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Elderly housing choice: A case study of Brantford, Ontario

David Owen Diegel
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ELDERLY HOUSING CHOICE: A CASE STUDY OF BRANTFORD, ONTARIO

BY

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(Bachelor of Arts, University of Guelph, 1987)

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Abstract

Elderly Housing Choice: A Case Study of Brantford, Ontario

As Canada's population ages, policy analysts are increasingly concerned with issues related to housing the elderly. Addressing some of these concerns, this thesis provides evidence of the characteristics of the elderly who choose to move to Senior Citizens' Apartments (SCAs), as opposed to staying in their own homes. Choice based sampling and a binary logit analysis are used to investigate the connection between the choice made and the characteristics of the elderly.

The results indicate that being married and owning a car increase the odds of elderly persons staying in their own homes as opposed to moving to an SCA, while renting a home decreases them. Analysis indicates that marital status is strongly related to age, while owing a car is an indicator of independence and perhaps higher income. Renting a home, on the other hand, is related to relatively low income. Thus, those who move to SCA's are expected to be older, widowed, females with reduced personal independence and relatively low income.

Dedication

When I grow old I will experience what it is like to be ederly.
Until then I can only speculate and seek to understand from the
outside; for experiential awareness is personal and ultimately
incommunicable.

G.D. Rowels, 1978, pp. xviii

This thesis is dedicated to all of the seniors who participated in the survey. They gave me their time and let me into their lives. Without them none of this would be possible. I hope that this thesis does justice to the generousity they showed me.

Acknowledgements

As with any thesis mine was not written without the assistance of many people, all of whom made this work possible. Before I begin acknowledging specific people I must thank all of the friends and family who showed concern when they asked how things were going. Their day to day encouragement helped a great deal.

To Dr. Barry Boots and Dr. Bob Sharpe thank you for your careful reviews of the draft copies of this work. More specifically thanks goes to Dr. Boots for his assistance in the statistical part of this paper. Dr. Sharpe deserves thanks for reminding me that all of the numbers I was dealing with were actually people whose lives I had invaded with my questions.

This thesis would never have even been started if it were not for Dr. Pavlos Kanaroglou. Without his constant advice and concern it would not have been possible to complete this work. He gave me much of his time both during and after school hours. I have developed the skills that I have only as a result of his teaching.

Finally my deepest thanks goes to my parents. They have contributed to this thesis in more ways than they know. Aside from their financial support they have provided unmeasurable emotional support. This thesis would probably not ever happened if they had not raised me to care for people and the community in which I live.

David O. Diegel

August 30, 1990

Table of Contents

Abstract i

Dedication ii

Aknowledgements iii

Table of Contents iv

List of Tables v

List of Maps vi

Chapter One - Elderly Housing Choice: A Case Study 1

1.0.0 Introduction 1

1.1.0 Why, Who, Where, What, and How? 2

1.2.0 Outline 4

1.3.0 Conclusion 5

Chapter Two - Elderly Housing Choice: A Literature Review 7

2.0.0 Introduction 7

2.1.0 Theories 8
2.1.1 Disengagement Theory 8
2.1.2 Activity Theory 9

2.2.0 Migration Theories and Models 10
2.2.1 The Push - Pull Theory of Migration 11
2.2.2 The Wiseman and Roseman Model 11
2.2.3 The Nelson and Winter Model 12
2.2.4 Wiseman's Model of Elderly Movement 12

2.3.0 Previous Studies - Social, Economic and Housing 14
2.3.1 Social and Economic Characteristics 15
2.3.2 Housing Characteristics 17

2.4.0 The Decision Process 19
2.4.1 The Decision To Move 19
2.4.2 The Choice of a SCA 21

2.5.0 SCA Location and Segregation 23
2.5.1 Ghetto ? 25

2.6.0 Conclusion 29

Chapter Three - The Study Site: Brantford, Ontario 31

3.0.0 Introduction 31

3.1.0 Study Site Selection 31
3.1.1 City Description 32
3.1.2 City Location 34

3.2.0 City Demographics 34

3.3.0 Aging-in-Place vs Inmigration 38

3.4.0 Current Location Of Seniors In Brantford 41

3.5.0 Location Quotient 44

3.6.0 Conclusions 47

Chapter Four - Data Gathering Techniques 48

4.0.0 Introduction 48

4.1.0 Data Sources 48
4.1.1 Demographic Data 48
4.1.2 Questionnaire Data 49

4.2.0 Questionnaire Design 49
4.2.1 Question Topics 50
4.2.2 Question Form and Layout 50

4.3.0 Survey Sample 51
4.3.1 Survey Groups 52
4.3.2 Survey Group Sizes 54
4.3.3 Sampling Techniques 55

4.4.0 Questionnaire Administration 57

4.5.0 Responses and Response Rates 58
4.5.1 Response Rates 60

4.6.0 Conclusion 61

Chapter Five - Respondent Profile 63

5.0.0 Introduction 63

5.1.0 Analysis 63
5.1.1 Choice Based Sampling 64

5.2.0 Demographic Characteristics 64
5.2.1 Age 65
5.2.2 Gender 67
5.2.3 Marital Status 68
5.2.4 Education Level 70

5.3.0 Economic Characteristics 72
5.3.1 Income 73
5.3.2 Car Ownership 75

5.4.0 Housing and Residency Characteristics 76
5.4.1 Dwelling Age 77
5.4.2 Length of Residency in Brantford 77
5.4.3 Tenancy 78
5.4.4 Monthly Dwelling Cost 80

5.5.0 Level and Sources of Interaction 81
5.5.1 Number of Children 81
5.5.2 Location of Closest Child 82
5.5.3 Relatives in the City 83
5.5.4 Aid Index 84
5.5.5 Interaction 85

5.6.0 Activities 85
5.6.1 Entertainment and Activities 86
5.6.2 Television Viewing 86
5.6.3 Shopping Patterns 86
5.6.4 Senior Citizen Group Participation 87
5.6.5 Church Participation 87
5.6.6 Time Travelled to Shopping and Services 88

5.7.0 Why Did You Or Why Would You Move To A SCA? 90

5.8.0 Conclusion 93

Chapter Six - A Multivariate Analysis of Elderly Housing Choice 95

6.0.0 Introduction 95

6.1.0 The Logit Model 95
6.1.1 Summary Statistics 98
6.1.2 Choice Based Sampling and Logit Analysis 98

6.2.0 Variables Included in Analysis 101

6.3.0 The Analysis 102
6.3.1 Model One 104
6.3.2 Model Two 104
6.3.4 Model Three 107
6.3.5 Model Four 108

6.4.0 The Results 109
6.4.1 The Alternative Specific Constant 110
6.4.2 Marital Status 111
6.4.3 Car Ownership 112
6.4.4 Low Income 113
6.4.5 Monthly Cost 113
6.4.6 Renter 114
6.4.7 Family Contact 115
6.4.8 Overview of Analysis 117

6.5.0 The Future Need For SCAs Vs. Alternatives. 118

6.6.0 Conclusion 121

Chapter Seven - Conclusions and Suggestions for the Future 124

7.0.0 Introduction 124

7.1.0 An Overview of the Chapters 124
7.2.0 Suggestions for Future Research 128
7.3.0 Conclusion 129

Appendices

Appendix I: Study Questionnaire 132

Appendix II: Variable Codes 136

Bibliography 137

List of Tables

Table		Page
3.01	Brantford Population Figures	37
3.02	Net Migration Rates	40
3.03	Elderly Concentrations and Location Quotients	43
4.01	Survey Group Sizes	55
4.02	Response Rates	60
5.01	Age of Respondents	66
5.02	Marital Status	69
5.03	Education Level of Respondents	71
5.04	Monthly Income	74
5.05	Residential Tenancy	79
5.06	Mean Distance Travelled	89
5.07	Subjective Reasons For Having Moved or Moving in the future	92
6.01	Logit Coeffecients	99
6.02	General Model Specification	103

List of Maps and Figures

Map		Page
3.01	Map of Brantford	33
3.02	Southern Ontario	35
3.03	Elderly Concentration in Brantford	42
3.04	Location Quotient of Elderly in Brantford	46

Chapter One
ELDERLY HOUSING CHOICE: A CASE STUDY

1.0.0 Introduction

Shelter is one of man's most basic needs. Whether it be in the form of a mud hut or a multi-million dollar mansion, housing is both shelter from the elements and an expression of who we are. For the elderly this statement may be especially true. The type of housing in which seniors live not only tells us about their present situation, but is in fact an indicator of the characteristics of their whole life history. Thus the importance of housing is not only for basic shelter, but as a monument to our own histories.

Housing needs for an individual or family are not static. From the time individuals establish their first home, their housing needs are continually changing. The introduction of children into a family often necessitates the need for more space. Old age and the absence of children may require an adjustment to the type of housing that is required or desired. This type of adjustment in housing is the focus of this thesis. A home which may have once been well suited for an individual may no longer meet the needs and or desires of the individual as the aging process occurs.

As individuals age they may make an adjustment in their housing, either forcibly or voluntarily. Reductions in income and health status or the death of a spouse may make it difficult or impossible to remain living in a house. The housing adjustment of senior citizens is a complicated issue. This thesis will examine one aspect of this issue, the movement of seniors to senior citizen apartments (SCAs). Specifically this research aims to identify the characteristics of

SCA residents which are significantly different from those of seniors living in "non-age-segregated" housing. Demographic, socio-economic and housing characteristics will be examined for significant differences using logit analysis. These characteristics may then lead to identifying the reasons to why seniors choose to move to SCAs.

1.1.0 Why, Who, Where, What and How?

The identification of reasons why seniors move to SCAs has one main purpose. If it is possible to identify why seniors move, then it may be possible to better identify the needs of seniors. It can then be determined whether or not these needs are met by moving to an SCA, or if it is possible to meet these by providing services to seniors in their own homes. In addition, it may also be possible to suggest programs that would serve seniors better than an SCA or their own home (Chapter 6).

The goal of better serving the needs of senior citizens is of special importance due to the increasing elderly population of Canada. Although it has always been important to care for the needs of our elderly population, the growth of this group over the next thirty years may stretch current programs and funding to the breaking point and beyond. If Canada is to cope successfully with an aging population, current problems must be solved. Of these problems one of the most important is that of housing. Current housing programs such as non-profit senior citizen apartments (SCAs) are expensive to build and maintain. With a growing elderly population this type of housing may become totally impractical as a method of solving the housing problems of the elderly. Thus new solutions to the housing

problems of seniors must be developed before the elderly population grows any larger.

In defining who senior citizens are, we adopt the government definition which describes seniors as those people age 65 and over. In Canada age 65 marks the normal age of retirement and the age at which a person is eligible for government pensions. For the purpose of this thesis, this definition will be used although this is not to say that these people are necessarily old. This study is directly concerned with two subgroups of the age 65 and over population. The first of these groups consists of those individuals living in SCAs. The second group are those seniors living in "non-age-segregated" or normal housing. These definitions will be expanded in chapter three.

The study site for this thesis was the small southern Ontario city of Brantford. With a population of approximately 75,000 people the city presented an excellent study site. Within this population there are a relatively large proportion of seniors (14.76%).

As stated earlier the main goal of this thesis is to establish a list of factors that would make it possible to differentiate between SCA and non-SCA dwellers. From these characteristics it may then be possible to determine the reasons why some seniors choose to move to SCAs while others choose to remain in their own homes. The central part of the analysis will be discussed further in chapter six.

The methodology of this thesis consists of two major parts: data gathering and statistical analysis. Data was gathered for this study using a mail out questionnaire. The questionnaire was distributed to two samples of the elderly drawn from the two subpopulations of interest.

Elderly in the population of this study are perceived to be faced with two alternatives: either staying in their own home or moving to an SCA. A suitable statistical technique that makes it possible to link a choice made to the characteristics of the decision maker and the attributes of the alternatives is logit analysis. In addition, this technique makes it possible to use multiple variables and to have a discrete dependent variable.

1.2.0 Outline

In terms of general structure this thesis is set up to present the results of past research and then to introduce the use of discrete choice analysis and the results of this study. The following is a brief overview of the individual chapters beginning with chapter two.

Chapter two deals specifically with the literature of past research into the area of the geography of housing the elderly. Past studies discussed here reveal several general models in addition to specific studies of the housing characteristics of the elderly. In general this chapter shows that the migration and housing of the elderly has specific characteristics that are not shared with the general population.

The third chapter in this study presents a description of the study site, Brantford, Ontario. This discussion includes a brief history of the city and provides a description of the distribution of the elderly population in the city. The methodology of the data gathering is described in chapter four. The use of choice based sampling is also discussed along with the return and response rate for the questionnaire. This discussion in this chapter establishes the survey sample size as well as the size of the two study groups.

Chapter five consist of an analysis of the individual variables. This analysis will be used to provide a profile of the respondents and to provide a basis for the multivariate analysis in chapter six.

The main body of the statistical analysis work for this thesis is discussed in chapter six. Those factors which showed a significant difference between the SCA and non-SCA groups are presented here. From this analysis a number of possible reasons for seniors choosing to move to SCAs is developed. As a conclusion to this analysis, suggestions for possible solutions to housing the elderly are presented. It is hoped that this chapter will identify both the problems in housing the elderly and some possible solutions.

The final chapter in this thesis will be used to present an overview of the results. An additional section will deal with suggestions for future research that may be developed using the results of this study.

1.3.0 Conclusion

As stated earlier, Canada has an aging population, both in terms of actual size and as a proportion of the total. Housing for the elderly presents problems that are unique to this population cohort. In terms of a housing continuum, senior citizen's apartments (SCAs) are midway between "non-age-segregated" housing and "special housing" facilities such as nursing homes. SCAs provide individuals with housing that permits them to maintain an independent lifestyle and in some cases, long after they may have been able to in normal housing. SCA housing, however, may not be an appropriate method of housing the increasing elderly population. The overwhelming cost of construction and upkeep may make SCA housing totally

inappropriate for housing the future elderly population. If we, as a nation, are to provide housing solutions for the future elderly population then we must clearly understand why the elderly of today move to SCAs.

Chapter Two
SENIOR CITIZENS' HOUSING CHOICES: A LITERATURE REVIEW

2.0.0 Introduction

The study of the elderly is a relatively new field of research that has attracted increasing attention over the last thirty years. Perhaps the main reason for this is the fact that Western societies are aging. Recent projections indicate that most Western societies will have approximately 20% of their populations over the age of 65 by the year 2000 (Myles and Boyd, 1983). The forecasted change in the population age structure has created an interest by geographers and others in the examination of the elderly with regards to migration, housing, accessibility to shopping and services, the utilization of facilities, and many other topics. The result has been an ever increasing body of geographical literature pertaining to the elderly (For excellent reviews see Golant, 1979, Rudzitis, 1984 and Rowles, 1986).

This thesis concentrates on housing. More specifically, the movement of the elderly to senior citizen apartments (SCAs) is examined. Unfortunately relatively few studies have been specifically concerned with the move of seniors to SCAs. Very little has also been written about elderly moves to SCAs in the Canadian context.

This literature review will examine five main topics. The first of these topics will be a discussion of various general theories of the aging process. The second section of this review will be a discussion of a number of models that have been developed to explain the movement of the elderly. Previous studies of actual and potential movers to SCAs will be examined in section three. Section four investigates the process of deciding to move to an SCA. Finally, the question of

SCA location and the segregation resulting from living in SCAs will be examined in section five.

The main purpose of this literature review is to demonstrate that the elderly have unique reasons for choosing to move from their homes. In the past many studies have only examined potential movers and not seniors already living in SCAs. This raises the question of whether or not the characteristics of those seniors who expressed interest match those of seniors living in SCAs. With this in mind let us begin our examination of elderly movers to SCAs with a study of two general theories of the aging process.

2.1.0 Theories

Geographical research in the area of the elderly can be considered to be part of the larger discipline of gerontology. As such, geographers draw on a number of theories that have been developed in other disciplines, and mainly in sociology. These theories are meant to present a basis for understanding the aging process. A major part of this process is the movement or non-movement of the individual. As a result, the theories presented here are an excellent way of beginning a study of elderly movers.

2.1.1 Disengagement Theory

As individuals age there are inevitably restrictions placed on their activities. These constraints are often caused either by ill health or society. As a result of these limitations, individuals may then withdraw from some of the activities in which they participated when younger. The theory of "disengagement" sees the

withdrawal process as a natural part of life, caused by the aging process. The voluntary process of "disengagement" is the individual's and society's attempt to adjust to the aging process (Golant, 1978, pp. 280).

Wiseman and Roseman (1979) have suggested that "residential adjustment" may be part of the disengagement process. Golant (1979) also points to residential relocation as a kind of "voluntary withdrawal" from the preretirement lifestyle. The movement to a new dwelling may help the individual adjust more effectively to old age. In many cases the new dwelling selected by the elderly individual is a smaller, less expensive, and more easily cared for dwelling. The move to this type of dwelling may allow elderly persons to remain independent for a longer period of time due to the reduced 'cost' placed on them by the new dwelling. For many individuals, the aging process is strongly associated with declining health status. As health declines, even to a small degree, individuals must make adjustments in their life style. The process of disengagement is considered to be a natural part of the aging process that most, if not all individuals, will experience to some extent at some point in their later years.

2.1.2 Activity Theory

According to this theory an individual will try and maintain the activities of middle age for as long as possible, but will be eventually forced to withdraw from these activities (Lichty et. al. 1977). This process of withdrawal is a forced process unlike disengagement, which is considered to be a voluntary process.

A prime example of activity theory would be an ill individual who holds on to a driver's license for as long as possible rather then giving it up voluntarily.

Eventually the individual's doctor or the police may take the license away, thus forcing him/her to withdraw from the activity of driving. Wiseman and Roseman (1979) have stated that the attempt to maintain preretirement activity patterns is particularly prevalent in the well elderly who are able to maintain these activity patterns. Activity theory looks at the aging process as a negative process, where the individual is forced to give up the activities of middle age. As a result the movement to an SCA would be seen as a negative move under activity theory because the individual is forced to move and abandon a preretirement home. Whereas an individual staying in their own home for as long as possible, regardless of health or financial problems, is the activity theory in action.

2.2.0 Migration Theories and Models

The process of migration or moving is very complex. Many factors are involved in the decision processes which take place before, during, and after a move. Lee states that:

> we can never specify the exact set of factors which impels or prohibits migration for a given person, we can in general only set forth a few which seem of special importance and note the general or average reaction of a considerable group.
>
> Lee, 1966 pp. 50

As such it is almost impossible to show exactly how and why the process occurs for any specific individual. Conceivably, the best way to show how the process works is through the use of a general theory or model.

2.2.1 The Push - Pull Theory of Migration

Perhaps one of the most understandable models of migration is Lee's push-pull migration theory. Lee states that every origin and destination will have factors which attract and repel the migrant (Lee, 1966). These factors are based on a subjective evaluation by the mover (Northcott, 1988, pp.8). In terms of the elderly person moving to an SCA, the push-pull theory can be shown to describe the pre and post move home. The pre-move home may be in poor upkeep, expensive and lonely, but have sentimental and security values. The SCA with good facilities, improved social interaction, and inexpensive rents acts to "pull" seniors towards the facility. While this is a good general model, it does not describe the process in depth. A more detailed model of the move process of seniors was developed by Wiseman and Roseman.

