.23042 0.0001 4117	-0.48266 0.0001 4117	0.31117 0.0001 4117	-0.46689 0.0001 4117	1.00000 0.0000 4117	0.57329 0.0001 4117	-0.24620 0.0001 4117	0.14402 0.0001 4117	-0.12561 0.0001 4117
PPLF	0.42261 0.0001 4117	0.36240 0.0001 4117	-0.14554 0.0001 4117	0.10550 0.0001 4117	-0.21758 0.0001 4117	-0.47232 0.0001 4117	0.27853 0.0001 4117	-0.31597 0.0001 4117	0.97229 0.0001 4117	1.00000 0.0000 4117	-0.26758 0.0001 4117	0.10787 0.0001 4117	-0.11431 0.0001 4117
PAG	-0.15105 0.0001 4117	-0.40802 0.0001 4117	-0.07619 0.0001 4117	-0.14339 0.0001 4117	0.13765 0.0001 4117	0.34940 0.0001 4117	-0.44148 0.0001 4117	0.38077 0.0001 4117	-0.24120 0.0001 4117	-0.26798 0.0001 4117	1.00000 0.0000 4117	-0.07619 0.0001 4117	-0.42502 0.0001 4117
AVTEAM	0.29245 0.0001 4117	0.00528 0.0001 4117	-0.33122 0.0001 4117	0.13971 0.0001 4117	-0.33384 0.0001 4117	0.13836 0.0001 4117	0.05142 0.0001 4117	-0.18808 0.0001 4117	0.14402 0.0001 4117	0.10787 0.0001 4117	-0.07619 0.0001 4117	1.00000 0.0000 4117	0.19414 0.0001 4117
PSEC	0.12328 0.0001 4117	0.10410 0.0001 4117	0.15299 0.0001 4117	0.31214 0.0001 4117	0.26583 0.0001 4117	0.03037 0.0001 4117	0.31945 0.0001 4117	-0.11033 0.0001 4117	-0.12561 0.0001 4117	-0.11431 0.0001 4117	-0.42502 0.0001 4117	0.19414 0.0001 4117	1.00000 0.0000 4117
POPW	-0.22635 0.0001 4117	-0.06380 0.0001 4117	0.04028 0.0001 4117	-0.10572 0.0001 4117	0.11405 0.0001 4117	0.16432 0.0001 4117	-0.08512 0.0001 4117	0.11831 0.0001 4117	-0.40383 0.0001 4117	-0.40905 0.0001 4117	-0.01543 0.0001 4117	-0.20459 0.0001 4117	-0.22790 0.0001 4117
PTC	0.18855 0.0001 4117	0.32185 0.0001 4117	-0.08547 0.0001 4117	-0.08643 0.0001 4117	-0.43281 0.0001 4117	0.78546 0.0001 4117	0.41424 0.0001 4117	-0.31974 0.0001 4117	0.55356 0.0001 4117	0.56662 0.0001 4117	-0.54302 0.0001 4117	0.03764 0.0001 4117	-0.16739 0.0001 4117
PINM10	0.21123 0.0001 4117	-0.00555 0.0001 4117	-0.23455 0.0001 4117	-0.00320 0.0001 4117	-0.80587 0.0001 4117	0.15817 0.0001 4117	0.24766 0.0001 4117	-0.15911 0.0001 4117	0.06310 0.0001 4117	0.05735 0.0001 4117	-0.25359 0.0001 4117	0.27547 0.0001 4117	-0.08675 0.0001 4117
PINC	0.33612 0.0001 4117	0.04076 0.0001 4117	-0.10993 0.0001 4117	0.02456 0.0001 4117	-0.73913 0.0001 4117	0.04937 0.0001 4117	0.19381 0.0001 4117	-0.24780 0.0001 4117	0.25155 0.0001 4117	0.24119 0.0001 4117	-0.25741 0.0001 4117	0.23406 0.0001 4117	-0.10278 0.0001 4117
PENINC	0.40087 0.0001 4117	0.19174 0.0001 4117	-0.25575 0.0001 4117	0.08179 0.0001 4117	-0.77810 0.0001 4117	0.02128 0.0001 4117	0.36118 0.0001 4117	-0.30099 0.0001 4117	0.29003 0.0001 4117	0.28067 0.0001 4117	-0.43675 0.0001 4117	0.37319 0.0001 4117	0.05565 0.0001 4117
POLDWH	0.22779 0.0001 4117	-0.16412 0.0001 4117	-0.26386 0.0001 4117	-0.35520 0.0001 4117	0.17316 0.0001 4117	-0.20579 0.0001 4117	-0.12408 0.0001 4117	-0.10574 0.0001 4117	0.34570 0.0001 4117	0.31515 0.0001 4117	0.16612 0.0001 4117	-0.03229 0.0001 4117	-0.18318 0.0001 4117
PEXHH	-0.00308 0.0001 4117	-0.12643 0.0001 4117	0.07508 0.0001 4117	0.35165 0.0001 4117	0.28274 0.0001 4117	0.20557 0.0001 4117	-0.29446 0.0001 4117	0.02933 0.0001 4117	-0.27068 0.0001 4117	-0.25280 0.0001 4117	-0.16709 0.0001 4117	-0.06742 0.0001 4117	0.32856 0.0001 4117