2.2.2 The Wiseman and Roseman Model

The moving process can be broken down to a simple two stage model. Wiseman and Roseman (1979) suggest that the moving process consists of two stages:

1) The decision to move

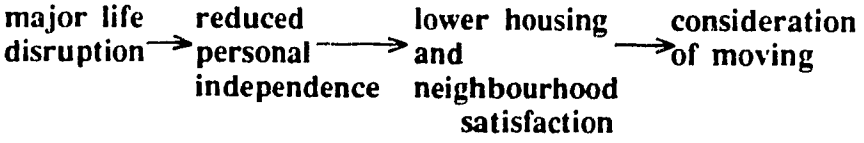
2) The decision of where to move

If factors related to the present location or dwelling produce enough stress the person is likely to move or make changes in their environment to reduce the stress level. Wiseman (1980) says that the elderly are the most "susceptible to the influence of environmental stress as a motivation for migration". This susceptibility may be due to the fact that the elderly can not make the necessary adjustments

needed to reduce the environmental stress in their present place of residence. The reduction in income due to retirement, possible reduction in health status due to old age, or the death of a spouse may act as triggering mechanisms of stress. Those elderly who can successfully adjust to the environmental stresses in their present dwellings may choose to stay in their own homes. Within this framework serious problems are faced by those elderly who fail to adapt to the new level of stress but choose to stay in their dwelling anyway.

2.2.3 The Nelson and Winter Model

Although Wiseman and Roseman have suggested that the decision to move is a two step process, it has been suggested by Nelson and Winter (1975) that this process can be further broken down into four steps. Nelson and Winter (1975) have suggested that before there is a definite commitment to move, the elderly go through the four following stages.



Nelson and Winter, 1975 , pp.164

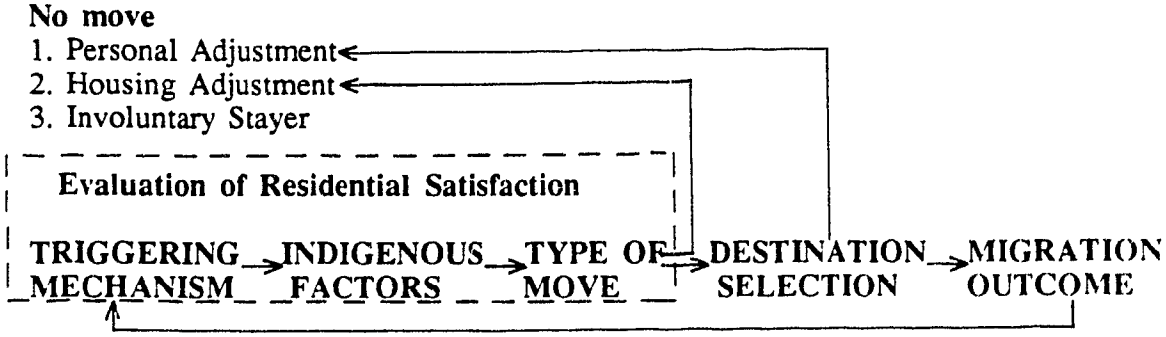
As with Wiseman and Roseman, there is usually some disruption to the general pattern of life which triggers the consideration of moving.

2.2.4 Wiseman's Model of Elderly Movement

The decision to move or migrate is never an easy one for anyone of any age. This decision is especially difficult for seniors because of several factors. Ill health,

reduced income, and loneliness associated with the loss of a spouse all act as factors in the decision to move. As a result, the need or want of a new residence must exceed the inertia generated by the factors that make the decision to move difficult.

In an attempt to model the decision to move, Wiseman (1980) developed a model of the migration decision process.



Wiseman, 1980, pp. 145

This model starts with a triggering mechanism such as the death of a spouse. The triggering mechanism may make the individual more interested in moving. The indigenous factors are those that relate to a person's financial well being. Based on these factors, the elderly person then chooses to move or stay. If the choice is made to move, then a destination must be chosen which results in the migration outcome.

Aside from the possibility of moving, there is also the alternative of staying in the same home. This alternative is represented in the model as being "no move". Individuals may choose to remain in their own home or may be forced to do so. The decision to remain at home may be made in conjunction with some form of personal or housing adjustment. This may take the form of altering personal activities or may involve the modification of one's housing. One such alteration

may be the addition of a wheel chair ramp which may allow elderly people to remain in their homes. Another reason for not moving may be that the person is "forced" to remain in his/her home. Low income or ill health may mean that some housing alternatives are not available due to high cost or health requirements for admission. Another factor that forces the elderly to remain in their homes is the unavailability of housing alternatives either due to a lack of housing or long waiting list for this housing. Thus, while seniors may wish to move, they can not and are in fact "forced" to stay in their home.

This model presents a fairly good analysis of the migration decision process, not only for the elderly but for people in general. The basis for the model is that it is assumed that any person is a potential mover. As such, it is possible to suggest a possible decision process that may be generally true for most people.

2.3.0 Previous Studies - Social, Economic and Housing

If all elderly are considered to be potential movers to senior citizen apartments, what are the characteristics of the elderly who show the most interest in moving to an SCA? Do these characteristics help to determine the type of housing that is chosen? The elderly person, like anybody else, are individuals whose:

> standards of comparison are a function of his background, needs and expectations are thus somewhat idiosyncratic.
>
> Bohland and Davis (1979) pp. 97

It is therefore only possible to make generalizations about which seniors will, and why they move to SCAs. If it is possible to determine the factors which influence the movement of seniors to SCAs, it may then be possible to project the future

need for these facilities. With this in mind, we can look at several studies that have attempted to identify characteristics of the elderly who have either expressed a desire to move to, or who have already moved to SCAs.

2.3.1 Social and Economic Characteristics

Winieke (1973) in a study of Old Age Assistance recipients in Sacramento County, California found that those individuals who expressed interest in moving to an SCA did not differ significantly from non-interested individuals in terms of their gender, race, or social class. Those seniors who were interested in SCAs tended to be younger, lived alone, were dependent on public transit and did not have frequent contact with their children or friends. The key feature to this study is that those individuals most interested in SCAs tended to be relatively isolated. This indicates that loneliness may be a key factor in a senior's decision to move. This is not to say that all seniors who live alone and have infrequent contact with others are lonely, but it would appear that this is a common factor among these seniors.

In a study of three areas in Quebec, Béland (1984) found that the rental of a dwelling on a upper floor of a building was a significant characteristic of the elderly who expressed interest in moving. Living on an upper floor in a rental dwelling may mean that a senior can no longer remain independent due to problems in walking up and down stairs. The effects of winter on seniors is an interesting finding, especially as it directly concerns Canadian seniors. Béland points to the ability of the individual to cope with winter conditions as being an important factor in predicting an individual's preference for moving to an SCA. Like stairs, snow and ice can act as barriers to independent living. It is not surprising that seniors

who have difficulty in living alone and independently would express an interest in moving to an SCA where building design eliminates or reduces some of the above problems.

In an earlier study in California, Wilner et. al. (1964) found that there were substantial differences between SCA dwellers and those seniors living in other forms of age-segregated housing. The SCA dwellers in the study tended to be older widowed females who had few or no children. The relative absence of children is an important finding in that it indicates that seniors may have chosen to move to an SCA because they were lonely or lacked assistance from a child. The aid that a child can provide to the parent may be the key factor that enables a parent to live in his/her own home versus moving to an SCA. Thus when there is no child present, the choice to move to an SCA becomes more predominant.

In a more recent study Meyer and Speare (1985) also found that those seniors moving to prepare for aging (ie. to an SCA) had "low proportions of their children" living in the same area. The significance of this study is that it examines the movement of individuals, in Rhode Island over a twenty year period. A particularly interesting finding is that income had only a "very weak" relationship with the propensity to move to an SCA. The probability of moving to an SCA was greater for those individuals who were unmarried and previously mobile (Meyer and Speare, 1985. pp. 87). Once again it appears that loneliness has a great influence on a person's desire to move to an SCA. This study also indicates that if seniors have been mobile in the past they are likely to be more receptive to the idea of moving to an SCA. It is likely that if a person has been mobile in the past, he/she does not have the same level of attachment to a home as a person who has lived in one

place for an extended period of time.

2.3.2 Housing Characteristics

The present housing tenure of a senior can have a great effect on the senior's propensity to move. Blonsky (1975), and Béland (1984) have indicated that those seniors who rent their dwellings, particularly apartments, are most interested in moving to SCAs. In Varadys' (1984) study it was found that renters were five times more interested in moving than homeowners. Rental apartments usually have relatively high rents that may increase. SCAs have rents that may be geared to the individual's income or subsidized. Sherman (1971) in a California study showed that the reduced cost of an SCA had been a dominant reason for seniors moving to an SCA. In addition, most SCAs operate on a non profit basis, a practice which stabilizes the rental cost. Thus the characteristics of an SCA make this type of dwelling attractive to seniors, especially those who rent their dwellings.

Those seniors who own their homes are less "inclined" to move than are seniors who rent or live in apartments (Nelson and Winter, 1975). The attachment to a home was found to be a strong factor even among homeowners who were living on welfare (Winecke, 1973). The ownership of a home guarantees, to some extent, that a person will be housed in a familiar environment at a relatively low cost (Winecke, 1973). There are also non - monetary values associated with home ownership. Society and individual home owners "perceive" home ownership as:

> an indication of social status, achievement,
> and power.
>
> Golant, 1984, pp. 175

Rowles (1983) also points to the non-monetary importance of the home by stating that:

> the ability of a place to act as a cue and to trigger the resurrection through reminiscence of the social auras that once pervaded it may contribute to a sense of identity which enhances well being.
>
> Rowles, 1983, pp. 119

Although the non-monetary value of a home is extremely important the monetary cost of a home may place overwhelming financial burdens on a senior. The cost of upkeep, utilities and taxes can however place a great strain on a senior who is living solely on government pensions. This may then lead to the problem of the senior being "equity rich and cash poor" (Sayegh, 1987, pp. 354). The individual may have a house that is paid for but lacks the money to properly take care of it. Once the cost of living in one's own home outweighs the benefits of independence and familiarity, the choice to move becomes more prevalent.

The ownership of a home or the long term rental of an apartment can not be undervalued in terms of understanding why a senior remains in deteriorated housing (Golant, 1979). Golant states that:

> Despite significant changes in family status, the inappropriateness of a dwelling, or the declining physical and social status of a neighbourhoods or communities, many older people move only when severe health or financial difficulties make it impossible to maintain independent households.
>
> Golant, 1979, pp.40

The attachment to a home in which the senior has lived for a long period of time may outweigh the decline of a neighbourhood and thus the desire for better housing.

It was found that living in a "deteriorating neighborhood" was not a factor in a senior's desire to move to senior citizen housing (Winieke,1973, Varady, 1983). It is important not to underestimate the importance of place to the elderly. A home is still a home even though the neighbourhood is deteriorating. Years of memories can not be erased easily. Mathieu has stated that the:

> elderly are satisfied in substandard housing because it offers "security" - either social or financial.
>
> Mathieu, 1984, pp.160

An elderly person's resistance to moving to better or more appropriate housing (ie. an SCA) is often difficult to understand. If an SCA provides better housing, why would a senior not want to move to one? As demonstrated above, the attachment to a home, either rented or owned, may overpower any need the senior has for improved housing. Thus the affection a senior has towards their housing may be the most important factor in the decision to stay or to move to an SCA.

2.4.0 The Decision Process

As was stated earlier, the process of moving can be considered to be a two stage process. The first of these stages consists of the decision to move. The second stage is the process of deciding where to move. This section deals with these processes

2.4.1 The Decision To Move

Within the literature there is agreement that for any senior to move, there must be some event that greatly disrupts the person's life cycle. Rosow (1974) states

that:

> old age is the only stage in the life cycle that has systematic social losses rather than gains
>
> Rosow, 1974, pp. 23

These losses such as the death of a spouse or a decline in one's health may be the triggering force behind a decision to move (Golant, 1985). Aside from the emotional loss, the death of a spouse also results in a loss of companionship and a loss of income due to the reduction in pension benefits. A decline in health status may increase the difficulty in living independently and thus increase the likelihood of moving (Patrick, 1980).

The decision to move may also be made because a person no longer has the resources to live independently. Béland (1984) states that these resources were those things, such as money or health, that enable the elderly to remain in their own homes. Once these resources are gone or decreased, the person is more likely to choose to move to a different dwelling. Béland (1984) also found a positive relationship between the frequency of the use of professionals such as doctors, and the desire to move. From this study it would seem that the desire to move increases positively as a senior's need for outside help increases due to reduced ability, either physical or financial, to care for one's self.

For many seniors, the move to an SCA is not a decision made in isolation. Children, doctors, friends, and others may all contribute information, guidance, and in some cases force, in the decision process. Sell (1983) refers to these type of moves as "forced" and as an "imposed change of residence". A forced change of residence occurs when the choice to move and choice of new residence are made by

a person or persons other than the mover. An imposed change of residence is made when other people contribute to the decision process but the final discussion lies with the mover. Wiseman and Roseman (1979) suggest that:

> The location decision is usually shared and often made exclusively by others, and choice of a destination is constrained by the facilities available.
>
> Wiseman and Roseman, 1979, pp.334

As such, in any study regarding the decision to move by a senior, an examination must be made of who the main actors were in the decision process. Does the mover actually make the biggest contribution in the decision, or are the roles played by other actors equally or more important? The answer to this question is of course that it depends on the case. The physical, mental, and financial capabilities as well as family ties of an individual senior can greatly affect the roles played by the various actors. In the case of an individual in good health, the decision to move may be primarily made by the senior. Sell (1983) refers to this as a "preference - dominated" choice process. As health declines the decision to move may be made by a doctor or child. As a result the role of various potential actors in a movement decision must be examined.

2.4.2 The Choice of an SCA

Assuming that a senior citizen apartment has been built, what are the factors that contribute to the decision of a senior to move to this facility? What makes the elderly want to or have to leave a home in which they may have lived for many years? The actual characteristics of the SCA buildings act as an attractive force.

Wister (1985) states that an elderly person's:

> preference for independence and privacy surfaces as the strongest predictor of living arrangements
>
> Wister, 1985, pp. 127

An SCA building with its small inexpensive private apartments meets these desires, and as a result, it is a popular choice among seniors.

Unlike the past when a senior would have probably moved in with a child or other family members:

> It is no longer easy for grown children no matter how well-meaning, to accommodate their elderly parents.
>
> McDaniel, 1986, pp. 88

With lower fertility rates, there are fewer children or other relatives for seniors to move in with (Wister, 1985, pp.127). In addition, smaller house sizes make the housing of an elderly person with family members difficult (McDaniel, 1986, pp.88).

One major problem that occurs when a senior chooses to move to a special housing facility is the small choice of possible destinations. Unlike the ever growing market of single family dwellings, the number of spaces for seniors in apartments or communal situations is almost stagnant. As a result, the number of alternatives involved in the choice of a destination decision is small. In terms of senior citizen apartments, the elderly must generally move to a new area or neighbourhood if they wish to live in the facility (Mercer, 1979, pp. 119). Thus the choice in destination is limited by the location of available facilities, a location that has been chosen by others, most often years before. There is actually very little if any "freedom of choice" in the choosing of an SCA because of the lack of

alternatives (Nelson and Winter, 1975 pp.163). Long waiting lists for apartments mean that seniors must take what is available, with little regard for the location of the facility (Wiseman and Roseman, 1979, McDaniel, 1986). As such, an individual's decision to move to an SCA may have little to do with the location of the facility, but rather it is a choice due to the type of housing.

2.5.0 SCA Location and Segregation

Once the senior citizen development has been built, what are the effects on the community? Do the developments help the people they are supposed to? In a United States study (Varady, 1984), it was shown that the people who needed the apartments the most were least interested in the possibility of moving. The attachment to a dwelling, regardless of how bad it is, can not be underestimated. Memories and familiarity of space, may be more important than the need for a decent, affordable place to live. While the waiting lists for seniors' apartments are always long, it must be asked whether or not these people are in fact the most needy. In general because of regulations, the people gaining admission to seniors' housing are in need of the housing. The very poor, often lack the knowledge of how to apply, and as a result sometimes do not seek seniors' apartments. Thus, while seniors' apartments do serve the purpose they are supposed to, there may be a large number of people who need the facility but do not even try to gain entry.

An important aspect of the setting of seniors' apartments is the relative location of the apartments as compared to that of the elderly population concentrations in the city. If seniors' apartments are supposed to address the problem of providing affordable housing, are the apartments located in the areas

where they are needed most? In real terms are seniors' apartments built as a response to elderly population concentration and congregation, or is the construction of these buildings a cause of elderly concentration and congregation? It was shown by Diegel (1985) that the construction of seniors' apartments were a cause of elderly concentration and congregation, rather than a response to these problems. The SCA developments in this case were not necessarily built where they were needed the most. The constraints of developing an apartment building may be primarily the result of land availability. For those buildings built on a non-profit basis, the availability of cheap land is a major factor in the choice of possible locations (Mercer, 1979). By virtue of this constraint the location of senior citizen apartments may actually increase the problems of the elderly. One of these problems may be poor access to shopping and services (McDaniel, 1986). Andreae (1978) states that:

> by failing to place a high priority on the location and environment of the projects, the programme is working at cross purposes; that is while trying to provide housing that will allow the elderly to live independent lives, the often isolated locations of projects can in fact lead to increased dependency.
>
> Andreae, 1978, pp.7

The limit of possible locations, as Andreae stated, can actually defeat the purpose of senior citizen apartments and as such more attention must be given to the needs of seniors and not the monetary restraints of government agencies.

Another important aspect of the location of senior citizen apartments is the acceptance of the facility by the host neighbourhood. As with any group housing facility, such as a group home or senior citizen apartment, there is bound to be

some resistance within the host neighbourhood. In terms of the elderly, the resistance to the SCA development by the host neighbourhood may lead to increased "ageism", which is prejudice and discrimination against the elderly (Mangum, 1988). As such, the purpose of providing a good environment for seniors may be defeated by the prevailing opinion in a neighbourhood. In general, however, senior citizen apartment buildings were found to be the least objectionable of all types of group housing facilities (Mangum, 1988, pp. 327). The elderly are seen to be less offensive than groups such as low income families:

> whose introduction into an area via publicly provided housing is often vigorously resisted
>
> Mercer, 1979, pp. 113

Although senior citizen apartments are widely accepted, the buildings must blend into the neighbourhood. While an SCA building may be accepted into a neighbourhood composed of multi-unit housing, the facility may not be as acceptable in a suburban neighbourhood of single family dwellings (Mangum, 1988, pp. 328). As with other forms of public housing, there seems to be a general pattern of choosing the 'path of least resistance' when potential sites of SCA's are evaluated.

2.5.1 Ghetto ?

One of the major topics in research into housing for the elderly is the discussion of the acceptability of whole concept of seniors' housing. Some researchers feel that seniors' housing segregates the elderly from the rest of society and is thus unacceptable, while other researchers feel that this form of housing is

totally acceptable. Golant (1985) states that:

> there is nothing intrinsically evil, malicious, or immoral about advocating that large numbers of older people live near each other.

Golant, 1985. pp 26

Of course, the only people who can really evaluate the effectiveness of the environment are the elderly themselves. The construction of a senior citizen's apartment building is effectively the construction of a new environment that caters to the needs of the elderly, both physically and socially.

Although some people feel that the term "ghetto" may be inappropriately used in the context of SCA's Myles and Boyd (1983) disagree. They have stated that ghetto formation occurs when:

> the creation of separate social and residential communities permits the subordinate group to reconstruct a social world according to their own norms and allocate esteem and other social rewards according to their own standards of excellence.

Myles and Boyd, 1983, pp.281

While this may in fact be the case for SCA developments, what is the effect of ghetto formation on the segregation of seniors from the rest of society?

There is little doubt that senior citizen apartment buildings do segregate the elderly, but it is important to define the level of segregation. Andreae states that:

> segregation may be acceptable at one scale (within a building) but not at another (within a community)

Andreae, 1978, pp.25

If the elderly are segregated from the community because of the location of the building or because of a lack of access due to poor transportation, then the

segregation imposed by living in one of these buildings may not be acceptable. Golant (1980) points to two very distinct types of segregation: statistical and de facto. Statistical segregation refers to segregation as defined by a statistical measure such as a percentage ie. 15% of the areas' population is age 65 and older. These individuals may or may not be truly segregated from society depending on their ease of access to services (Golant, 1980, pp. 258). In contrast, de facto segregation refers to segregation that is not imposed so much by distance as it is by cost, either financial or physical (Golant, 1980, pp. 259). Seniors may be very close to services and other individuals but if the costs are too high, they are not likely to make use of the services or have interaction with other people. This situation is a function of the living accommodations of seniors in general, not just SCAs or normal housing. This view point is confirmed by seniors themselves. Seniors, when asked, have stated that one of the major problems with senior citizen apartments is the lack of access to services and thus segregation from the community (Audain, 1973). Consequently it would seem that a better definition of segregation would be an index of accessibility. If SCA's do segregate the elderly in terms of accessibility, then the whole idea of SCA's should be reexamined.

As stated earlier an SCA development effectively creates a new environment separate in many ways from normal society. The society that we live in is generally youth oriented. To be young is good, but to be old is to be useless. It has been suggested that SCA's and other age segregated developments help the elderly by shielding them from the prejudices of the larger society and helping to develop age-appropriate norms and behaviours which then:

> often brings about a greater sense of well being and satisfaction, higher levels of social integration and a improved self-concept among the elderly and may even help to socialize them for death
>
> Okraku, 1987, pp 448

Among the elderly themselves there is a report of increased social interaction in SCA's (Audain, 1973). In earlier studies, Carp (1966, 1970) found that seniors who had moved to an SCA reported increased residential satisfaction, improved self image, improved physical well being and were generally more active and sociable. The construction of an SCA is not only the construction of a building, but the construction of a community. This new community has a set of norms and activity patterns unique to the elderly which may allow for the general improvement in the quality of a senior's life.

Although there may be a large number of positive aspects to SCAs, there are also some negative aspects. The segregation of the elderly from the rest of the population may increase prejudice against the elderly (Okraku, 1987). By limiting the amount of interaction between the young and old, neither group learns about the other, which may lead to prejudice and misunderstanding on the part of both groups. In an attempt to counteract this there have been in the past some developments that incorporate low income housing for the young and elderly. While this may have had some benefits it has also been found that some seniors prefer not to have an age mix in their neighbourhood or building (Huttman, 1977, pp. 221). The seniors feel that children will be noisy and in some cases vandalize the buildings or homes. As a result it is questionable whether or not the trend towards age - integrated housing is an appropriate goal.

2.6.0 Conclusion

The preceding review has examined some of the main theories and models of aging and migration which provide the basis for understanding why some elderly individuals choose to move while others decide to remain in their own homes. If it is possible to model accurately the movement of seniors to SCAs, it may be possible to project the future need for these facilities. From the literature discussed it is clear that while there is a general understanding of the movement of seniors to SCAs, there is some disagreement as to the characteristics of those seniors who wish to live in SCAs. The only way to clarify which characteristics are significant is to perform more studies. In addition most past studies have examined seniors who "expressed" an interest in moving to an SCA and not seniors who had moved. This creates a major problem in that an expressed interest does not necessarily result in a move to an SCA. The projection of the need for SCAs is essential for planning for the future. If we as a society wish to continue housing seniors in this way then more studies must be conducted to provide information and techniques for projecting need so that money and time are not wasted in building SCAs which are neither needed nor wanted by seniors. This study is an attempt to establish a more stringent method of identifying significant characteristics of seniors living in SCAs so that it may be possible to identify similar people in the general elderly population. These individuals represent potential movers to SCAs and thus the future need for these facilities.

It is important to remember that senior citizens are individuals and can not be thought of as one homogeneous group. Senior citizens, like the rest of us, are individuals who have a past that influences their decisions, likes and dislikes, and

behaviour. With this in mind, we begin our study of senior citizen moves to SCA's.

Chapter Three
THE STUDY SITE BRANTFORD, ONTARIO

3.0.0 Introduction

The main purpose of this chapter is to provide an historical and geographical background of the study area, Brantford, Ontario. and its population. Thus, this chapter is organized into five sections. The history, location, and a description of the city are dealt with in the first section. The current demographic state of Brantford is discussed in section two. Aging-in-place and inmigration are two main processes in the "aging" of an area. These mechanisms are examined in the fourth section of this chapter. The current location of the senior citizen population of Brantford will also be discussed in section four. Finally, location quotients will be used in section five to show the size of the elderly populations of individual census tracts relative to the city as a whole.

3.1.0 Study Site Selection

In establishing the site for this study there were two main reasons for selecting Brantford. The first reason was that Brantford has a relatively large elderly population which represents a considerable proportion of the city's population (14.76%, as of 1988). Within the elderly population there is a sizable group of seniors living in SCAs (7.1%, as of 1988). There is also a large number of seniors who desire to live in SCAs, but can not because of the lack of units, as demonstrated by a waiting list. This situation is likely to continue as Brantford's elderly population has been growing at a faster rate than the city's population (9.5% vs. 6.5% respectively for 1976-81).

The second reason for choosing Brantford was the ease in which a study could be performed in the city. There have been few if any studies of the elderly conducted in the city. As a result respondents were unlikely to be have been studied previously and thus were likely more responsive. Another benefit of selecting Brantford was this author's familiarity with the area.

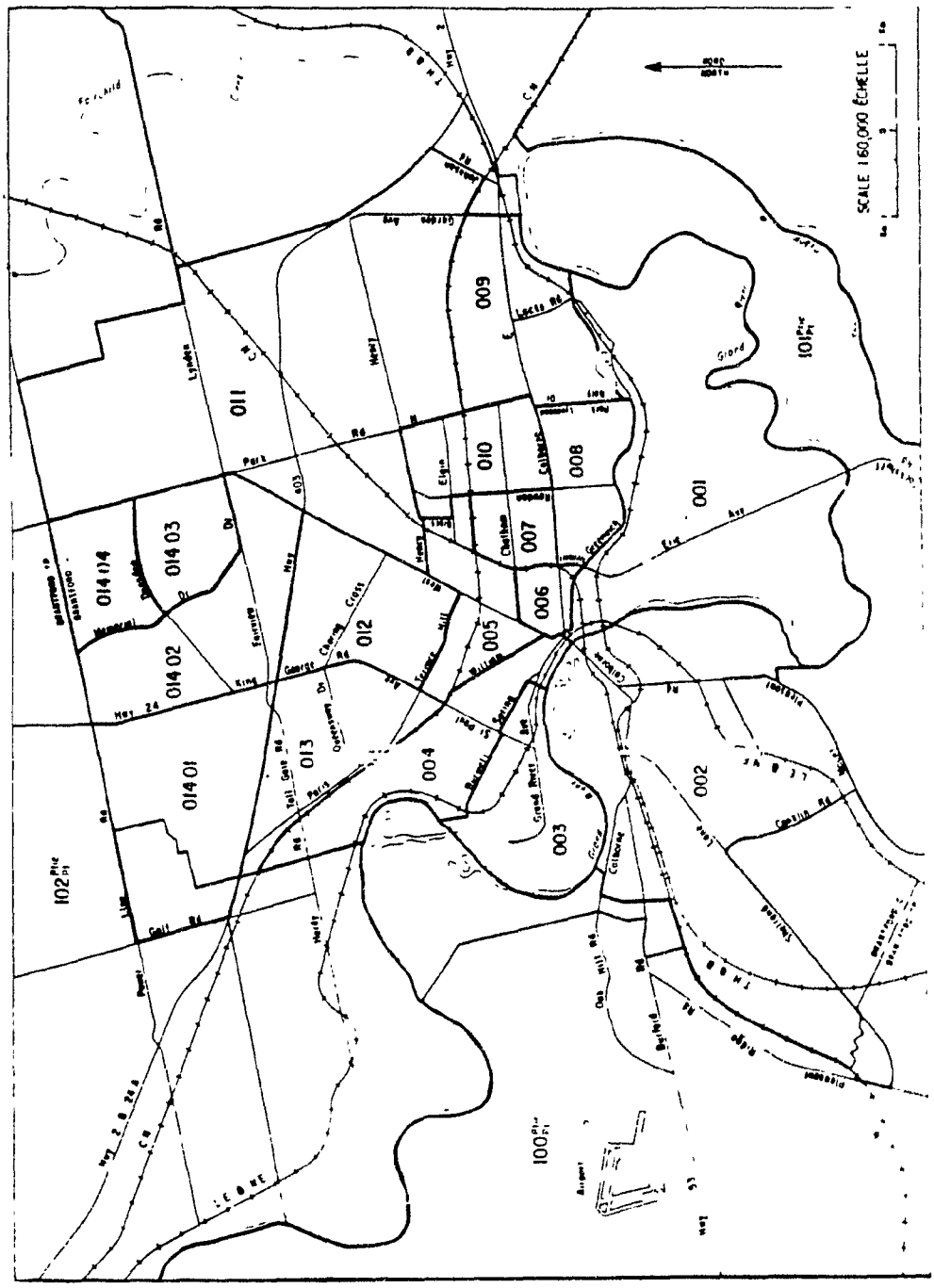
3.1.1 City Description

The city of Brantford, has developed around the banks of the Grand River (map 3.01). This location offered early settlers both cheap power and transportation for industry. While the river still remains a predominant feature in the city, its economic importance has declined.

The oldest parts of the city are situated along the river banks. Census tracts (CT's) 1 through 8 constitute these parts (map 3.01). The original commercial area consists primarily of CT 6 (map 3.01), which may still be considered the city centre because of its historical past. Most newer stores are located in or near two malls in the north end of the city (CTs 11 and 14.02). The city has therefore developed multiple economic nuclei.

The growth of new commercial areas in the north end of the city coincided with population and industrial growth in the same area. CTs 9 through 14 are the relatively new areas in the city. Industrial development has been centred in CT 11. The newest residential development in the city can be found in CT's 14.01 to 14.03. As growth continues further and further from the core (CT 6), the economic function of the central business district (CBD) becomes less dominant. As we will see later, this pattern of development of the city can also be seen in the residential

MAP 3.01


BRANTFORD, ONTARIO
CENSUS TRACTS, 1986
SCALE 1:50,000 ÉCHELLE
001
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013
014 01
014 02
014 03
014 04
Statistics Canada 95-101

location choices of seniors.

3.1.2 City Location

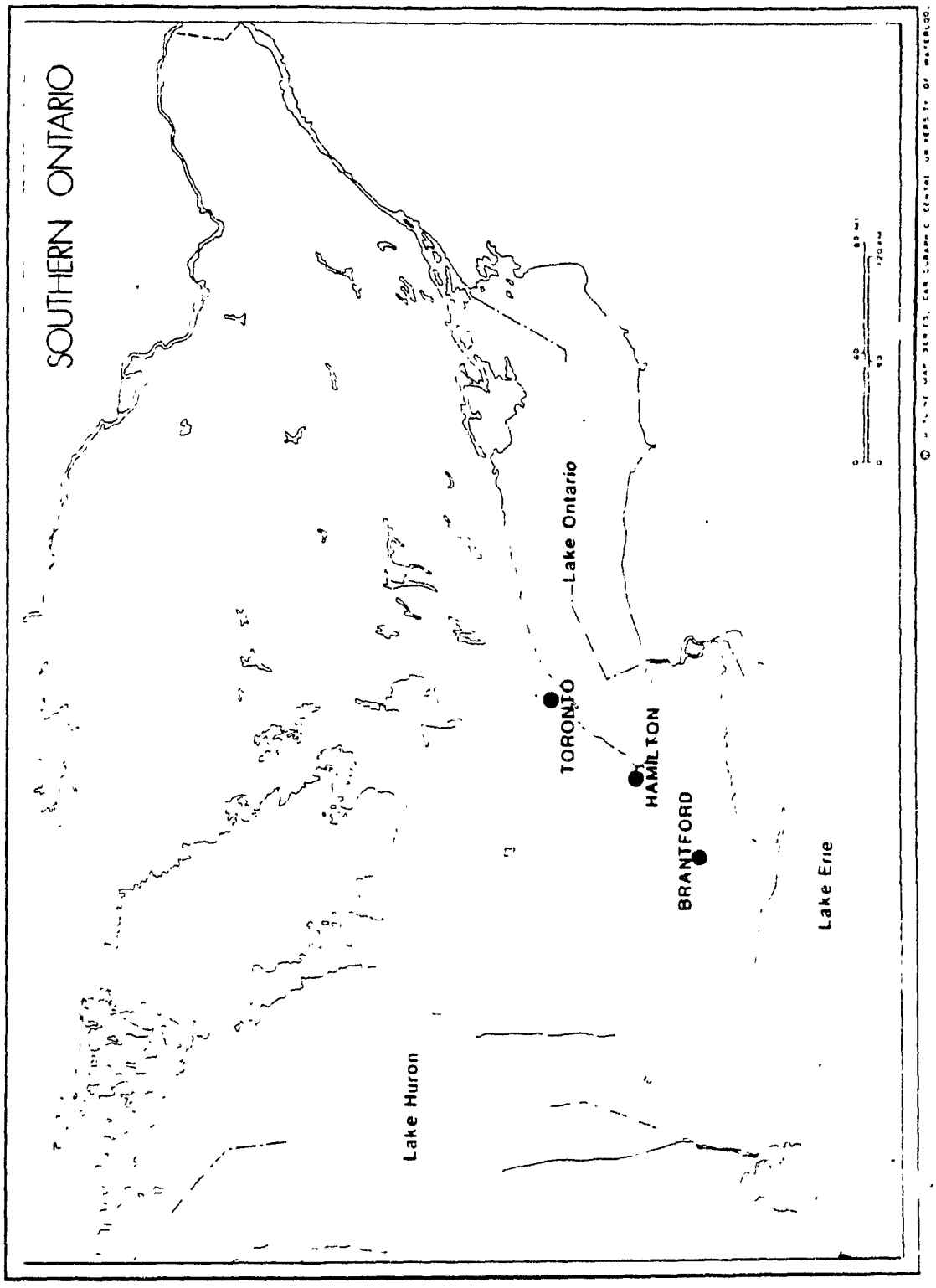
Brantford enjoys a unique location on the edge of the Golden Horseshoe. Located approximately 100 km from Toronto and 50 km from Hamilton (Map 3.02), Brantford is close enough for easy access, but far enough away to be separate. Housing and land prices are substantially lower in Brantford than in both Hamilton and Toronto. As a result, the city is becoming more and more popular with commuters and new industries.

Brantford's location enables the city's economy to enjoy a strong manufacturing sector while still maintaining close ties with the surrounding agricultural areas. Although Brantford suffered economically during the recession of the early 1980's, it is rebounding by diversifying towards smaller industries in an attempt to stabilize its economy. Brantford is no longer the home of farm machinery manufacturing. Both Massey Ferguson and White's were victims of the last recession. This is particularly important to the senior citizens of the city because large numbers of them were employed by these two companies. With the bankruptcy of these companies there has been a loss of benefits for some retirees who, as a result have suffered economic hardship. At the time of writing there was a law suit in progress by the retirees of Massey Ferguson in an attempt to regain drug benefits from the parent company, Varity Corporation.

3.2.0 City Demographics

As a city Brantford has not grown very much in the 1980's in terms of its

MAP 3.02


SOUTHERN ONTARIO
Lake Ontario
TORONTO
HAMILTON
BRANTFORD
Lake Erie
Lake Huron

population. With a total population of 75,465 in 1988, Brantford can be considered small (Table 3.01) relative to other cities in the area such as Hamilton and Toronto. Between 1981 and 1988 there was an increase of 1150 people or 1.55 % (Table 3.01). Within this population males accounted for 48% and females 52%. The elderly in Brantford are made up of approximately 60% females and 40% males. The slow growth in Brantford's population can be explained to some extent by the sluggish economic growth of the city. The bankruptcy of two of the largest employers in the city may have contributed to this slow population growth.

The increase in Brantford's elderly population is more dramatic than the increase in the overall population of the city. Between 1981 and 1988 the elderly population in the city grew from 8,925 to 11,190, an increase of almost 25% (Table 3.01). In 1981 the elderly represented 12% of the city's population. By 1986 this had increased to 13% and by 1988 to 14.7% (Table 3.01). When this is compared to the Ontario average of 12% in 1986, Brantford can be seen to be somewhat "older" than the province as a whole.

If this pattern of growth were to continue, the elderly would represent 18% of the city's population by 1995. This projection is likely wrong and the elderly population of Brantford will grow at a significantly higher rate. This view is enforced by the fact that Brantford is to be the home of a major senior citizen retirement community. This community will be within the city limits, in CT 2 (Map 3.01). With between 4,000 and 5,000 residents upon completion in 1995, the new community will be one of the largest retirement developments in the country and will be unique because of its location within the city boundaries. This type of development is generally located in rural areas not in cities due to high land costs

TABLE 3.01

Brantford Population Changes

Year	1981	1986	1988
Total Population	74315	76145	7546
Elderly Population	8925	9955	11140
% Age 65 and over	12.00	13.07	14.76

Sources: Statistics Canada (1981), 99-905
Statistics Canada (1986), 95-101
Brantford Tax Assessment, (1988)

in urban areas. As one can imagine, this development has the potential of placing a great demand on services for seniors. It is unlikely however, that the residents of the development will place a demand on SCA's in the city. The starting price for the condominiums in the development ($175,000) would seem to indicate that the elderly attracted to this development would not be the type of individuals in need of inexpensive SCA housing. Even if the city grows fairly quickly, this development will greatly affect the demographic make up of the city. Brantford is likely to "age" very quickly over the next five to ten years.

3.3.0 Aging-in-Place vs Inmigration

A growing elderly population is often due to one or both of two processes; aging-in-place and inmigration. In most cases areas will age due primarily to one of these mechanisms. Aging-in-place is the process whereby an area "ages" due to residential stability of households. Golant (1972) in a study of Toronto found that suburban areas were aging faster than the central city areas. In another study, Smith and Hiltner (1975), found a similar pattern in Toledo, Ohio. People who had moved to an area early in life had tended to stay in the same area. Thus households were aging as the area did. At the same time, children were growing up and leaving home, thus reducing the younger population. Cowgill (1978, pp. 452) states that this process is a natural progression in the lifespan of a neighbourhood. These processes leave an area with a large elderly population and a relatively small younger population, thus the area "ages".

The second mechanism that can "age" an area is the in-migration of elderly people. If a large number of seniors move to an area they may dominate the

population. This process can have major implications for an area. Unlike the aging-in-place where the process is gradual, the in-migration of seniors to an area may be an abrupt process. This is especially the case when an SCA or other form of elderly housing is opened. Hundreds of seniors may move into an area within in a few months, changing the age structure of the locality. Thus the host area is expected to adapt rather quickly to an aged population. Services such as health care, social services, and public transit may be strained beyond their capacity.

A large elderly population may also benefit the host area. Senior citizens are unlikely to work and thus place little if any strain on the job market. Seniors do however, provide employment for others. Retail stores, health, and social services all benefit from large senior citizen populations, due to increased demand and sales.

In terms of this thesis, the differences between aging-in-place and inmigration are very important. The construction of an SCA is not only a response to current needs, but also to those of the future. If a city is aging primarily because of aging-in-place, then it is quite easy to project future elderly populations and thus the need for SCAs. A large inmigration of seniors to a city makes the projection of the future need for SCAs very difficult because there is no way of knowing exactly how many seniors may move to the area. Thus it is important to understand which of these two processes is mainly responsible for an area's growing elderly population.

Brantford, like many other communities, has experienced an inmigration of seniors. In a previous study it was found that there was a net migration rate of 9.5% for senior citizens between 1976 and 1981 (Diegel, 1987). During the same period the under age 65 population had a net migration of only 6.4% (Table 3.02).