S T A T I S T I C A L A N A L Y S I S S Y S T E M

CORRELATION COEFFICIENTS / PROB > |R| UNDER H0:RHO=0 / NUMBER OF OBSERVATIONS

	PBO	P203A	DFRM	DI14	PE010	PCWN	PRSHORT	PYLF	DI14F	DELF	PAG	AUFAM	DSEC
PTDMH	0.43226 0.0001 4117	0.37472 0.0001 4117	-0.23422 0.0001 4117	0.02216 0.1551 4117	-0.15642 0.0001 4117	-0.49209 0.0001 4117	0.29563 0.0001 4117	-0.43505 0.0001 4117	0.61222 0.0001 4117	0.55487 0.0001 4117	-0.11209 0.0001 4117	0.30465 0.0001 4117	-0.07726 0.0001 4117
PNR	-0.03402 0.0290 4117	0.25504 0.0001 4117	0.27621 0.0001 4117	0.28089 0.0001 4116	0.32211 0.0001 4116	0.19425 0.0001 4117	-0.29256 0.0001 4117	0.38325 0.0001 4117					
PRESIO	0.11609 0.0001 4117	-0.42317 0.0001 4117	-0.34668 0.0001 4117	-0.2716 0.0001 4116	-0.44212 0.0001 4116	0.19262 0.0001 4117	0.29203 0.0001 4117	-0.23436 0.0001 4117					
LOGRES	0.04455 0.0042 4117	-0.32672 0.0001 4117	-0.32920 0.0001 4117	-0.23374 0.0001 4116	-0.37655 0.0001 4116	0.22590 0.0001 4117	0.20767 0.0001 4117	-0.11059 0.0001 4117					
PFR	0.05643 0.0003 4117	-0.08792 0.0001 4117	-0.23769 0.0001 4117	-0.21132 0.0001 4116	-0.26115 0.0001 4116	-0.26226 0.0001 4117	0.06999 0.0001 4117	-0.24836 0.0001 4117					
LOGFR	0.05024 0.0013 4117	-0.32201 0.1580 4117	-0.18414 0.0001 4117	-0.17565 0.0001 4116	-0.18641 0.0001 4116	-0.22564 0.0001 4117	0.30004 0.9998 4117	-0.17679 0.0001 4117					
PIT	-0.10870 0.0001 4117	-0.07202 0.0001 4117	-0.01288 0.4181 4117	0.07004 0.0001 4116	0.14374 0.0001 4116	-0.06326 0.0001 4117	0.33080 0.0001 4117	0.24052 0.0001 4117					
LOGITAL	-0.17924 0.0001 4117	0.16564 0.0001 4117	0.28309 0.0001 4117	0.32727 0.0001 4116	0.49566 0.0001 4116	-0.03635 0.0197 4117	0.04529 0.0037 4117	0.25538 0.0001 4117					
PNIN	0.19197 0.0001 4117	-0.10774 0.0001 4117	-0.08482 0.0001 4117	-0.11778 0.0001 4116	-0.14999 0.0001 4116	0.30512 0.7426 4117	0.06920 0.0001 4117	-0.11922 0.0001 4117					
LOGNIN	0.16706 0.0001 4117	-0.09291 0.0001 4117	-0.17423 0.0001 4117	-0.21109 0.0001 4116	-0.18786 0.0001 4116	0.15884 0.0001 4117	-0.15839 0.0001 4117	0.07034 0.0001 4117					
PRC	0.06122 0.0001 4117	-0.10022 0.0001 4117	-0.26239 0.0001 4117	-0.21549 0.0001 4116	-0.24251 0.0001 4116	-0.29400 0.0001 4117	0.22459 0.0001 4117	-0.28937 0.0001 4117					
PTMOVE	0.03966 0.0110 4117	0.23935 0.0001 4117	0.15465 0.0001 4117	0.04352 0.0052 4116	0.16231 0.0001 4116	-0.30650 0.0001 4117	-0.35005 0.0001 4117	0.17509 0.0001 4117					