TABLE 3.02

Net Migration Rates For Brantford 1966 - 1981

Year	1966-71	1971-76	1976-81
Net Migration (People)			
Total Population	2190	341	4777
Age 65 and over	213	-4	845
Net Migration Rate (%)			
Total Population	3.4	0.5	6.4
Age 65 and over	3.2	-0.1	9.5

Source: Diegel (1987)

Positive net migration rates show that population growth was greater than could be explained by natural increase only. In the case of the elderly, this natural population growth is due to aging-in-place. While the majority of the increase in the elderly population can be attributed to aging-in-place, a large part of the growth was due to inmigration. As stated earlier the inmigration of seniors can make the projection of future demands on services a difficult process. The development of future SCA projects in Brantford must take into account the increases in the elderly population due to inmigration if the needs of all of Brantford's elderly are to be met.

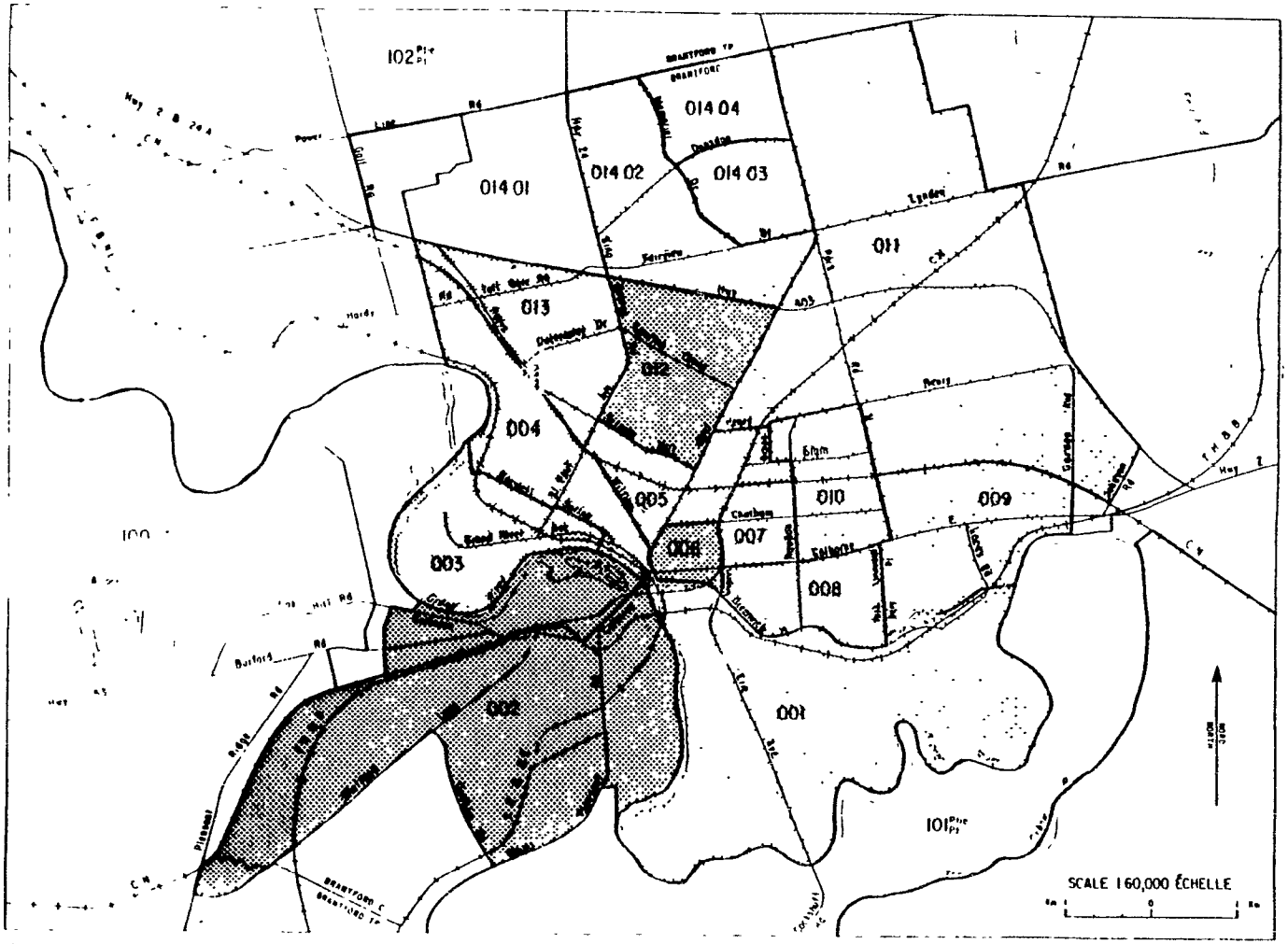
3.4.0 Current Location Of Seniors In Brantford

In attempting to describe the distribution of the elderly, there are two terms that will be used extensively concentration and congregation. The former expresses the elderly population of an area in relative terms, while the latter in absolute. The two terms are needed because they describe population patterns that are not always independent of one another.

If we look at the concentration of seniors it is clear (Map 3.03, Table 3.03) that CT's 2, and 12 stand out as having high concentrations. These areas are unique in terms of the explanations of why they have such high concentrations of the elderly. In the case of CT 2, the main reason is that there are two SCA apartment buildings and an old age home. Together these three facilities house approximately 946 people. As a group the elderly represent approximately 21% of the population of this tract. Of these elderly, almost 70% live in SCAs or other housing for seniors. This area also has the largest congregation of seniors (1215) of

SENIOR CITIZEN CONCENTRATION

BRANTFORD, 1986



LEGEND

< 8.94%

8.95% - 13.35%

13.36% - 17.76%

> 17.77%

% of population age 65 and over

MAP 3.03

Statistics Canada 95-101

TABLE 3.03

Elderly Concentration and Location Quotients
Brantford, 1986

Tract	Population age 65 +	Percentage age 65 +	Location Quotient
01.00	905	12.72	0.97
02.00	1215	21.31	1.63
03.00	285	14.87	1.14
04.00	505	15.25	1.67
05.00	550	13.99	1.07
06.00	265	19.59	1.50
07.00	445	12.92	0.99
08.00	525	16.25	1.24
09.00	535	10.12	0.77
10.00	450	9.42	0.72
11.00	675	12.50	0.96
12.00	1135	18.23	1.39
13.00	745	16.16	1.24
14.01	245	6.67	0.51
14.02	860	12.19	0.93
14.03	495	11.68	0.89
14.04	145	3.03	0.23
CITY	9955	13.07	

Source: Statistics Canada, (1986), 95-101

any CT in the city. The three facilities have attracted seniors to this census tract (Diegel, 1987). As a result the demographic structure of this area has been "aged" by the in-migration of seniors to these facilities, although aging-in-place may have also played a role.

In contrast to CT 2, CT 12 has no special housing facilities, but has a population consisting of more than 18% elderly people. This tract has 1,135 seniors living in "non-age-segregated housing". Although it is difficult to identify the reason for so many elderly living in this tract, the age of the housing in the area provides a good explanation. A large proportion of the housing in the tract was built around 1950. Those people who were young and in their 20's or 30's when they moved to the area at the time of home construction and who have stayed are now in their 60's or 70's. The result has been that these people have "aged-in-place", thus causing a congregation and concentration of seniors in the tract.

Clearly the congregation and concentration of seniors can be the result of two distinctive processes. Aging-in-place and the in-migration of seniors have very different effects on the host area. Thus it may not be sufficient to identify whether or not an area has a high concentration and/or congregation. Rather, it is important that the processes that led to the population composition of the area also be examined.

3.5.0 Location Quotient

Although percentages are useful for describing concentrations of seniors in a general sense, they tend to ignore the effect of the relative size of the population in an area. The location quotient is an attempt to avoid this problem by calculating

the size of the elderly population in an area relative to the city as a whole.

The following formula was used in calculating the location quotient index:

$$LQ = (E/P) / (\Sigma E / \Sigma P)$$

Where:

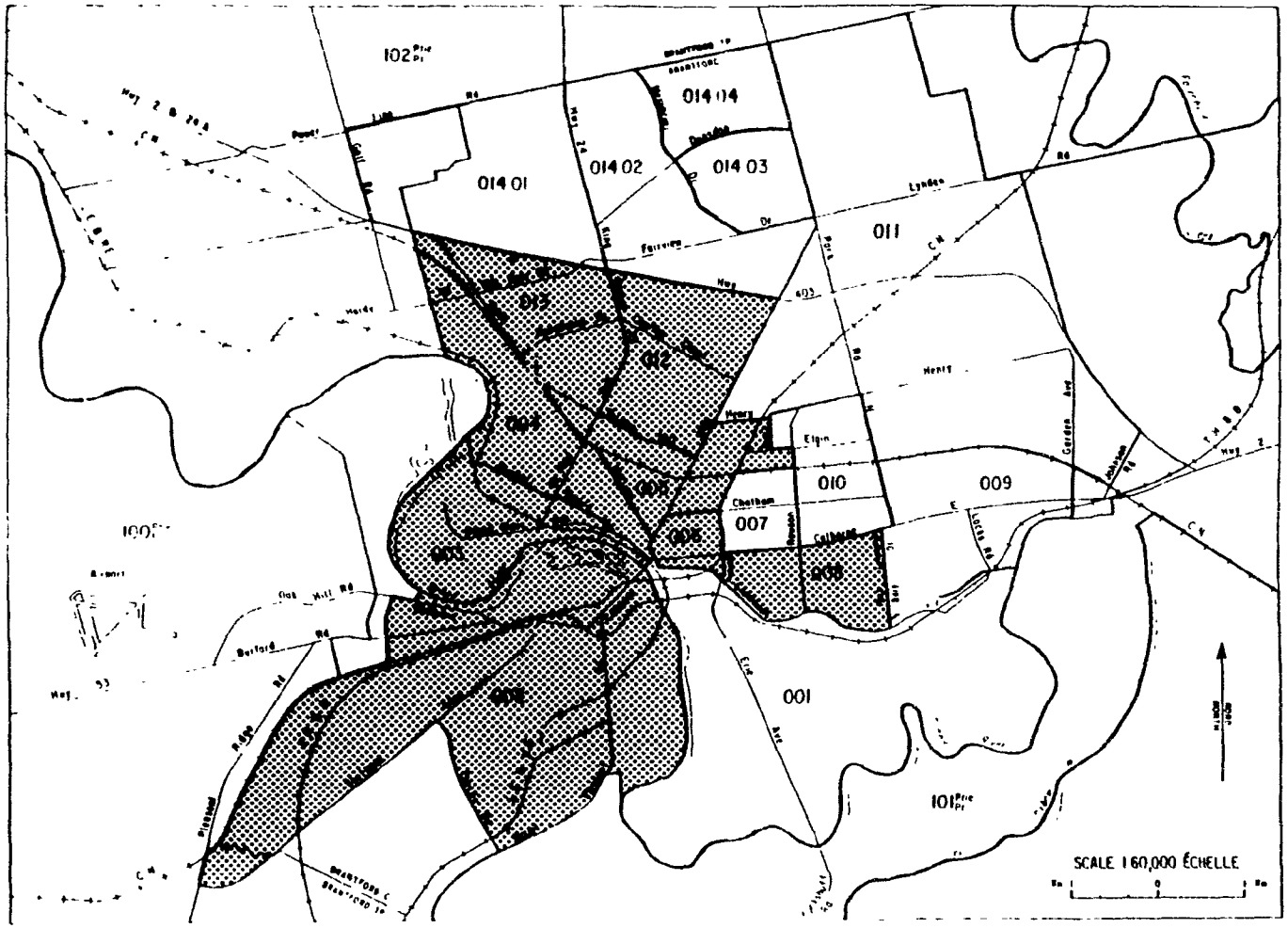
LQ = location quotient for area i
E = number of elderly in area i
P = population of area i
ΣE = total elderly population for all areas
ΣP = total population for all areas

Joseph and Phillips, 1984, pp.97

If the LQ is greater than 1 then area i has a high concentration or seniors relative to the rest of the city. Conversely, if LQ is less than 1 then area i has fewer elderly than it should. If LQ is equal to 1 then area i has a proportion of the city's elderly population that is equivalent to the proportion of the city's total population living in area i (Joseph and Phillips, 1984, pp. 97). The calculation of the location quotient facilitates a relative measure of elderly concentrations.

When the location quotients for the census tracts in Brantford were calculated, the results were as expected. None of the areas which had high concentrations of elderly had low LQs and vice versa. Areas with high concentrations of elderly also have large location quotients. Those areas that had more than the mean percentage of elderly also had LQs greater than 1, indicating an overrepresentation of the elderly (Maps 3.03 and 3.04, table 3.03). This indicates that areas which had large elderly concentrations also had a higher proportion of the city's elderly population than would be expected based on the proportion of the city's total population that lives in the tract.

LOCATION QUOTIENTS FOR SENIOR CITIZENS
BRANTFORD,1986



LEGEND

LQ < 1

LQ > 1

MAP 3.04

Statistics Canada 95-101

3.6.0 Conclusions

The elderly population of any city may be a living history of the city's development. As was shown, large concentrations and congregations of seniors often indicate that an area was developed thirty or forty years ago. The patterns of elderly population concentration in Brantford are similar to those in Toronto as shown by Golant (1972). Brantford's elderly population is growing most quickly in older suburbs.

As Brantford continues to grow and develop, the elderly population may become a more predominant group within the city. Current inmigration trends and growth due to future developments may greatly increase the elderly population cohort. As the elderly population continues to grow, the effects on the city may be great. Increased demands on social and medical services will increase as the aged group grows. The demand and need for SCA housing will also likely increase.

The purpose of this chapter has been to identify demographic patterns and trends in Brantford. As we have seen, Brantford is an "aging" city. The development of future SCA buildings depends on the recognition of this trend by government agencies. While a growing elderly population may be reason enough to build new SCAs, the need for the SCAs must be established by the population of those seniors most in need of SCA housing and not only by the total population of seniors in the city. As a result the following chapters will develop a set of characteristics of seniors living in SCAs, in an attempt to develop a more appropriate way of projecting future need by showing which seniors are more likely to want to move to an SCA.

Chapter Four
DATA GATHERING TECHNIQUES

4.0.0 Introduction

The methodology behind a study is one of the most important aspects of the inquiry. If an investigation lacks a good methodology then it is likely to provide inaccurate results. The main purpose of this chapter is to provide a discussion of the methodology used in the preparation of this thesis. Specifically this chapter will examine the data types used (section one) and, the sample selection (section two). The preparation and adminstration of the questionnaire used in the study will be discussed in sections three and four, respectively. Finally, section five will be a report of the questionnaire response rates.

4.1.0 Data Sources

When one conducts a study on a small scale there is often a problem obtaining relevant data. There is also the problem of obtaining data without breaching an individual's confidentiality and privacy. As a result data gathering is often an elaborate and time consuming process. In terms of this thesis, two types of data were utilized. The first of these was demographic data which was obtained from local and federal sources. The second and most important type of data was household and housing data obtained through a mail-out questionnaire. The sources and the gathering of data will be discussed in the following sections.

4.1.1 Demographic Data

The main source of demographic data was Statistics Canada. This data source

is inexpensive and relatively up-to-date. Statistics Canada data was used to provide a basic demographic and socio-economic description of the study area. In addition Statistics Canada maps of the study area were used.

A second source of demographic data was the local tax assessment. Unlike the census data, tax assessment statistics are not readily available and had to be obtained directly from the local property assessment office. One important advantage of assessment data is that the information is available on a yearly basis, while census data is only available every five years. The availability of up to date population figures allowed for a more accurate assessment of the survey population size and thus accuracy in the study.

4.1.2 Questionnaire Data

The second and most important type of data for this study was the information provided by a survey conducted specifically for this thesis. As stated earlier, it is very difficult to obtain information about individuals from government agencies because of their desire to maintain confidentiality. The design and administering of the survey are discussed in the following sections.

4.2.0 Questionnaire Design

The wording and layout of a questionnaire are essential in achieving the desired results. This section examines how the questionnaire used in this study was developed.

4.2.1 Question Topics

The questions used in this study were developed to gather information regarding both household and housing characteristics of SCA and non-SCA residents of Brantford. The questionnaires and results of other studies were used as a basis for designing the questionnaire used in this study (Audain et. al. 1973, Gold et. al. 1985). From a review of past research it was apparent that basic socio-demographic data was an essential part of most studies (See Chapter Two). Information about health and activities was also considered to be important in these studies. As a result questions were asked about the respondent's activity patterns and the amount of assistance they required in their day to day living. A major part of the questionnaire was used to establish both the housing and household characteristics of the respondents. It was felt that the combination of questions regarding socio-demographic, housing, household, activity patterns and health characteristics would provide a broad illustration of both the respondent and their housing characteristics. A further analysis of this data may then determine which of this characteristics will show a significant difference between the two study groups. From this analysis it may then be possible to determine why some seniors stay in their own home and others move to SCAs.

4.2.2 Question Form and Layout

The actual way in which a question is asked can have a great influence on whether or not a person will respond to it. In particular questions about very personal information often do not receive favourable responses unless the respondent can be assured of anonymity. In an effort to alleviate this problem closed responses

were used when personal questions were asked (Appendix One). By asking the respondents to fit themselves into a group (ie. income range), the respondents do not identify themselves as much as they would if they were asked to provide an exact figure.

The layout of a questionnaire can also have a great affect on the response rate. Obviously questions regarding the same topic should be grouped together. Another important factor is that less personal questions should appear first and then more confidential questions should be placed in the middle of the questionnaire (Lounsbury and Aldrich, 1986). Respondents may be more willing to answer personal questions after being introduced to the idea of filling in the questionnaire by answering a number of unobtrusive questions first (Appendix One).

The length of the question is also an important factor in the success or failure of a questionnaire. Generally the shorter the questionnaire is the better. This is especially true for a mail out survey. Respondents are unlikely to take the time to complete a long questionnaire on their own. Thus a length of two pages was desirable so that the time required to fill out the survey was kept to a minimum.

4.3.0 Survey Sample

Like most studies of populations, a sample of the total population that was being examined was used for this study. It would have been costly and impractical to question every person in the population. Instead, a sample of the population is taken with hope that it is representative of the whole population.

In establishing a survey sample we must first establish the population we intend to sample from. This study was concerned with the elderly population of

Brantford. For the purposes of this study the elderly were defined as those people age 65 and over. The rationale behind the decision lies in the definition used by governments in Canada for defining who receives government pensions. The age of 65 is also used as the normal age of retirement although this is in some question due to the new Canadian Charter Of Rights which forbids discrimination based on age and thus forced retirement. Another major problem in defining all individuals over the age of 65 as elderly is that like any group in society there are many variations within the group. Longer life expectancies and increased health care mean that the elderly are living longer, healthier lives which increases not only the number of individuals but also the differences between individuals in the group. For the purposes of this thesis the age of 65 will be used to define the elderly age group although this definition may no longer be accurate.

4.3.1 Survey Groups

The sample population for this study was taken from a sub-group of all elderly people living in Brantford. Within this population the study was concerned with those seniors who did not live in any form of senior citizen housing and those seniors who live in SCA buildings. Elderly individuals who lived in various forms of special housing were not studied for a number of reasons. Individuals living in facilities such as retirement homes and nursing homes are often not the main actors in making the decision to move. Health problems such as Alzheimer's disease often make it impossible for the senior to make a rational decision about moving. It would be exceptionally difficult to contact these individuals and thus almost impossible to complete such a study. This leaves us with two possible study groups

those living in regular housing and those living in SCAs. The following equation can be used to define this population.

$$NOLDP = OLDP - (RHP + OHP + NHP + SCAP)$$

where:

NOLDP =population of seniors living in "normal housing"
OLDP =total elderly population
RHP =population in retirement homes
OHP =population in old age home
NHP =population in nursing homes
SCAP =population in senior citizen apartments

Each of these types of housing offers the resident with a fairly unique environment. As such the following list provides a definition of each of the above housing types.

NOLP - This is the population of housing that can be best described as non-age-segregated housing. These dwellings are the same types of housing that would be available to the general public. For most seniors this housing will be the same home that they lived in prior to retiring. Other seniors may move to apartments or smaller houses when they retire.

RHP - This is the population of retirement homes. These residences offer shelter, meals and minimal nursing care (less than 1 1/2 hours per day per resident) (Sayegh, 1987). Most often this nursing care is in the form of administering drugs or assisting people in taking baths etc. Generally, the residents of retirement homes have only minor health problems.

NHP - Nursing homes are facilities that provide extensive nursing care for residents (more than 1 1/2 hours per day per resident. The care provided in a nursing home is equivalent to the nursing care provided in a hospital. Seniors suffering from dementia, Alzheimer's Disease and those who are bed ridden, are housed in these facilities.

OHP - Old age homes are residences that provide the services of both nursing homes and retirement homes. A senior can move to the facility when they are relatively well and continue to live there if their health declines.

SCAP - Senior citizen apartments are non-profit apartments that are built specifically for senior citizens. These apartments are generally one bedroom units with a kitchen and living room. In the past there were also units with no bedrooms (bachelor apartments) although these are generally not being built today.

4.3.2 Survey Group Sizes

In order to define the two populations of interest, data was gathered from several sources. The elderly population of Brantford was established using the 1988 tax assessment role. The population of the various forms of housing for seniors was obtained by contacting the facilities. Since all of the facilities in the city have a waiting list, it was appropriate simply to use the number of beds each facility had as the population of the facility. Fortunately for the study there has been little expansion in these facilities over the past few years so that the figures used here can be considered to be fairly accurate. The population of seniors living in SCAs is a slightly different matter. The major problem in establishing the population in these buildings is that there is a constantly changing population that consists both of individuals and couples. As a result the population of these buildings is not equivalent to the number of units. In order to establish an approximate population the number of units was multiplied by a factor of 1.2. This would mean that 1 out of every 5 units was occupied by a couple. This factor was established in an earlier study done by the author (Diegel,1987) in an attempt to overcome the unwillingness of the local housing authority to release this data. The following data

represents the estimated population for these groups.

Table 4.01

OLDP = 11190
RHP = 418
OHP = 406
NHP = 169
SCAP = 796

Therefore:

NOLP = 11190 - (418 + 406 + 169 + 796) = 9401
SCAP = 796

4.3.3 Sampling Techniques

As stated earlier it would be impossible to question everyone in the two study groups due to time and money constraints. As a result a sample was taken from each of the study groups. This type of sample is designated as a choice based sample. The sample is based on subgroups of the population that have already made a choice. In this case they have made the decision to stay in their own home or to move to an SCA.

In an attempt to achieve a representative sample random sampling and systematic sampling techniques were used. Both of these techniques were utilized because of difficulties in using only one or the other. Specifically, a random sampling technique was used to achieve a sample of those elderly living in SCAs and a systematic sampling technique was used for sampling seniors living in regular housing.

To obtain the random sample of people living in SCAs there were three steps in the process. The first of these steps was to acquire a list of seniors living in SCA buildings in Brantford. This list was obtained from the 1988 edition of the

Vernon's City of Brantford Directory. These directories are published yearly for most cities and contain information that is not always easily obtained from other sources.

The second step in this process was to then draw a random sample from the list of SCA residents. This was accomplished by matching apartment numbers with numbers taken from a random number table. The random number table was produced with the help of a random number generator available in the Gauss Software package. From a population of 620 households 200 were selected to be sampled.

The next step was to confirm that the households selected were still living in the SCAs. This was confirmed by using the latest edition of the Bell Canada Telephone Directory for Brantford. Even with this confirmation there were some questionnaires returned because individuals had moved or died.

The second choice group were those individuals living in normal housing, that is housing not specifically built for senior citizens. The main tool in establishing this sample was once again the Vernon's city directory. As part of the directory the occupations of people are published along with addresses. From this it is possible to establish a list of retired people. In this case every tenth person who listed their profession as retired was selected. A total of 200 names were chosen. Once again these addresses were confirmed with the most recent telephone book. While the sampling ratio for this group is significantly smaller than the sampling ratio used for people living in SCA's the cost of increasing the sample size would have been prohibitive.

4.4.0 Questionnaire Administration

In this section the administering of the questionnaire will be discussed. Due to time constraints and problems accessing seniors in SCAs a door to door survey was impossible. This resulted in there being two possible ways to administer the questionnaire, by mail or by phone.

In order to determine the best method for this study both of these methods were first tested. While the phone interview method had the benefit of being inexpensive there were problems. Many elderly people have hearing losses which make phone conversations difficult. In addition, it was difficult to explain exactly what the study was about in a few short sentences. The answers to some questions required some thought and in some cases required people to calculate responses. As a result the administering of the questionnaire on the phone took between 30 and 60 minutes.

Another problem was that phone soliciting has become a popular tool for selling products and fund raising by local charities. Many of the elderly contacted hung up immediately or stated that they did not want to "buy" what I was selling. Consequently the use of phone interviews was ruled out as an effective tool for this study.

The second method examined for administering the questionnaire was direct mailing. While this was an expensive undertaking there were many benefits that outweighed the cost. As stated, the questionnaire took some time to complete. By mailing the questionnaire individuals could respond at their leisure. While most questionnaires were returned within a few days some were returned weeks later. This method of conducting the survey also provided the individuals with a sense of

privacy and confidentiality when answering some of the more personal questions.

The difference between mail and phone surveys in terms of response rates is of some question. Herzog and Kulka (1989, pp. 71) reported that mail and phone surveys often have similar response rates depending on how the survey was conducted.

4.5.0 Responses and Response Rates

As could be expected not everyone responded positively to the questionnaire. Aside from those who did not respond at all, there were a few responses that stated that it was "none of your business". While not providing any useful data these responses indicated that the individual had at least taken the time to read the questionnaire and mail it back.

Another interesting response to the questionnaire were those that were returned blank. This may have been some form of silent protest to the invasion of the individual's privacy. In order to return the questionnaire it required some effort on the respondent's part. The senior had to make an effort to take the letter to the mail box in order to return it. By not filling in the questionnaire it was almost the same as stating that it was "none of your business". Fortunately this was a small portion of the responses received.

One of the most important non-response groups was that of the illiterate. It will be shown later that the average education level for the elderly is very low. Unlike today where anyone who has the desire to obtain an education may do so, in the past this was not the case. If we are to believe news reports, approximately 20% of Canada's adult population is functionally illiterate. As a result it is likely

that 20% of the questionnaires were not returned simply because people could not read or understand the questionnaire. This is, of course, one of the major drawbacks of using a mail-out questionnaire. The illiterate segment of society, an already disenfranchised group, is left out of the study. This is a segment of the elderly population is especially important, because they are a group which is usually forgotten.

There are two other population groups that are left out when using a mail out questionnaire. The first of these groups is that segment of the population who do not speak English. This group is effectively left out of the survey unless the individual chooses to have someone translate the questionnaire. This factor is especially important in areas with large ethnic populations. In Brantford those people who can speak no English account for less than 1% of the city's population in 1981 (Statistics Canada, 1981, 95-946). This does not include those people who have only a basic knowledge of English. Thus it is likely that the section of the population that cannot read English is higher than 1%.

The other group that is excluded from this survey are the frail elderly. Not all senior citizens with functional disabilities live in retirement or nursing homes. There are many elderly who are ill living in their own homes or SCAs. Marshall (1987) has shown that the frail elderly are excluded from most surveys including those which interview people in their own homes. In terms of this study the frail elderly are likely to have been excluded, especially those who can not read or write due to health problems.

4.5.1 Response Rates

When one examines the responses to a questionnaire there are two types of responses that should be considered. These consist of completed questionnaires and those that are, for any reason, returned incomplete (Marshall, 1987). As stated earlier those questionnaires that are returned incomplete maybe just as valuable as the completed returns. As a result both the return rates and the completed rates will be reported in this section.

The following table outlines the sample sizes and return rates.

Table 4.02

Group 1- Those people living in SCAs

Where P=total number of households
and x=sample size

P = 663
x = 200 or 30.2% of population
x - deaths = 193

number of completed returns	= 43 or 21.5%
number of blank returns	= 10 or 5.0%
number of complaints	= 0 or 0%
number of deaths or moves	= 7 or 3.5%
Response rate	= 26.5% or 9.0% of households
Completion rate	= 22.3% or 6.5% of households

Group 2 - Those people living in normal housing

P = 6356 if 66% of elderly are married
x = 200 or 3.15% of population

number of completed returns	= 57 or 28.5%
number of blank returns	= 0 or 0
number of complaints	= 6 or 3.0%
Response rate	= 31.5% or 1.0% of households
Completion rate	= 28.5% or 0.9% of households

The overall response rate of 29.52% and completion rate of 25.45% represent a fairly good level of response to the questionnaire. Unfortunately the number of returned questionnaires still represents a small percentage of the total population, especially for the non-SCA population. A potentially greater problem is the fact that the SCA population is over represented. If this sample was to be representative of the elderly population then approximately 90 of the 100 returned questionnaire would have to be from non-SCA dwellers and only 10 from SCA dwellers. Another way to look at this is that if we sent out 200 questionnaires to SCA dwellers then 1800 non-SCA dwellers should have received questionnaires. In order to keep cost down and still question a significantly large number of SCA dweller the SCA population was over-sampled. It will be shown that the over-sampling of the SCA population had little if any effect on the final analysis to determine the significant differences between SCA and non-SCA dwellers (Chapter 7).

4.6.0 Conclusion

For any study to be valid it must utilize a proper methodology. This chapter has been used to demonstrate the methodology that was utilized in the survey conducted for this thesis. The development of the questionnaire, both in terms of content and design, was shown to rely partially on past research techniques and results. Another part of this chapter has been used to provide a description of the survey sampling technique and the questionnaire return rates.

Although it would have been desirable to obtain a larger sample of both the SCA and non-SCA dwellers this survey has provided a good general data set of the characteristics of the two study groups. This data will be used in chapters five and

seven to provide both a description of the study groups and to show the significant differences between the groups.

Chapter Five
RESPONDENT PROFILE

5.0.0 Introduction

A major part of this thesis is contained in this chapter. While chapter six deals with a statistical test of the survey data, this chapter provides a descriptive explanation of the characteristics of SCA and non-SCA residents based on the data collected. This background information will provide a clearer picture of the type of people who choose to move to SCAs. This descriptive analysis will also isolate variables that show a great deal of variation between the groups. These variables will then be used as the basis for the logit analysis that will be discussed in chapter seven.

This chapter is broken down into six parts. Section one provides a description of the demographic characteristics of the respondents. The economic characteristics of the response groups are examined in section two. A description of the respondents' housing and their tenancy history is provided in section three. Section four provides a description of the sources and levels of social interaction that the respondents reported. Various activities in which the respondents participate are described in section five. Finally, section six is a discussion of subjective factors that may lead to or have led to a senior choosing to move to an SCA.

5.1.0 Analysis

Are SCA and non-SCA dwellers really different? Do they differ significantly in terms of demographic, economic, housing, and activity characteristics? If there are differences, they may help to explain why some seniors choose to move to

SCAs while others decide to remain in their own homes.

If one was to make a general statement about the differences between SCA and non-SCA residents based on the data collected, it would be that SCA residents tend to be older, widowed females with low incomes, no cars, and those who previously rented housing. A similar statement about non-SCA residents would be that they tend to be younger, married homeowners who own cars. With these statements in mind, let us begin our examination in more detail.

5.1.1 Choice Based Sampling

The use of choice based sampling as indicated in Chapter 4, resulted in an under sampling of the non-SCA population. As a result of this under sampling, any analysis of the overall characteristics of both the SCA and non-SCA populations would be skewed towards the characteristics of the SCA group. In terms of this chapter, this difficultly means that there will not be a discussion of the characteristics of the elderly population of Brantford as a whole. Comparisons can only be made between the two sample groups. The under sampling of one group does not however affect the parameter estimates of the logit model, as will be shown in chapter six. Thus the only difficulty associated with under sampling is that descriptive statistics for the total sample group are inaccurate and cannot be used.

5.2.0 Demographic Characteristics

The demographic characteristics of an individual help to describe the basic elements of the person's life. Age, gender, marital status, and education level

enable us to develop a basic description of the individual. The average demographic characteristics of a group of individuals permit us to make a fairly good description of that group and thus understand the needs of the overall group.

5.2.1 Age

Age places a person within the life cycle pattern. For the elderly, their age may indicate whether they are likely to be married or widowed, healthy or ill, and indeed, how long they are expected to live. The most important factor to remember is that age does not mean the same thing for all individuals. Not all 75 year old women are ill, widowed, and poor. Thus, while age may reflect the average characteristics of a group, it does not define the specific characteristics of an individual.

The average age of SCA respondents was 75.4 years while the average age of non-SCA residents was 71.4 years (Table 5.01). This difference is significant based on a t-test at the 0.05 significance level for either pooled or separate variance. This difference indicates that there are likely to be some differences between the groups. The older a person is, the more likely they are to be ill, widowed, and female. As we will see, these characteristics hold true for this sample. The elderly SCA groups are overwhelmingly widowed females with some evidence of being more ill than their non-SCA counterparts. The significance of this age difference is that SCAs tend to concentrate large numbers of older elderly people and the problems associated with old age in one place. While this may bring about problems it also may allow for easier servicing of the needs of these people.

Another important aspect of the age of the respondents was the age at which

Table 5.01

AGE

	$\bar{X}$	STD	N
SCA	75.37	7.22	43
Non-SCA	71.33	6.37	57

	T-Value	DF	2-Tail Probability
Pooled Variance	2.96	98	.004
Separate Variance	2.91	84.4	.005

Where:

$\bar{X}$ = mean age
STD = standard deviation
N = number of cases
DF = degrees of freedom

they moved to SCA's. When the length of residency is subtracted from the current age of the respondent it can be shown that those seniors who already live in SCAs moved there when they were relatively young, on the average 67 years old. The SCA dwellers in this study have in fact aged-in-place based on the current average age compared to the average at the time of moving to a SCA.

The aging-in-place of SCA dwellers causes some problems for the agencies which operate these facilities. As a person ages they may become ill and thus unable to care for themselves. Thus the operating agency may have to suggest that the person move. The problem is that asking a person to move may be very difficult to do. Another problem is that the SCA may not meet the needs of a aging tenants (Lawton et. al., 1980, Lawton et. al., 1985, Merrill and Hunt, 1990). Lawton et. al. (1980, pp. 62) have suggested that SCAs can react to the aging of residents by either maintaining current standards (constant model) or by adjusting the facility to meet the needs of the aging residents (accommodating environment). Erlich et. al. (1982, pp. 402) suggest that SCAs should combine these two models to form a "balanced environmental model", where original standards are maintained but there is allowance for needed services. Thus the SCA may have a very old population whose needs are not being met.

5.2.2 Gender

One of the biggest differences between SCA and non-SCA response groups is the sex ratio. The major difference between the two sample groups was that 44% of the non-SCA respondents were male compared to only 20% for SCA residents. The vast majority (80%) of SCA residents are female compared to 56% for non-

SCA residents. The differences in the sex ratios can be attributed to differences in the marital status of residents. Most of the SCA respondents were widowed females, and very few were married. The large number of elderly widowed females is due to the higher life expectancy of females which means that women are likely to outlive their husbands.

5.2.3 Marital Status

When the gender of the respondents is combined with marital status, the differences between SCA and non-SCA respondents are intensified. Over 95% of SCA respondents were single in some form, with 72.1% being widowed. The reverse is true for non-SCA residents where 65% of the respondents were married (Table 5.02). In terms of the SCA respondents the majority of the widowed respondents were female. Of the widowed non-SCA respondents 17% were male and 83% were female. It is interesting to note that the sex ratio for widowed SCA respondents is almost the same (males 16% and females 84%). It would appear that the small number of males in SCAs is likely the result of there being in general relatively few men who are widowers and not the result of males being less interested in SCAs. The small number of married couples (2 or 5%) in SCAs is also surprising. This low rate of SCA utilization among married couples may be because they are better able to cope financially, psychologically, and socially with the difficulties associated with aging and maintaining a private home. Thus the major differences between SCA and non-SCA populations is the proportion of the population that is married. The high concentration of widowed females in SCAs is not due to some attraction force for females, but rather it is due to the relative lack

Table 5.02

Marital Status

	Married	Widowed	Divorced	Never Married
SCA	2 (5%)	31 (72%)	6 (14%)	4 (9%)
Non-SCA	37 (65%)	18 (32%)	2 (3%)	0
SCA				
Male	1 (12.5%)	5 (62.5%)	1 (12.5%)	1 (12.5%)
Female	1 (3%)	26 (74%)	5 (14%)	3 (9%)
Non-SCA				
Male	32 (89%)	3 (8%)	1 (3%)	0
Female	5 (24%)	15 (71%)	1 (.25%)	0

of elderly men who are widowers and a lack of attraction to married couples.

5.2.4 Education Level

The level of education obtained by an individual can affect every aspect of his/her life. Everything from the type of job held to the circle of friends kept is influenced by the level of education that an individual has achieved. Thus while education level may or may not be a significant factor in the housing choice of an individual, it does have an effect on their other characteristics.

Two important factors must be remembered when examining the education levels of the respondents. The first is that most of the people in this sample probably had their education curtailed to some extent by the depression of the 1930's and by World War II. Thus the education levels of respondents may seem low. Another reason for the relatively low education levels is because of the large proportion of respondents being women. Elderly females did not have the same educational opportunities that their male counterparts had, and this resulted in low education levels for females.

SCA respondents, in particular, had very low levels of education (grade 8 and less). Approximately 44% of SCA respondents reported this level while only 28% of non-SCA respondents did so. In terms of a male female ratio, a much higher proportion of females reported low education. While only 33% of male SCA respondents reported this level, 53% of SCA female respondents did (Table 5.03). The male female difference in education level is also true for non-SCA respondents. Only 17% of non-SCA males reported low education levels while 45% of non-SCA females had the same education level. As stated earlier, elderly females did not

Table 5.03

Education Level

	< Grade 8	Grade 9 - 13	> Grade 13
SCA	20 (44%)	19 (46%)	2 (5%)
Non-SCA	16 (28%)	29 (51%)	12 (21%)
SCA			
Male	3 (33%)	5 (56%)	1 (11%)
Female	17 (53%)	14 (44%)	1 (3%)
Non-SCA			
Male	6 (17%)	20 (57%)	9 (26%)
Female	10 (45%)	9 (41%)	3 (14%)

have the educational opportunities that older men did. Thus these results are not surprising.

The frequency of higher education (greater than grade 13) obtained has the opposite pattern to low education. Many more non-SCA respondents had a high level of education. Approximately 21% of non-SCA respondents achieved this level while only 5% of SCA respondents did so (Table 5.03). When we examine the differences between males and females, the lack of educational opportunities for elderly females is more apparent. Among non-SCA respondents almost twice as many men (27%) as women (14%) reported high education levels. The small number of SCA respondents with high education levels makes the same comparison difficult.

For the women of both the SCA and non-SCA groups, the low level of education may mean that they either held low paying jobs or no jobs at all. If they had never worked they would not have contributed to the Canada Pension Plan and thus do not receive it. This would mean that they have a lower pension income which may then affect their ability to maintain a private home.

In general, SCA respondents have lower education levels and non-SCA respondents have a higher incidence of higher education. These differences can be shown even when the effects of gender are taken into account. Women on the whole have the lowest education levels, regardless of where they reside.