CORRELATION COEFFICIENTS / PROB > |R| UNDER H0:RHO=0 / NUMBER OF OBSERVATIONS

	PCPW	PTQ	PIHHQ	PFINC	PTENINC	PCLCHH	PEXHH	PTOHH
PAGSA	-0.15858 0.0001 4117	0.17091 0.0001 4117	-0.27929 0.0001 4117	-0.07169 0.0001 4116	-0.23024 0.0001 4116	0.83496 0.0001 4117	-0.23219 0.0001 4117	0.50637 0.0001 4117
YSPHH	-0.09049 0.0001 4117	0.28394 0.0001 4117	-0.18679 0.0001 4117	-0.03258 0.0001 4116	-0.08178 0.0001 4116	0.42735 0.0001 4117	-0.35746 0.0001 4117	0.75249 0.0001 4117
PBN	-0.19266 0.0001 4117	0.26271 0.0001 4117	0.43201 0.0001 4117	0.39586 0.0001 4116	0.51942 0.0001 4116	0.22345 0.0001 4117	-0.27234 0.0001 4117	0.42725 0.0001 4117
PCMIN	-0.05077 0.0001 4117	0.15262 0.0001 4117	-0.03570 0.0001 4117	0.02662 0.0001 4116	0.02126 0.0001 4116	0.18714 0.0001 4117	0.01022 0.0001 4117	0.11043 0.0001 4117
PEDU	-0.17327 0.0001 4117	0.60319 0.0001 4117	0.67722 0.0001 4117	0.78867 0.0001 4116	0.66513 0.0001 4116	0.08768 0.0001 4117	-0.31176 0.0001 4117	0.42276 0.0001 4117
PEDUSTU	-0.14923 0.0001 4117	0.51381 0.0001 4117	0.38431 0.0001 4117	0.51579 0.0001 4116	0.41358 0.0001 4116	0.12568 0.0001 4117	-0.20536 0.0001 4117	0.34935 0.0001 4117
PARTR	-0.24007 0.0001 4117	0.37130 0.0001 4117	0.21345 0.0001 4117	0.34676 0.0001 4116	0.43705 0.0001 4116	0.25725 0.0001 4117	-0.33869 0.0001 4117	0.71939 0.0001 4117
PSCAN	0.08213 0.0001 4117	-0.06082 0.0001 4117	0.33963 0.0001 4117	-0.05010 0.0001 4116	-0.03583 0.0001 4116	0.12890 0.0001 4117	-0.33408 0.0001 4117	0.11236 0.0001 4117
PJAPA	-0.02349 0.0001 4117	0.03157 0.0001 4117	0.06181 0.0001 4117	0.09241 0.0001 4116	0.11550 0.0001 4116	0.01601 0.0001 4117	0.02032 0.0001 4117	0.37811 0.0001 4117
PAHH	0.24040 0.0001 4117	-0.29082 0.0001 4117	0.24684 0.0001 4117	0.02431 0.0001 4116	0.07693 0.0001 4116	-0.72129 0.0001 4117	0.38870 0.0001 4117	-0.86084 0.0001 4117
PM	0.25672 0.0001 4117	-0.42646 0.0001 4117	-0.10028 0.0001 4117	-0.23393 0.0001 4116	-0.22868 0.0001 4116	-0.24378 0.0001 4117	0.12711 0.0001 4117	-0.45258 0.0001 4117
PF	-0.25672 0.0001 4117	0.42646 0.0001 4117	0.10028 0.0001 4117	0.23383 0.0001 4116	0.22868 0.0001 4116	0.24378 0.0001 4117	-0.12712 0.0001 4117	0.45258 0.0001 4117
PBS	-0.11304 0.0001 4117	-0.07267 0.0001 4117	-0.07890 0.0001 4117	0.03316 0.0001 4116	0.08676 0.0001 4116	-0.02402 0.0001 4117	0.36348 0.0001 4117	0.33294 0.0001 4117