5.3.0 Economic Characteristics

The choice of housing alternatives that an individual has may be almost totally controlled by their financial characteristics. A person can only live where they can

afford to do so. While SCAs are generally open to all seniors, other forms of housing for the elderly are not due to their high cost. The financial characteristics of people already living in SCAs can help us to determine what type of people are most interested in SCAs and thus the likelihood of an individual moving to an SCA.

5.3.1 Income

The income of an individual may be one of the most important factors in determining housing choice. This is particularly true for seniors. A decrease in financial well being due to retirement or the death of a spouse may mean that housing which was once affordable is no longer so and thus a move may be forced.

While housing choice may be limited by a senior's current income, it may also be limited by the individual's pre-retirement income. If an individual has never been able to afford to buy a home due to income constraints then the housing choice after retirement may be extremely limited. Pre-retirement income also has an effect on retirement income due to the fact that low income may limit the amount of money that a person can invest for retirement.

The main difference in income levels is not defined by housing choice so much as it is by marital status. In both non-SCA and SCA response groups single individuals reported a low income (< $1000/month) more frequently then married people did (Table 5.04). In the SCA response group 94% of low income respondents were single. For the non-SCA response group this figure was 74%. It must be remembered however, that there were very few (5%) married SCA respondents and thus this probably affected these figures. A large majority (78%) of SCA respondents were low income single people, while only 21% of the non-

Table 5.04

Monthly Income

	<$1000	$1001-$1500	$1501-$2000	>$2001
SCA	31 (79%)	5 (13%)	1 (3%)	2 (5%)
Non-SCA	15 (29%)	17 (31%)	10 (19%)	13 (25%)
SCA				
Married	2 (100%)	0	0	0
Single	29 (78%)	5 (14%)	1 (3%)	2 (5%)
Non-SCA				
Married	4 (12%)	7 (21%)	9 (27%)	13 (39%)
Single	11 (58%)	7 (37%)	1 (5%)	0

SCA respondents were. It would appear from this that being elderly and single does affect a person's income. This is not to say that these single people did not have a similar income level when they were married. If we look at the non-SCA response group only 12% of the married respondents have a low income, while 58% of single people do. There appears to be a strong connection between income and marital status. When one considers that the vast majority of SCA respondents are single, it is not surprising then that there is such a high incidence of low income. While low income may be one reason for moving to an SCA it would appear that it is not the only reason, otherwise the single, low income, non-SCA respondents would have moved to an SCA already. Thus, low income, while perhaps a contributing factor for an individual choosing to move to an SCA, it is likely not the only reason.

5.3.2 Car Ownership

The ownership of a car provides an individual with relatively easy access to shopping, services, and social interaction. For an elderly person a car may be even more important than it is for a younger person. While a younger person may be able to walk or utilize public transportation, both of these travel modes are difficult for the elderly, particularly the frail, to use. Thus, although a person may be ill and not really able to drive, it may be easier than walking or taking a bus.

Another important aspect of car ownership is that it is directly related to a person's age. Having to give up a car is an admission to self that they are no longer young or well. The ownership of a car is thus not only a method of transportation, but it is also a symbol of youth, health and independence

(Eisenhandler, 1990, pp. 6). It is not surprising then that the elderly are usually unwilling to give up their cars even when they are really too ill to be driving.

At first glance the difference in car ownership levels between the two response groups is clear. Almost 80% of SCA respondents do not own cars while slightly more then 80% of non-SCA respondents do own cars. This difference shows that SCA residents tend to be more isolated then non-SCA residents by virtue of them lacking cars. The lack of car ownership may be closely related to choosing to live in an SCA. From the data collected it appears that SCAs are an alternative for non driving widows. Of the widowed females in SCAs, 80% do not have a car, while non-SCA widowed females reported car ownership in 73% of cases. Thus it appears that those individuals who move to SCAs generally lack a car and thus easily accessible transportation.

Another important aspect of car ownership is that it declines with an individual's age. In both non-SCA and SCA respondent groups, the average age of car owners was just over 70 years. The average age of non-car owners was approximately 76 years. Clearly the likelihood of owning a car decreases with an individual's age. Thus mobility is also likely to decrease with an individual's age due to the lack of car ownership.

5.4.0 Housing and Residency Characteristics

The characteristics of a house may make it impossible or impractical for its occupants to remain in it. A large house or apartment may be appropriate at one stage of a persons life, but not at another. Thus, some individuals may choose to move to an SCA because they are no longer able to care for a home either due to

the cost or the upkeep. In this section the characteristics of the SCA respondent's housing prior to moving to an SCA will be compared to those of the non-SCA group. If these characteristics are different, then we may be better able to understand why those individuals living in SCAs have chosen to do so.

5.4.1 Dwelling Age

The age of a dwelling may be an indicator of the general state of repair of the building and may also indicate how difficult it is to keep up the building. An older building is likely to be more difficult and expensive to maintain than a newer one. SCA dwellers were asked to report the age of the dwelling they lived in prior to moving to the SCA. Non-SCA dwellers were asked to report the age of their current dwelling. If those people living in SCAs had lived in older buildings prior to moving, it may indicate that they moved to the SCA because of difficulties in maintaining their own home.

In terms of this investigation the age of the pre-SCA dwellings were essentially the same for both groups, just over 36 years. From this it would appear that the age of the pre-SCA dwelling is probably not a significant contributing factor in the decision to move.

5.4.2 Length of Residency in Brantford

Another important residential characteristic is that of the length of residency in Brantford. This was used as an indicator of residential stability. If a person has lived in one place for a long period of time they may be less inclined to move due to the attachment felt for their home or neighbourhood. Within this study there was

a large difference between the two study groups. Among the non-SCA group the average length of residency in Brantford is 43.23 years. For SCA respondents the average was 37.14 years. This difference indicates that non-SCA respondents tended to be slightly more stable than SCA respondents, in terms of inter-city moves. From this data it can also be said that on the average those living in SCAs have lived in Brantford for a relatively long period of time prior to moving and have not moved into Brantford specifically to live in the SCA.

5.4.3 Tenancy

Within the literature review (Chapter 2) it was shown that home ownership is considered to be an important factor in the decision to move to an SCA or to "age in place". The initial analysis of the data collected for this study indicates that this is also true in this study. In terms of previous residential tenancy there were major differences between SCA and non-SCA respondents (Table 5.05). While almost 80% of non-SCA respondents reported that they currently own their home, only 12.2% of SCA respondents indicated that they had done so prior to moving to an SCA. The exact opposite is true for rental tenancy. Most, (80%), of the SCA respondents had rented their previous dwelling while only 18% of non-SCA respondents currently do so. Home ownership, or the lack of it, is an important characteristic in showing differences between the two study groups. This is not to say that the home ownership factor was the only reason for choosing to move or to stay in their home, but the differences between the groups would seem to indicate that home ownership is a major consideration in the decision to move or stay.

Table 5.05

Residential Tenancy

	Owned	Rent	Board
SCA *	5 (12%)	33 (80%)	3 (8%)
Non-SCA	40 (80%)	9 (18%)	1 (2%)

* Denotes housing type prior to moving to SCA

5.4.4 Monthly Dwelling Cost

The monthly cost of a dwelling may be one of the most important contributing factors to a senior's choice to move to an SCA. High monthly dwelling costs may make it impossible for a senior to maintain an independent household. The monthly cost of a dwelling may vary greatly between homeowners and renters. Homeowners monthly costs include taxes, utilities, repairs and mortgage payments (if they exist). For renters the monthly cost is most likely only the rental cost and possibly utilities. The major question to be examined here is whether or not seniors in SCAs actually have cheaper accommodation than seniors living in non-age-segregated housing.

The rental costs for SCA dwellers may fall into three categories; geared to income rent, subsidized rent, and market value rent. Geared to income rents are rents that are set as a percentage of the individuals income, usually approximately 25%. Subsidized rents are payments that are made so that the individuals rental payment is brought up to market rental prices. Market value rent apartments are where the rent paid for the apartment is equal to what would be charged on the free market.

When the monthly dwelling costs are examined we find that SCA dwellings are less expensive than non-SCA dwellings. This finding must, however, be examined closer. The monthly dwelling cost for home owners is only slightly more than the monthly cost for SCA dwellers, $273 compared to $250 respectively. For an extra $23 a month an individual generally gets a much larger residence. Clearly for home owners the economic benefits of moving to an SCA are limited.

The main difference in dwelling cost occurs between non-SCA rental dwellings and SCAs apartments. The average monthly dwelling cost for non-SCA renters was

$466, substantially more than the $250 average for SCA dwellers. The low rental cost of SCA, make SCAs an extremely attractive alternative for non-SCA renters. Thus it is not surprising that 78% of SCA respondents had been renters prior to moving to an SCA.

5.5.0 Level and Sources of Interaction

For the elderly, and particularly the widowed elderly, the level of interaction they have with other people may be a primary factor in the choice to remain in their own home or to move to an SCA. While social interaction may be essentially only companionship, it may also indicate the amount of assistance that is available to a person if that need arises. A readily accessible source of aid may be essential in making it possible for a person to stay in their own home. If companionship and aid are lacking, an individual may choose to move to an SCA where the presence of other seniors may make social interaction easier and more likely. Thus by examining the sources and levels of interaction available to an individual, it may be possible to determine the probability of an individual choosing to move to a SCA.

5.5.1 Number of Children

The number of children an individual has may affect how well the person is able to cope with old age. If children are seen as possible sources of aid then the more children a person has the more possible sources of aid are available. If there is aid available a person may be able to stay in their own home longer, consequently reducing the likelihood of choosing to move to an SCA.

Among the respondents in this study there was no significant difference between the two groups in terms of the number of living children individuals had. This was true at the 0.05 significance level based on the results of a t-test. The main differences between the response groups are apparent only when one examines the respondents reporting various numbers of children. For example, among SCA respondents almost 21% reported that they have no living children. Only 7.3% of non-SCA respondents reported the same. This finding is important because it means that a relatively large proportion of SCA respondents have no children to act as sources of aid. Without children as sources of aid individuals may be more inclined to move to an SCA where it may be easier to live without outside assistance.

Children not only act as outside sources of aid but they may also function as sources of companionship. If an individual does not have any children, they may be lacking a valuable source of companionship and thus they may be lonely. A lonely person is likely to be more inclined to move to a SCA where there are many seniors in close proximity and thus many possible sources of companionship.

5.5.2 Location of Closest Child

The proximity of a child can also have a great effect on how available the child is to aid a parent. If a child lives far away from the parent then their usefulness in aiding the parent is greatly reduced or eliminated. The close proximity of a child is essential if the child is to act as a source of assistance and thus act as a factor in reducing the desire or need to move to an SCA.

Among the two sample groups there is relatively little difference in terms of

the location of closest children. Non-SCA respondents who have at least one child in the city represented 31% of the cases. Slightly fewer than 26% of SCA respondents indicated the same. The main difference, as indicated before, is that 21% of SCA respondents have no children at all and thus no potential aid from children. If the number of SCA respondents with no children and no children in the city are combined, we find that approximately 47% of respondents have no children in the city. The combination of these factors leaves almost one half of the SCA respondents with no children as a readily accessible source of aid.

5.5.3 Relatives in the City

Although children may be the dominant source of assistance and companionship, other relatives may play an important part in this. As such respondents were asked whether or not they had relatives other than children in the city.

There is an important difference between the two respondent groups in terms of having relatives in Brantford. Although 70% of non-SCA respondents had relatives in the city only 58% of SCA respondents reported the same. When this finding is combined with the fact that 21% of SCA respondents had no children and a further 53% did not have a child in the city, the effect can be seen to be great. Approximately 44% of SCA respondents had neither a child nor other relatives living in the city. Thus it would appear that the lack of available sources of aid and companionship (ie. children and relatives) may have an effect on a persons desire to move to an SCA.

5.5.4 Aid Index

To determine the health level of respondents they were asked whether or not they utilized medical and social services such as Meals on Wheels (delivered meals), homemakers (assistance in cleaning etc.), V.O.N. (Victorian Order of Nurses), or other services. These services are intended to aid a senior in maintaining an independent life style. The use of these services indicates that an individual may have difficulties due to poor health. Thus, the more services used, the more likely it is that a individual is in poor health. This indicator was used in an attempt to achieve an objective measure of an individual's health.

If the level of utilization of these services is used as an indicator of health, then SCA dwellers in this study are more ill than non-SCA dwellers. Approximately 28% of SCA respondents used at least one of the services outlined above. Only 3% of non-SCA dwellers utilized any of these services. This finding may be somewhat misleading. On the surface it would appear that SCA dwellers are more ill, but in fact the differences in utilization may be accounted for by the fact that SCA dwellers may be more knowledgeable about the services available. The higher level of utilization may be due to the fact the SCA respondents were on the average older and thus likely to have more health problems. Another possible reason for the higher utilization rate may be due to the concentration of seniors in SCAs, which may mean that there is a very active communication network from which seniors find out about what services are available from other seniors (Stephens and Berstein, 1984, pp. 144). Thus the utilization of services may be higher in SCAs simply because seniors may be more aware of the available services.

5.5.5 Interaction

The level of interaction between respondents and their friends shows a rather large difference between SCA and non-SCA respondents. This difference is not present in the interaction between respondents and their families. Slightly more than 48% of SCA respondents reported daily visits with friends compared to a 13.7% of non-SCA respondents. This level of interaction is also present in the phone contact of SCA respondents who reported daily phone contact with friends in 62% of the cases. Non-SCA respondents reported this level of contact in only 36% of the cases. The proximity to other people of the same age may be a contributing factor to the difference in contact level (Teaff, et. al. 1978). Another major factor is that almost all SCA respondents were single in some form. The loneliness associated with living alone may be a contributing factor to increased contact with friends either by phone or visit. It is important to note however that the proximity to other seniors does not necessarily mean that there will be a good "social support network". Weinberger et. al. (1988) found that SCA residents had a poorer support network than seniors living on their own. While the close proximity of similar age people may provide friendship it does not necessarily provide assistance the time of illness.

5.6.0 Activities

As an individual ages the number of activities that they participate in may decrease. As their activity level decreases it may confine them to their own home. If this happens the move to an SCA may be seen as a way to alleviate problems associated with various activities and thus make participation in these activities

possible again. The comparison of activity patterns will show whether or not SCA respondents are more or less active than non-SCA respondents.

5.6.1 Entertainment and Activities

Within the questionnaire respondents were asked about four types of activities; shopping, T.V. viewing, senior citizen groups and church attendance. The major finding from this group of questions was that there was very little difference between SCA and non-SCA respondents. As a result this similarity, it would seem to indicate that residence type does not affect the activity pattern of residents.

5.6.2 Television Viewing

The most universal activity that the respondents were involved with was television viewing. Almost all of the respondents in the two groups indicated that they watch at least some television every day. Television serves as a cheap source of entertainment, much as it does for the rest of the population.

5.6.3 Shopping Patterns

The responses to the level of shopping participation resulted in some surprises although there is little difference between the two response groups. The majority of those seniors who responded indicated that they participated in shopping on a weekly basis. The surprising result was that a fairly large number of respondents indicated that they shop every day. While almost 19% of non-SCA respondents indicated daily shopping participation, just over 13% of SCA respondents indicated this. It would seem that for some seniors shopping makes up a fairly regular part

of each day. Retailers would be wise to take note of this information, especially as the senior citizen population continues to grow.

5.6.4 Senior Citizen Group Participation

The participation by a person in a senior citizen group may be a very important part of the individual's life. Senior citizen groups offer an individual a chance to meet and interact with other people of the same age. As well many senior citizen groups offer programs and information meetings regarding services for the elderly (ie. tax clinics, foot care clinics etc.). The participation in such a group can therefore be a source of fellowship, information, support, and entertainment. It is therefore good to see that many non-SCA and SCA respondents participate in senior citizen groups, 38% and 46% respectively. The slightly higher participation by SCA residents may be explained by the fact that most SCA buildings have some form of senior citizen group located within the building.

5.6.5 Church Participation

Church attendance can be another very important part of a senior citizen's activity pattern. The difference between the level of church participation is very little. While approximately 60% of non-SCA respondents indicated some participation at a church, 50% of SCA respondents indicated the same. The majority of the respondents indicated that they attended on a weekly basis. The difference in participation may be explained by a lack of access for those seniors without cars. The lower participation level for those in SCAs is then to be expected because of the low level of car ownership by the seniors in this group.

Seniors without cars must walk or, more likely, depend on others for transportation to Sunday church services as there is no Sunday bus service in Brantford.

The similarity between non-SCA and SCA groups based on their participation in the above activities is interesting not only because it reveals that level of activity of seniors, but because it indicates that living in an SCA does not affect the participation of a senior in every day activities. Thus it would seem plausible that the concern about the segregating effect of SCAs can be questioned. It does not appear from the above data that seniors are greatly affected by living in SCAs and that any difference in activity levels can be attributed mainly to the lack of car ownership and possible health problems.

5.6.6 Time Travelled to Shopping and Services

In this study an individual's ease of access to shopping, services, and social interaction was measured in terms of the time it took an individual to travel to these things. Respondents were asked to state how long it took to travel to their doctor, pharmacy, church, and grocery store. Distance was measured in minutes in order to compensate for the differences in the effort required to utilize various forms of transportation. The effort and time in walking one kilometre is much greater than the effort in driving a car one kilometre. Thus it would not be representative to compare a mile walked to a kilometre driven.

A comparison of the time travelled to the above services reveals differences between SCA and non-SCA dwellers as well as between car owners and non car owners. In all four trips studied the average time travelled was greater for SCA respondents than for non-SCA respondents (Table 5.06). This difference can be

Table 5.06

Mean Distance Travelled (Minutes)

	Doctor	Pharmacy	Church	Grocery Store
SCA				
Car	(6) 12.57	(5) 7.57	(4) 13.00	(6) 19.80
No Car	(23) 20.23	(20) 11.39	(13) 16.85	(24) 13.08
Non-SCA				
Car	(42) 10.33	(42) 7.51	(26) 10.90	(45) 12.80
No Car	(8) 18.13	(8) 16.11	(5) 12.40	(8) 17.00

(N) = number of cases
X = mean travel time

accounted for by the general lack of car ownership among SCA dwellers. In three out of the four trips studied non-car owners spent more time travelling, regardless of the type of housing in which they lived. Only the trip for grocery shopping was shorter for SCA dwellers who are non-car owners. For non-SCA dwellers all trips were longer for those people who did not own cars. An explanation for this is that an individual's doctor, pharmacy, and church are long term services. People are unlikely to change where they receive these services if they move or sell their car. This may be especially true in Brantford where the size of the city is relatively small and travel is relatively easy. Thus the destination of these trips is set and unlikely to change. The choice of a grocery store may fluctuate more because of prices and residential location. If a person does not have a car then they may be forced to use the closest grocery store, whereas a car owner can change from week to week depending on where the best prices are. In the case of this survey the SCAs are located near grocery stores, thus people may chose these stores. This would account for the shorter travel time to grocery stores for SCA residents as noted above.

5.7.0 Why Did You Or Why Would You Move To An SCA?

Although the major part of this chapter has dealt with a discussion of objective data, this section will be an investigation of more subjective factors involved in seniors decision to move to SCAs. Specifically, seniors were asked why they did or why they would move to an SCA. The findings of this section help to support the previous results in this chapter. Overall the results indicate that the greatest differences in the reasons for moving to an SCA, between SCA and non-SCA group

are in terms of the death of a spouse, cheaper rent, and improved access to shopping and services.

The death of a spouse was indicated by 30% of SCA respondents as being one of the reasons they chose to move to an SCA (Table 5.07). Non-SCA respondents reported that they would move for this reason in only 15% of the cases. A major difference between the groups is that the majority of SCA respondents are already widowed while most of the non-SCA respondents are married. SCA respondents already know the effects of the death of a spouse, while non-SCA respondents can only anticipate the effects. Although loneliness may increase with the death of an spouse only 12.5% and 11% of the SCA and non-SCA groups respectively, reported this as a reason for moving to a SCA (Table 5.07). The low rate of response to this question may be because the questions overlap each other. The death of spouse may cause loneliness, but only the death of a spouse was indicated.

The need for affordable accommodation can be seen in the difference in response levels to the question of cheaper rents. Approximately 75% of SCA respondents indicated that they had moved to an SCA for cheaper accommodation. Only 18.5% of non-SCA respondents reported that they would move to SCAs to obtain cheaper accommodation (Table 5.07). If we examine the pre-SCA tenancy of respondents we find that 18% of non-SCA respondents rent their dwellings while 80% of SCA respondents had done so prior to moving to an SCA. Thus it would appear that the desire for cheaper housing costs is greatest among renters. The need for cheaper rent was also the most frequent response for SCA dwellers. If SCAs are utilized predominately because of cheap rent then perhaps a way to lessen the demand for SCAs would be to subsidize non-age-segregated housing. This

Table 5.07

Reasons For Having Moved Or Moving In The Future

	SCA	Non-SCA
Death of Spouse	12 (30%)	8 (15%)
Health Problems	11 (28%)	14 (26%)
Loneliness	5 (13%)	6 (11%)
Cheaper Dwelling Cost	30 (75%)	10 (19%)
Less Upkeep	13 (32%)	17 (32%)
Improved Access to Shopping and Services	13 (32%)	5 (9%)
Other		
Sale of Rental Unit	2 (5%)	
Safety	1 (2%)	
Never Would		6 (10%)

would then eliminate the cost of building and maintaining SCAs.

Another major difference in the replies to this question was the level of response to improved access as being a reason for moving. Almost 33% of SCA respondents indicated that they had moved to an SCA to improve their access to shopping and services (Table 5.07). Only 9.3% of non-SCA respondents indicated that this would be a reason for a future move to an SCA. When one considers that most non-SCA respondents own cars, the question of access to these people is relatively unimportant. For SCA respondents improved access is important because many of them do not own cars.

While movers to SCAs indicate that they moved for improved access, we must ask ourselves if they actually achieved better access to shopping and services. In all four of the trips where travel time was studied, SCA respondents actually travelled further than non-SCA respondents. Even when car ownership is taken into consideration only two trips for SCA non-car owners were shorter, all other trips were longer. Thus while seniors may move to SCAs for improved access they may not be achieving it. If SCAs are to meet the needs and desires of respondents then more thought has to be given to the location of the buildings relative to shopping and services.

5.8.0 Conclusion

The analysis in this chapter has attempted to define the major differences between SCA and non-SCA respondents groups. Among these differences the major variations are found in terms of marital status, car ownership, home ownership, and income. Other variables strongly influence or are influenced by these four variables

(ie. gender, age). An example of this is the time taken to travel to shopping and services. Car owners take less time in most cases to travel to shopping and services. Another example is that older individuals tend to be single women. Thus, many factors are influenced by these four variables.

While it has been possible to identify variables which are likely significant in influencing a seniors choice to move to an SCA it has not been possible to account for all interactions or the relative importance of the variables. In order to better understand theses effects it is necessary to use a multivariant statistical analysis. By doing so it will be possible to account for the effects of interactions while identifying which variables are truly significant. This analysis will be shown in the following chapter.

The identification of the differences between SCA and non-SCA respondents is an important prelude to the discrete choice analysis that will be discussed in chapter seven. The analysis in this chapter has indicated the important differences and thus the variables that will be used in the logit analysis.

Chapter Six
A MULTIVARIATE ANALYSIS OF ELDERLY HOUSING CHOICE

6.0.0 Introduction

Why does one individual choose to move to a senior citizen apartment (SCA) while another chooses not to? In the development of SCA buildings the assessment of the need for the building must be first and foremost. The establishment of a set of characteristics of people who have moved to SCAs may lead to a better understanding of the future need for senior citizen apartment buildings.
The focus of this chapter will be the results of an analysis of the data gathered for this thesis. This analysis will be done utilizing discrete choice theory and logit analysis.

This first section of this chapter will provide a discussion of the differences between the analysis in chapter five and the analysis that will be discussed in this chapter. This section will also provide a description of the logit model. Section two will provide a description of the variables included in the final analysis. The models developed through the used of logit analysis will be discussed in section three. The importance of individual variables will be shown in section four. Finally, section five will be will be a discussion of the implications of the results on the future development of SCAs.

6.1.0 The Logit Model

While chapter five provides an analysis of individual variables it does not demonstrate the effects that the variables have on each other. It is highly probable

that there are variables which are interrelated. One such pair of variables maybe marital status and gender. It was shown in chapter five that most of the single people in the study were women. As a result it is likely that these two variables are closely related. A multivariate analysis will make it possible to identify which variables interact and which are independent.

In selecting a multivariate analysis technique there was one important factor that had to taken into account. In this study the dependent variable, housing choice, is discrete. As a result traditional multivariate techniques such as regression analysis will not work. One way to avoid this problem is through the use of logit analysis which is part of discrete choice theory. This is a multivariate analysis technique that allows for the use of discrete dependent variables. For an excellent review of discrete choice theory and logit analysis see Ben-Akiva and Lerman (1985) and Wrigley (1985).

An important part of choice theory is that is assumed that an individual makes a choice between two or more alternatives based on the utility associated with each choice. The term utility refers to the attributes associated with each alternative. The higher the utility the more likely it is that the alternative is chosen. There are two types of utility that are considered in choice theory; the systematic and random utility.

The systematic utility is a vector of variables that characterize the attributes of the alternatives and the characteristics of the decision maker (Ben-Akiva and Lerman, 1985, pp. 62). The random utility consist of four possible factors which Ben - Akiva and Lerman (1985) have defined as:

1) unobserved attributes
2) unobserved taste variations
3) measurement errors
4) use of instrumental (proxy) variables

Ben - Akiva and Lerman, 1985, pp.56

In the study of human behaviour it is impossible to account for all the factors that may influence an individual. Within the choice process the random utility is used to account for all those things which cannot be measured by the systematic utility. Thus the probability of an individual (n) choosing alternative i is:

$P_{(n)i} = Pr(U_{in} \geq U_{jn})$ (Ben-Akiva and Lerman, 1985, pp.59)

where: $P_{(n)i}$ is the probability of individual n choosing alternative i
Pr(Uin ≥ Ujn) is the probability that the utility associated with alternative i is greater than or equal to the utility associated alternative j

where: $U_{in} = V_{in} + E_{in}$

and V_{in} = the systematic utility associated with individual n and alternative i

E_{in} = the random utility associated with individual n and alternative i

Within the logit model it is assumed that E_{in} and E_{jn} are logistically distributed and that the value of their means is 0. It is also important to note that only the differences between the utilities are important, so that the operational form of the logit model is:

$$P_H = \frac{e^{(V_H - V_{SCA})}}{1 + e^{(V_H - V_{SCA})}}$$

Where:

P_H = the probability of staying home
V_H = the systematic part of the utility of staying home
V_{SCA} = the systematic part of the utility of moving to an SCA

source: class notes, 1989 - Kanaroglou

The probability of a person moving to an SCA is the compliment of the probability of staying at home. Therefore the probability of moving to an SCA is:

$$P_{SCA} = 1 - P_H$$

Where:

P_{SCA} = the probability of moving to a SCA.

The parameters of the above model were estimated with the help of a computer program written using the Gauss software package, kindly provided by Dr. W. Anderson of McMaster University in Hamilton, Ontario.

6.1.2 Summary Statistics

In the reporting of the results of the analysis there are four important statistics that must be explained further. The first of these is the parameter estimate which shows the relative importance of each variable. The second is the t-test score which indicates whether or not a variable is statistically significant. Variables which produce a t-test score of ≥ 2 or ≤ -2 are deemed to be significant at the 95% probability level (Wrigley, 1985, pp. 128). Thirdly, the Rho square score is a goodness-of-fit measure which is "analogous to R^2 used in regression" (Ben-Akiva and Lerman, 1985, pp,91). Finally the degrees of freedom are a measure of the number of cases minus the number of variables used in the analysis. These summary statistics are used in Table 6.01.

6.1.3 Choice Based Sampling

As was stated in chapter four, the sample gathered for this thesis was assembled using a choice based sampling technique. While this sampling technique

TABLE 6.01
LOGIT COEFFICIENTS

Explanatory Variable	RUNS 1	2	3	4
Alternative Specific Constant (ASC)	0.25 (-1.56)	0.79 (-1.55)	1.64 (-1.55)	1.48 (-1.60)
Marital Status (MARST)	3.20 (2.32)	2.89 (2.41)	2.20 (2.32)	3.09 (3.35)
Car Ownership (CAR)	2.71 (2.13)	2.40 (2.49)	2.08 (2.87)	1.37 (2.04)
Low Income (INCLOW) x < $1000/month	-1.52 (-1.41)	-2.39 (-2.89)		
Monthly Accommodation Cost (HCOST)	-0.002 (-0.46)	-0.01 (-2.05)		
Renter (RENTER)	-1.69 (-1.36)		-2.38 (-3.57)	
Child In ($CHILD_2$) Same City	-0.92 (-0.96)			-1.55 (-2.34)
Daily Family ($FAMCAL_1$) Phone Calls	3.71 (2.50)	2.74 (2.43)		
Monthly Family Phone Calls ($FAMCAL_3$)	4.62 (2.12)	4.58 (2.22)		
Rho Square	0.64	0.60	0.56	0.43
Degrees of Freedom	58	70	89	80

T-Test scores in parenthesis are significant when either ≤ -2 or ≥ 2 (Wrigley, 1985)

provides many benefits to the user, there are also some complications that arise from its use.

The difficulties associated with choice based sampling are caused by the over and/or under sampling of response groups. One of the problems associated with choice based sampling is that descriptive statistics for the total population may be skewed towards one group or another. In the case of this study, seniors in non-age-segregated housing were greatly under sampled (see 4.5.1). This resulted in the descriptive statistics being skewed towards the characteristics of the SCA sample when the two groups were combined.

The major difficulty in using choice based sampling is that the parameter estimates of the alternative specific constants (ASC) are inaccurate because the assumption that the data is from a simple random sample is violated. Manski and Lerman (1977, pp. 1985) have shown however that the "maximum likelihood procedure yields consistent estimates of all parameters except the constants". The difficulty in estimating the ASC parameter is overcome by subtracting the $\ln(H_g/W_g)$ from the estimated ASC parameter where:

H_g = Sample fraction

W_g = Population fraction

Ben-Akiva and Lerman, 1985, pp.238

If C represents the universal choice set then W_g equals the proportion of C that group g represents in the total population. H_g represents the proportion of the sample that is accounted for by group g. This correction factor is then subtracted from the constant associated with each alternative. It must be remembered that the SCA alternative has an implicit utility of 0, therefore the constant for the SCA

alternative has to be readjusted to 0. As long as the same value is added or subtracted to both utilities there is no effect because only the difference between the utilities are significant. Thus adding a constant to the constants it does not change the choice probabilities (Ben-Akiva and Lerman 1985, pp.238).

While it is possible to adjust the parameter estimates of the ASC to compensate for sample sizes it is not possible to recalculate the t-test scores. The t-test scores are calculated by dividing the parameter estimate by the standard error. While the parameter estimate can be recalculated the standard error cannot. Thus there is no real way of telling whether or not the ASC is significant based on the new parameter estimates.

6.2.0 Variables Included in Analysis

One of the major difficulties in a study involving a great number of variables is the problem of selecting variables which are significant to the study. In the process of developing the models that will be outlined in this chapter, many variables were considered, but only a relatively few have been retained. The process of selecting the variables to be used in the final models has been a three step process. First, the variables were selected through the study of past research. The second stage was to investigate the differences between the SCA and non-SCA residents based on data gathered in the questionnaire (Chapter 5). From this investigation there were several variables which appeared to show significant differences between the study groups. Other variables showed no significant difference between the two groups and as such these variables were not included in the final analysis. The third and final step in the model building process was to

analyze the data using logit analysis to determine which variables were in fact important in showing the significant differences between the two study groups. This final set of variables can be seen in table 6.01.

While it may have been possible to stop this investigation after step two as outlined above, an important part of this investigation would have been omitted. Although the study of the variables in chapter five did show the differences between the two study groups, these differences were only shown for one variable at a time. It is not reasonable to assume that an individual's choice is influenced by only one factor. Thus there is a need for a multivariate statistical analysis of the factors which may influence a choice. The combination of variables may show that one or more variables are highly related to each other and thus actually demonstrate essentially the same thing.

6.3.0 The Analysis

As the final step in the analysis of the variables, the use of the logit model has been successful in identifying several variables which show significant differences between the two study groups. From an initial group of 23 variables only 8 have been identified as showing a significant difference (Appendix 2, table 6.01 and 6.02). This is not say that there are not other variables which may be equally as important but which were not examined in this study. This is one of the benefits of discrete choice analysis. Significant variables which were not utilized by the study are included as part of the random utility. The following section is a discussion of the final analysis using discrete choice theory and logit analysis.

TABLE 6.02
General Model Specification

	B_1	B_2	B_3	B_4
Non-SCA Utility	1	Marital Status 1 if married	Car Ownership 1 if yes	Low Income 1 if person has monthly income of $1000 or less
		0 if not	0 if not	0 if not
SCA Utility	0	0	0	0

	B_5	B_6	B_7	B_8	B_9
Non-SCA Utility	Monthly Cost $x	Renter 1 if yes	Child in same city 1 if yes	Daily Family Phone Calls 1 if yes	Monthly Family Phone Calls 1 if yes
		0 if not	O if not	0 if not	0 if not
SCA Utility	$x	0	0	0	0

6.3.1 Model One

The first model to be discussed here can be considered to be a base model. The variables included in this run were all the variables which were shown to be significant in the successive runs. The inclusion of all the variables is meant to show how some of the variables are interrelated. In addition this base run will show which variables are consistently significant regardless of which other variables are also used.

An analysis of the initial model indicates that there are five variables which are significant and four variables which are not. The variables MARST, CAR, FAMCAL1 and FAMCAL3 were shown to be significant (Table 6.01). For an explanation of the variable codes see Appendix 2. From this initial run marital status, car ownership, and family contact are variables which show a significant difference between the SCA and non-SCA study groups. While these variables may in fact be significant, this first model also includes four insignificant variables. In order to achieve a clearer picture these insignificant variables have to be eliminated. The next three models to be discussed here include only significant variables. The analysis of the first model has established the base level of the variables. The next section of this discussion will demonstrate whether or not these base levels hold true.

6.3.2 Model Two

Although model two has only seven variables compared to nine in model one, there was only a slight drop in the overall goodness of fit. Run one had a Rho square score of .64 while run two had a score of .60. By reducing the number of

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variables the insignificant variables were eliminated while maintaining the statistical strength and simplifying the interpretation.

Although the interpretation of the significant variables may be the most important part of an analysis of a model, the analysis of the excluded variables is also important. The variables RENTER and CHILD2 have been excluded from Model 2. The removal of these two variables had a great effect on some of the other variables and as such the interrelationship between the removed variables and the remaining variables must be considered.

The variable RENTER was closely related to the variables INCLOW and HCOST. By excluding RENTER from the analysis INCLOW and HCOST have become significant in terms of the t-test scores. The interrelationship between these three variables should not be surprising. In chapter five it was shown that most people living in SCAs had rented their prior dwelling (Table 5.05) and that SCA residents had low incomes (Table 5.04). Additionally it was shown in section 5.4.4 that renters had higher housing cost than homeowners. From this it would appear likely that the low income SCA residents who had rented their dwellings prior to moving were likely paying high rents. Thus the interrelationship between RENTER INCLOW and HCOST can be seen. The income of a person has a limiting effect on the type of housing that a person can afford. People who rent dwellings are affected more by low incomes because they must make monthly rental payments (HCOST) compared to homeowners who do not have this monthly cost if their home is paid for. In the preliminary examination of the data set, renters were shown to have a higher housing cost than homeowners. Therefore it is not surprising that these three variables are interrelated.

The other variable dropped between models one and two was CHILD2. This variable was used to show whether or not a respondent had a child living in Brantford. It was speculated that having a child in close proximity might aid in a senior being able to remain living in their own home. The exclusion of CHILD2 had in fact little effect on the model. The variables FAMCAL1 and FAMCAL3 which one would think would be affected by the proximity of a child were not greatly affected by the exclusion of CHILD2. The parameter estimate of FAMCAL1 decreased slightly while its significance remained fairly constant (Table 6.01). The variable FAMCAL3 was also not greatly affected by the exclusion of CHILD2.

The elimination of two variables (CHILD2 and RENTER) from model one to two has had the affect of increasing the number of significant variables from 5 to 7 (table 6.01). These variables can be broken down into two groups, those which remain fairly constant and those which became significant due to the removal of the RENTER and CHILD2 variables.

The group of variables which remains relatively the same in models one and two consist of MARST, CAR, FAMCAL1 and FAMCAL3 (Table 6.01). These results are of particular interest because they show that each of the variables in this group are relatively independent of other variables. This independence indicates that these variables are particularly well suited for explaining the differences between SCA and non-SCA dwellers. The explanation and discussion of these differences will occur later in this chapter. For now the important factor is that these variables have a fairly consistent significance even though two variables have been excluded from the analysis.

6.3.3 Model Three

The third model in this analysis is perhaps the best of the four models to be discussed in this chapter. Although model four consists of only four variables and the constant, the model maintains a high Rho square score of .56. Model three is a particulary good model because of its simplicity. Between model two and three, four variables were dropped (INCLOW, HCOST, FAMCAL1 and FAMCAL3). These four variables had an affect on the significance of the added variable RENTER, instead of affecting the remaining variables, MARST and CAR. In models one and two RENTER was not significant. By dropping INCLOW, CHILD2, FAMCAL1 and FAMCAL3, RENTER becomes a significant variable. In an earlier section of this chapter the relationship between RENTER, HCOST and INCLOW was discussed. This relationship holds true for model three. By eliminating HCOST and INCLOW, RENTER became significant.

Another interrelationship becomes evident in model three because of the variable CAR increasing in significance. Logically car ownership is influenced by income and accommodation cost. The more money spent on housing from a low income the less likely it is that a person can afford a car. Therefore the elimination of the INCLOW variable would increase the significance of the CAR variable because the variable car now acts as a measure of income. As shown in Chapter 5, people with low incomes are less likely to own cars. Thus the variables CAR and INCLOW have some interrelationship although not great.

One of the other major differences between models two and three is the removal of FAMCAL1 and FAMCAL3. There would appear to be an correlation between these two variables and the remaining variables. When FAMCAL1 and

FAMCAL3 were included with RENTER none of the three were significant. There is a relationship between these variables although logically the relationship must be questioned. One plausible explanation is that renter may be in poorer health and thus their families want more contact with them. Poorer health may have been the reason for moving to a rental dwelling, likely an apartment, in an attempt to alleviate the difficulties of maintaining a house. This may explain some of the relationship between RENTER and FAMCAL1 and FAMCAL3.

In terms of the similarities between models one, two, and three, the variables MARST and CAR are significant in all three models. As stated earlier, MARST and CAR are somewhat influenced by the dropping of INCLOW and HCOST from the analysis, but the predominant feature is their relative stability. The variables MARST and CAR are extremely strong variables in terms of distinguishing between SCA and non-SCA dwellers as indicated by the relative stability of both the parameter estimates and t scores. As we move into a discussion of model four it is important to remember the importance of these two variables.

6.3.4 Model Four

The fourth and final model in this analysis is the weakest of the four in terms of overall goodness of fit as measured by the Rho square score. With a score of only .43 this model is still relatively strong but is significantly weaker than the other models. The explanation for the inclusion of model four in this analysis is that it introduces a new variable into the analysis and confirms the strength of MARST and CAR.