S T A T I S T I C A L A N A L Y S I S S Y S T E M

4:39 WEDNESDAY, NOVEMBER 25, 1981

CORRELATION COEFFICIENTS / PROB > |R| UNDER H0:RHO=0 / NUMBER OF OBSERVATIONS

	POPM	PIO	PIH10	PFINC	PIENINC	PCLDMH	PEXPH	PIDMH
PSEB	-0.06824 0.0001 4117	-0.12448 0.0001 4117	0.03448 0.0269 4117	-0.04141 0.0079 4116	-0.01033 0.5077 4116	0.11219 0.0001 4117	-0.31700 0.0001 4117	0.10339 0.0001 4117
PNEPH	-0.08931 0.0001 4117	-0.12262 0.0001 4117	0.11189 0.0001 4117	0.01747 0.2625 4115	0.08548 0.0001 4116	0.06500 0.0001 4117	-0.25516 0.0001 4117	0.04599 0.0001 4117
PBO	-0.22635 0.0001 4117	0.19856 0.0001 4117	0.21123 0.0001 4117	0.33612 0.0001 4115	0.40083 0.0001 4116	0.22779 0.0001 4117	-0.00308 0.0001 4117	0.43226 0.0001 4117
P2034	-0.06380 0.0001 4117	0.32185 0.0001 4117	-0.00555 0.7218 4117	0.04076 0.0059 4116	0.19104 0.0001 4115	-0.16412 0.0001 4117	-0.12644 0.0001 4117	0.37472 0.0001 4117
PERH	0.04029 0.0097 4117	-0.08547 0.0001 4117	-0.23455 0.0001 4117	-0.19933 0.0001 4116	-0.25575 0.0001 4116	-0.26086 0.0001 4117	0.07503 0.0001 4117	-0.23422 0.0001 4117
BITM	-0.10572 0.0001 4117	-0.08643 0.0001 4117	-0.06920 0.0001 4117	0.02456 0.1151 4116	0.08179 0.0001 4116	-0.05250 0.0001 4117	0.35165 0.0001 4117	0.02216 0.0001 4117
PED10	0.11405 0.0001 4117	-0.48281 0.0001 4117	-0.90587 0.0001 4117	-0.73813 0.0001 4115	-0.77810 0.0001 4116	0.17316 0.0001 4117	0.28274 0.0001 4117	-0.15642 0.0001 4117
POWN	0.16432 0.0001 4117	-0.38546 0.0001 4117	0.15217 0.0001 4117	0.04907 0.0001 4115	0.02329 0.1354 4116	-0.30579 0.0001 4117	0.20557 0.0001 4117	-0.49209 0.0001 4117
PRSHORT	-0.08612 0.0001 4117	0.41484 0.0001 4117	0.24785 0.0001 4117	0.13381 0.0001 4116	0.36118 0.0001 4116	-0.12408 0.0001 4117	-0.29446 0.0001 4117	0.29593 0.0001 4117
PVLF	0.11831 0.0001 4117	-0.31974 0.0001 4117	-0.15911 0.0001 4117	-0.24780 0.0001 4116	-0.30829 0.0001 4116	0.10574 0.0001 4117	0.02983 0.0001 4117	-0.43505 0.0001 4117
PTFLF	-0.40283 0.0001 4117	0.55156 0.0001 4117	0.06310 0.0001 4117	0.25155 0.0001 4115	0.29003 0.0001 4116	0.34570 0.0001 4117	-0.27068 0.0001 4117	0.61222 0.0001 4117
PLFLF	-0.40905 0.0001 4117	0.56662 0.0001 4117	0.05725 0.0001 4117	0.24119 0.0001 4116	0.28067 0.0001 4116	0.31515 0.0001 4117	-0.25280 0.0001 4117	0.55437 0.0001 4117
PAG	-0.01543 0.0001 4117	-0.54802 0.0001 4117	-0.25759 0.0001 4117	-0.29741 0.0001 4116	-0.43675 0.0001 4116	0.16612 0.0001 4117	-0.18709 0.0001 4117	-0.11209 0.0001 4117

STATISTICAL ANALYSIS SYSTEM

4:39 WEDNESDAY, NOVEMBER 25, 1981

CORRELATION COEFFICIENTS / PROB > |R| UNDER H0:RHO=0 / NUMBER OF OBSERVATIONS

	PCPW	PTO	PIHH10	PFINC	PTENINC	POLDHH	PEXHH	PIDHH
AVTEAM	-0.20499 0.0001 4117	0.00764 0.27547 0.0001 4117	0.23406 0.0001 4116	0.37218 0.0001 4116	-0.03229 0.0383 4117	-0.06742 0.0001 4117	0.32865 0.0001 4117	
PSEC	-0.22790 0.0001 4117	-0.08675 0.0001 4117	-0.10278 0.0001 4116	0.05565 0.0004 4116	-0.18218 0.0001 4117	0.32856 0.0001 4117	-0.07726 0.0001 4117	
PCPW	1.00000 0.0000 4117	-0.31207 0.0001 4117	-0.15115 0.0001 4116	-0.17995 0.0001 4116	-0.13088 0.0001 4117	0.16766 0.0001 4117	-0.24337 0.0001 4117	
PTO	-0.21207 0.0001 4117	1.00000 0.0001 4117	0.44820 0.0001 4116	0.45337 0.0001 4116	0.07617 0.0001 4117	-0.20452 0.0001 4117	0.30113 0.0001 4117	
PIHH10	-0.06365 0.0001 4117	0.35027 1.00000 0.0001 4117	0.95923 0.0001 4116	0.90529 0.0001 4116	-0.31937 0.0001 4117	-0.16272 0.0001 4117	-0.04502 0.0001 4117	
PFINC	-0.15115 0.0001 4116	0.44820 0.0001 4116	1.00000 0.0001 4116	0.88700 0.0001 4116	-0.14032 0.0001 4116	-0.11401 0.0001 4116	0.10125 0.0001 4116	
PTENINC	-0.17995 0.0001 4116	0.45337 0.0001 4116	0.38700 0.0001 4116	1.00000 0.0001 4116	-0.27251 0.0001 4116	-0.12286 0.0001 4116	0.10153 0.0001 4116	
POLDHH	-0.13088 0.0001 4117	0.07617 0.0001 4117	-0.31937 0.0001 4116	-0.14032 0.0001 4116	1.00000 0.0001 4117	-0.28272 0.0001 4117	0.02296 0.0001 4117	
PEXHH	0.16766 0.0001 4117	-0.20452 0.0001 4117	-0.16272 0.0001 4117	-0.11401 0.0001 4116	-0.12286 0.0001 4116	1.00000 0.0001 4117	-0.43461 0.0001 4117	
PTCHH	-0.24337 0.0001 4117	0.30113 0.0001 4117	-0.04502 0.0001 4116	0.10153 0.0001 4116	0.62256 0.0001 4117	-0.43461 0.0001 4117	1.00000 0.0001 4117	

APPENDIX 4

DESCRIPTION OF VARIABLES IN THE DATA BASE

Abbreviation	Description
PNR	percentage of population reporting no religion
PRC	percentage of population reporting Roman Catholic
PUC	percentage of population reporting United Church
PANG	percentage of population reporting Anglican
PPRE	percentage of population reporting Presbyterian
PM	percentage of population male
PF	percentage of population female
PBS	percentage of population born in Southern Europe (Italy, Portugal or Spain)
PBN	percentage of population born in Northern Europe (Britain, Germany, Netherlands, Denmark, Norway, Sweden, Finland)
PFR	percentage of population of French ethnicity
PIT	percentage of population of Italian ethnicity
PGER	percentage of population of German ethnicity
PNETH	percentage of population of Netherlands ethnicity
PSCAN	percentage of population of Scandinavian ethnicity
PCHIN	percentage of population of Chinese ethnicity
PJAPA	percentage of population of Japanese ethnicity
PNIN	percentage of population of North American Indian ethnicity
PBYO	percentage of the population between the ages of twenty and thirty-four who were born outside Canada
PBO	percentage of the population born outside Canada
PNOMAR	percentage of the population twenty years and over who have never been married
PAU20	percentage of the population less than twenty years of age
P2034	percentage of the population between twenty and thirty-four years of age
P3564	percentage of the population between thirty-five and sixty-four years of age
PA064	percentage of the population over sixty-four years
PFRH	percentage of the population who speak French at home as their primary language

Abbreviation	Description
PITH	percentage of the population who speak Italian at home as their primary language
PFRHAS	percentage of French ethnic population who speak French at home as their primary language
PIPSH	percentage of the population who speak Italian, Portuguese or Spanish at home as their primary language
PEDIO	percentage of population, age five and over, not attending school, who have a grade ten education or less
PEDU	percentage of population, age five and over, not attending school, who have had at least some university education
PEDUSTU	percentage of population, age five and over, now in school, with at least some university education
PNRM	percentage of male population reporting no religion
PNRF	percentage of female population reporting no religion
PNR20	percentage of the population under twenty reporting no religion
PNR34	percentage of the population age twenty to thirty-four reporting no religion
PNR64	percentage of the population age thirty-five to sixty-four reporting no religion
PNROLD	percentage of the population age sixty-five and over reporting no religion
PSAFH	percentage of households which are single parent family households
POWN	percentage of dwellings owner occupied
PMOVER	percentage of population age five and over who moved inter municipally at least once, between 1966 and 1971
PTMOVE	percentage of population age five and over who moved inter municipally two or more times, between 1966 and 1971
PRSHORT	percentage of dwellings occupied by the same household five years or less
PRES5	percentage of dwellings occupied by the same household for more than five years
PRES10	percentage of dwellings occupied by the same household for more than ten years

Abbreviation	Description
PYLF	percentage of persons in the labour force between fifteen and twenty years of age
PTFLF	percentage of labour force female over twenty years of age
PFLF	percentage of labour force female
PATR	participation rate
PAG	percentage total workers employed in agriculture
PSEC	percentage total workers employed in manufacturing, construction or transportation
POPW	percentage workers employed in primary industries other than agriculture
PTQ	percentage workers employed in public administration, commerce, finance or services
PIHH10	percentage of total households with a head of household who earned 10,000 dollars or more
PF1NC	percentage of primary households with an income of 15,000 dollars or more
PTEN1NC	percentage of primary households with an income of 10,000 dollars or more
POLDHH	percentage of total households which are occupied by one person who is sixty-five years of age or older
PEXHH	percentage of households with some extension of the nuclear family
P4HH	percentage of households with four or more family members
P1PERHH	percentage of households occupied by one person only
PTOHH	total households divided by census tract population
AVTFAM	total families divided by census tract population
ID	census tract (AA) identification number
POP	total persons
NR	persons reporting no religion
RC	persons reporting Roman Catholic denomination
UC	persons reporting United Church denomination
ANG	persons reporting Anglican denomination
PRESB	persons reporting Presbyterian
MALES	males

Abbreviation	Description
Females	Females
BSOEUR	persons born in Italy, Portugal or Spain
BNOEUR	persons born in Britain, Germany, Netherlands, Denmark, Norway, Sweden, Finland
FRENCH	persons of French ethnicity
ITAL	persons of Italian ethnicity
GER	persons of German ethnicity
NETH	persons of Netherlands ethnicity
SCAND	persons of Scandinavian ethnicities
CHINESE	persons of Chinese ethnicity
JAPAN	persons of Japanese ethnicity
NINDIAN	persons of North American Indian ethnicity
BYOUT	persons between the ages of twenty and thirty-four who were born outside Canada
BORNOUT	persons born outside Canada
NOMAR	persons twenty years and over, never married
AU20	persons less than twenty years of age
A20-34	persons twenty to thirty-four years
A35-64	persons thirty-five to sixty-four years
A064	persons sixty-five years and over
AGEAL	persons five years of age and over
FHOME	persons speaking French at home as primary language
ITYHOME	persons speaking Italian at home as primary language
1PSHOME	persons speaking Italian, Portuguese or Spanish at home as primary language
EDTEN	persons, age five and over, not in school, with grade ten education or less
EDU	persons, age five and over, not in school, with at least some university education
EDUSTU	persons, age five and over, in school, with at least some university education
NORELM	males reporting no religion
NORELF	females reporting no religion

Abbreviation	Description
NOREL20	persons less than twenty years of age reporting no religion
NOREL34	persons twenty to thirty-four years of age reporting no religion
NOREL64	persons thirty-five to sixty-four years of age reporting no religion
NORELO	persons sixty-five years of age and over reporting no religion
TFAM	total number of families
SPAFAM	single parent families
TDWELL	total dwellings
OWNED	owner-occupied dwellings
MOVERS	persons, five years of age and over, having moved inter municipally at least once between 1966 and 1971
TWOMOVE	persons, five years of age and over, having moved inter municipally at least twice between 1966 and 1971
RESHORT	dwellings occupied by the same household for five years or less
RESFIVE	dwellings occupied by the same household for more than five years
RESTEN	dwellings occupied by the same household for more than ten years
YLABF	persons in the labour force between fifteen and twenty years of age
TWLABF	persons in the labour force over twenty years of age
LABF	labour force
TWFLABF	females in labour force over twenty years of age
FLABF	female labour force
AGW	persons employed in agriculture
OPW	persons employed in primary industries other than agriculture
MW	persons employed in manufacturing
CW	persons employed in construction
TW	persons employed in transportation and communications

Abbreviation

Description

TRW	persons employed in trade
FLW	persons employed in financial activities
CBW	persons employed in community business and personal services
PAW	persons employed in public administration
WORKIN	total industrial workers
1NHHH10	total number of households whose head earned 10,000 dollars or more
FTINC	family households with an income of 15,000 dollars or more
TENINC	family households with an income of 10,000 dollars or more
OLDHH	single person households occupied by person sixty-five years of age or over
EXHH	households with some extension of the nuclear family
PRIMHH	primary family households
FOURHH	households with four or more persons
ONEPHH	single person households
TOHHLDS	total households
CMA	census tract is/is not a constituent of a census Metropolitan Area
SMALL	census tract is/is not a constituent of a town of less than 5000 population and outside a census Metropolitan Area
TOWN	name of principal center associated with census tract

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