The variable CHILD2 (having a child in Brantford) is a significant variable,

but only when used independently of RENTER, INCLOW, HCOST, FAMCAL1 and FAMCAL3. It is likely that there is an interrelationship between CHILD2 and RENTER and not between INCLOW and HCOST. It must be noted however that INCLOW and HCOST are related to RENTER and thus there is a relationship to CHILD2 because of the association with the other two variables. If an individual does not have a child in the city they may lack the assistance needed to maintain a house. Moving to a rented dwelling (ie. an apartment) may eliminate some of the problems associated with having to maintain a house, such as snow removal and lawn care.

The relationship between phone contact with family members and having a child in the city can be seen in model four. When CHILD2, FAMCAL1, and FAMCAL3 are used together CHILD2 is not significant. The close proximity of a child may mean that phone contact is replaced by physical contact. Thus having a child in the city may provide a senior with more physical support and thus increase the chance of remaining in a home for a longer period of time.

The examination of the interrelationships between variables has been an essential portion of this research. When one is attempting to identify why some variables are significant and others are not the interrelationship between variables may help to determine this. In addition, the interrelationship of variables can reveal a great deal about the meaning of the significant variables.

6.4.0 The Results.

The identification and interpretation of those variables revealed as significant

by the analysis is perhaps the most important aspect of this thesis. This group of variables represents those characteristics of the study groups which demonstrate significant differences between the groups. By identifying these characteristics it may then be possible to identify why some seniors chose to move to an SCA and others choose to stay in their own homes.

6.4.1 The Alternative Specific Constant

If these models were to be utilized for a projective purpose then the alternative specific constant (ASC) would be extremely important. In this study however the discrete choice modelling technique was used to identify significantly different characteristics between the two study groups. As a result the ASC is not as important as if the model had been used in a projective sense. The ASC does however reveal that a senior would choose to remain in their own home if all other factors were equal. The ASC reflects the difference in the random utility associated with each of the choices (in this case an SCA or staying at home) (Ben-Akiva and Lerman, 1985, pp. 75). The ASC is positive in all the models in this analysis. This indicates that seniors would generally prefer to stay in their own home rather then moving to an SCA. As a result the random utility must be made up of some factor that can not or is not measured, such as an emotional attachment to a house. The random utility associated with living alone enforces the idea that the elderly are reluctant to give up their homes. The attachment to a home may be seen as a factor which restricts the choice that a senior citizen has in terms of moving to a different home such as an SCA due to the reluctance in giving up the home. Those factors which are part of the random utility are as important or even more important

than factors which can be measured. Thus it is essential that when seniors' housing choice is discussed that the random utility associated with living independently in a "non-age-segregated" environment is included in the discussion.

6.4.2 Marital Status

The marital status of an individual may be one of the most important factor in distinguishing between SCA and non-SCA dwellers. In all of the models discussed in this chapter marital status was shown to be a significant variable. The marital status of an individual accounts for many characteristics of the individual not just whether or not they are married or single.

Models one through four indicate that people living in SCAs tend to be single. The majority of these individuals were widowed females. There were few single and divorced respondents. A marriage may provide an individual with many things including companionship, financial security, assistance, and to some extend social status. Perhaps the most important factor resulting from these findings would be to distinguish whether or not the choice to move to an SCA was made solely for companionship or financial reasons, or a combination of these factors. Although marital status was one of the strongest variables over the four models, it was not free of interaction effects with other variables. Most notable among these is the effect of INCLOW, HCOST and RENTER. The removal of these variables (Model 4) caused a large increase in the parameter estimate and t score for MARST. Thus there is a fairly strong relationship between these variables. Although the analysis in chapter five showed that widowed females were less likely to own cars and houses and were more likely to have low incomes, it is impossible to state for

certain whether or not the socio-economic characteristics of these women has changed since the death of their husbands. Thus we can only hypothesize that the death of a spouse may have affected these characteristics. It is known however that the married couples in the survey tended to own houses and cars and have higher incomes. It is likely then, that the death of a spouse, particularly a husband, does affect the economic well being of a senior. The decline in economic well being may ultimately lead to a senior choosing to move to an SCA where rental cost are often lower.

Although marital status was chosen as a variable for the analysis it would have been possible to use other variables which would have had a similar effect. Both age and gender were closely related to MARST. If we were to profile the respondents of this survey it would show that widowed individuals tend to be older females. This relationship is a result of women having a longer life expectancy than men. As a result a wife will most likely out live her husband, thus leaving her a widow.

6.4.3 Car Ownership

Another very important variable in the four models presented here is CAR (car ownership). The variable CAR was fairly consistent in all four models. The predominant finding from the analysis is that SCA respondents tend not to have cars while non-SCA respondents tended to own cars. As stated in chapter four the ownership of a car was especially prevalent in married couples. Since most SCA dwellers are widowed the lack of car ownership among SCA dwellers is not surprising. The lack of car ownership among SCA dwellers is an important factor.

By virtue of their design SCA buildings concentrate and congregate large numbers of seniors in a building. The lack of car ownership among these people means that the problem of access to services and shopping is intensified. The effect of an SCA building may of course be a benefit because it may allow for the provision of transportation through economies of scale.

6.4.4 INCLOW

Low income (<$1000/month) for a senior may be one of the most important reasons for seniors moving to SCAs. Traditionally senior citizen apartments have been used as a way of housing relatively poor elderly. It is therefore not surprising that INCLOW has been shown to be a significant characteristics of those elderly living in SCAs. Although it is important to recognize this factor the actual reasons for this level of income are more important. When we examine the demographic characteristics as we have it is quite clear that low income is likely the result of being elderly, widowed and female. The concentration of widowed females in SCAs makes INCLOW a significant factor in distinguishing between SCAs and non-SCAs. Low income is not a factor solely confined to those in SCAs as was shown in chapter four. Elderly widowed females living anywhere exhibit a much higher incidence of low income than males do. The most important thing to be learned from this analysis is that low income is a function of being elderly, female and widowed and not necessarily of living in an SCA.

6.4.5 Monthly Cost

The variable HCOST (monthly accommodation cost) was used to analyze the

effects that accommodation cost have on an elderly person's housing choice. This variable compared the monthly accommodation cost of the non-SCA respondents to the monthly accommodation cost that SCA respondents would have paid for their accommodation prior to moving to an SCA. The monthly costs for SCA dwellers were estimated based on the type of housing that the person had prior to moving to the SCA. From the analysis it was determined that SCA dwellers likely had higher accommodation cost prior to moving than non-SCA dwellers have. The higher accommodation cost is a function of SCA dwellers predominately being renters prior to moving. The average monthly housing cost for renters was shown to be significantly higher than the cost for homeowners. The high monthly cost of rental for non-SCA accommodation is a chief reason for seniors choosing to move to SCAs. The controlled and often subsidized rents of SCAs make them an attractive alternative, especially for low income, widowed females.

6.4.6 Renter

The housing tenure of an individual represents much more than just whether or not the individual rents or owns a dwelling. For the elderly their past housing tenure may be an indicator of economic well being. If an individual has owned a home they are likely to have either a large amount of money from the sale of the house or, if they still own the home, a large equity in the home. If the senior has never owned a home then they do not have the resources associated with owning a home. Thus the ownership of a home either currently or in the past means that an elderly person is likely to have a good deal of financial stability.

Another important aspect of home ownership are the memories and stability

associated with a house, particularly one that the an individual has lived in for a long period of time. People are unlikely to give up these memories and stability easily.

The major difference between SCA and non-SCA dwellers is that SCA dwellers tend to have been renters prior to moving to the SCA. Non-SCA dwellers tend to currently own their home. This difference was shown to be significant in model three (table 6.01). The rental of a dwelling, particularly an apartment, does not have the same permanence that owning a home does. Additionally it must be remembered that most of the SCA respondents were widowed females, some of whom may have in fact owned homes prior to the death of their husbands. The move to an SCA may be the result of the individual being unable to keep a normal apartment.

6.4.7 Family Contact

The final three variables to be discussed in this chapter are concerned with the amount of contact that seniors have with their families. Although there are significant differences between the response groups in terms of family contact, there were no differences in terms of contact with friends.

The importance of family contact can not be underestimated. Close contact with a child may enable a senior to maintain a home long after they would have been able to without the assistance of their child. Thus the proximity to a child (CHILD2) and the frequency of contact with a child may prevent a senior from having to choose to move to an SCA.

The importance of having a child within close proximity can be seen in model

four (Table 6.01). In this model SCA, residents were shown not to have children in Brantford at the same level that non-SCA residents do. Since very few of the respondents indicated that they had children in the same neighbourhood, this result indicates that most SCA residents had children who reside outside of the city. The lack of a child in the city means that SCA respondents are less likely to receive aid from their children due problems of access. The move to an SCA may have been made to make living independently easier. At the very least, a child living outside the city knows that a parent living in an SCA is probably living in an environment more suited to their physical and social needs. Thus the move to an SCA may benefit both the parent and the child.

Aside from physical contact with a parent, phone contact may be the best way for a child to keep in contact with the parent. A child may not be able to visit a parent on a regular basis but they may be able to have contact over the phone. Phone conversations may be an essential way for a child to evaluate how a parent is coping with day to day life. If a child can keep in touch via the phone they may be more aware of the needs of the parent. If these needs met the parent may be able to stay in their own home.

The results of the analysis indicate that there were two significant differences between the study groups in terms of phone contact between the elderly and their families. Those respondents not living in SCAs were more likely to have contact with their family on a daily and monthly basis. There was no significant difference between the groups in terms of weekly phone contact. The possible explanation for this is that those seniors not living in SCAs are more likely to have children living in the city, thus phone contact is both easy and inexpensive. Daily phone contact

would allow a child to evaluate the needs of a parent and make offering assistance easier.

In terms of the monthly family phone call variable, a possible explanation for the difference may be the health of the senior. If a parent is healthy there may be less of a need for contact. The indifference of a child towards a parent may unfortunately be another explanation.

The proximity to a child and the frequency of phone contact with family may make the difference between a senior being able to stay in their own home as opposed too moving to an SCA. Companionship and aid are but a few of the benefits that a senior can receive from their children. The move to an SCA may not be made solely because of the lack of contact with family, but it does appear that it is a contributing factor.

6.4.8 Overview of Analysis

The preceding analysis has been an attempt to identify the characteristics of SCA and non-SCA dwellers. The identified characteristics are those which showed a significant difference between the two study groups. The utilization of discrete choice theory, a logit model, have allowed the analysis of many variables simultaneously and for the use of a discrete dependent variable. From the analysis the following statements have been developed: SCA residents tend to have low incomes, have no children living in Brantford, not own cars, and have previously lived in rental dwellings. Non-SCA dwellers tend to be married, own cars, and have phone contact with their family on a daily or monthly basis. The analysis of these results has enabled us to hypothesize about why seniors move to SCAs. It

would appear that low income levels and poor transportation are likely to be chief reasons for many seniors moving to SCAs. The death of a spouse must not be overlooked as a chief reason for some seniors moving to SCAs. The loss of a spouse means a loss in income and companionship. Another cause for moving to SCAs is the instability and high cost of non-SCA rental dwellings. Now that these factors have been identified, it is possible to make suggestions for future programs to be used to decrease the need and demand for SCAs.

6.5.0 The Future Need For SCAs Vs. Alternatives.

There has in the past been a great deal of discussion over the morality of segregating large numbers of senior citizens from the general population by housing them in SCAs. An SCA, by virtue of its design, creates a new "neighbourhood" for the elderly. This new environment is both costly to construct and maintain, and may possibly not serve the needs of the residents. If we are to avoid the construction of future SCAs then we must identify why seniors move to SCAs and then implement solutions to these problems. This thesis has identified several characteristics of SCA residents which may represent problems which could be solved, thus reducing the possibility of moving to an SCA.

One of the easiest problems of seniors to solve is that of transportation. Many communities have already implemented special bus services for the elderly. If communities reduced or eliminated bus fares for seniors, it may increase their ridership. A major problem with existing bus services is that the buses themselves are inaccessible for some seniors. Entry to buses is usually gained via three or four steps, a large obstacle. Improved designs and reduced fares may go a long way in

improving bus services for seniors and thus helping to eliminate the need for improved access to shopping and services.

The income of a senior was another variable identified as being significant. The income of an individual may be perhaps the easiest and the most difficult problem to solve. Clearly higher government pensions would elevate many of the problems of low income seniors. The difficulty in this solution is that governments are unlikely to provide more funding especially in these times of deficit crisis and growing elderly populations. Perhaps the solution is to do away with the universality of government pensions and provide only those having the most need with a higher pension and a minimum income high enough to live above the poverty line.

One of the most disturbing discoveries of this thesis is that the poorest of the seniors are widowed females. The death of a husband causes a reduction in income for the widow. An unfortunate characteristic of elderly females is that they have not been able to contribute to private pension plans or the Canada Pension Plan through work because they never worked outside of the home. As a result they may only receive Old Age Pension upon the death of their husband. This problem will be eliminated to some extent in the future because more women today work outside the home and thus have access to more pension opportunities. Stay at home mothers or fathers should have the opportunity to contribute to the Canada Pension Plan so that they can secure their future income. The only way to eliminate the poverty of today's elderly is to increase pension payments.

Another disturbing discovery that resulted from this research was that people who rented their dwellings were more likely to move to SCAs. This is very

disturbing in light of the current housing crisis in most of Canada's large cities. The affordable housing shortage in our cities means that it is next to impossible for young people to buy homes which will become assets for their retirement. The government must react to the housing crisis to prevent an extreme housing crisis for the elderly of early next century. If the housing needs of today are not met then there will undoubtedly be an even larger crisis in the future.

If the government and non-profit organizations can not or do not wish to construct SCA buildings then a major part of the demand for SCAs could be eliminated by offering housing subsidies to low income seniors who could then afford private sector rental accommodation (CMHC, date unknown, pp. 23). By reducing the housing cost of seniors the need to move to an SCA for affordable housing would be eliminated. A rent subsidy program could thus eliminate the cost of constructing new SCA buildings while still providing affordable housing.

Although relatively few SCA dwellers had been home owners prior to moving to SCAs there were some. A major problem for elderly home owners, especially low income ones, is that while they own a home they can not utilize the equity that they have built up in the house (CMHC, 1988, pp. 5). Thus these seniors may have a small fortune in terms of equity but they can not afford to stay in their homes. Reverse mortgage programs have begun to be offered by some of the major banks in an effort to alleviate this problem. In a reverse mortgage the bank pays the home owner a monthly sum. When the homeowner dies or sells their house the bank gets its money back with interest. The remaining money, if any, goes to the homeowner or the estate. The program enables a senior to utilize the equity built up in their home while still keeping their home.

The final concern to be addressed in the section is that of loneliness. The analysis of the survey data identified that SCA respondents were predominately widowed females without children in the same city. Although not all seniors are lonely living by themselves loneliness is at least partially responsible for some seniors moving to SCAs. There is also a lack of assistance available due to living alone. The move to an SCA puts a senior in easy access to other seniors both for companionship and assistance. Although it is difficult to provide companionship the need may be somewhat fulfilled by home share programs. Homeshare is a concept where by two or more seniors share a home (CMHC, date unknown, pp. 10). In some cases the sharing may be between an elderly person and a younger individual. This concept provides companionship, assistance and may also reduce household cost by providing additional income to the homeowner. A difficulty with homeshare programs include the problem of finding suitable housemates. This type of program may help both seniors in need of shelter and seniors struggling financially to maintain a home.

If we are to meet the needs of seniors in the future, more new and innovative programs will have to be developed. By identifying the characteristics of seniors already living in SCAs, a more accurate picture of the needs of seniors living in SCAs has been developed. In addition to planning for the need the basic characteristics of the SCAs may have to change to meet the needs of the elderly. Golant (1975) suggest that SCAs will have to provide more services, better facilities, and improved support services. Future housing programs must address these needs if the growing elderly population is to be housed properly.

6.6.0 Conclusion

While senior citizen apartments (SCAs) have been developed in Canada since the 1950's, the concept of housing larger numbers of seniors in one place is still not totally accepted by all people. It can however, be argued that large numbers of seniors desire to move to SCAs. Long waiting list for these apartments illustrate both the need and desire for the units.

The proceeding chapter has been an attempt to identify the characteristics of SCA dwellers which are significantly different from those of non-SCA dwellers through the use of a multivariate analysis technique (logit analysis). The use of a multivariate analysis technique made it possible to identify significant variables as well as the interaction between variables. In particular logit analysis made possible the use of discrete dependent variables. By identifying the characteristics of SCA dwellers, we have been able to better understand why some seniors choose to move to an SCA. This modelling technique identified several key factors. SCA dwellers tended to be single, do not own cars, have low incomes and who rented their dwellings prior to moving to an SCA. This same group tended not to have children living in the same community. The identification of these factors indicates that SCA dwellers moved to SCAs in order to gain companionship, cheaper rents, and improved access to services and shopping. A move to an SCA may or may not have provided a solution to these problems.

The growing elderly population in Canada may potentially make it impossible to provide SCA housing for all who need or want it. A number of suggestions have been made in this chapter for possible programs that would help to reduce the need for SCAs. The provision of alternative forms of housing and programs may

help to reduce the future need for SCAs, something that must happen if Canada is to meet the needs of its growing elderly population.

This chapter has provided an extensive investigation of the data collected for this thesis. There is however a great deal of work that could and should be done in this same area. This is particularly true in the context of Canada. Researchers must work towards providing adequate solutions to housing our growing elderly population.

Chapter Seven
CONCLUSION AND SUGGESTIONS FOR THE FUTURE

7.0.0 Introduction

Are senior citizens who live in Senior Citizen Apartments (SCAs) really different from seniors who live in their own homes, or is the only difference the fact that they live in different types of housing? The goal of this thesis has been to answer this question. This thesis has expanded and confirmed existing knowledge while demonstrating the use of a probabilistic modelling technique. Throughout this paper the differences and similarities between the two study groups have been demonstrated. As a concluding section to this thesis, the purpose of this chapter will provide a brief overview the individual chapters and of the final results. In addition, suggestions for future research will be discussed.

7.1.0 An Overview of the Chapters

Although the study of the geography of the elderly is relatively new, there is a growing interest which has generated a expanding body of literature. The literature review provided in chapter two has been an attempt to familiarize the reader with both the general theories and models of the geography of the elderly as well as individual studies. In general, it was shown that for any senior to move there is likely to be an event which disrupts their life and thus makes their housing ill suited to their needs and/or desires. Once the decision to move has been made, the choice to move to an SCA may be influenced by numerous factors. Within the literature there is some disagreement as to which factors are significant and which are not.

The selection of the study site for this thesis was discussed in chapter three. Brantford, Ontario is a small southern Ontario city with a population of approximately 75,000. The spatial distribution of the current elderly population as well as the processes leading to this distribution were also discussed.

The use of a choice based sampling technique and the development and distribution of the questionnaire were the focus of chapter four.

The fifth chapter of this thesis was used to present a description of the questionnaire respondents. This data identified those variables which showed a significant difference between the study groups but did not identify any of the interactions between the variables.

The main body of research for this thesis was discussed in chapter six. The results of the analysis of the data using logit analysis were presented in the form of four models. Through a discussion of these models it was shown that there were various interactions between the variables. The discussion in this chapter demonstrates the importance of using a multivariate analysis technique to identify significant variables. In the end it was determined that the most important factors in showing the differences between SCA and non-SCA residents were: marital status, housing tenure, car ownership, income, housing cost, having a child in the same city, and the frequency of contact with family. It was shown that seniors living in SCAs tend to be single people who had rented their dwelling prior to moving and who did not own cars.

In the context of the existing literature on the geography of the elderly the results of this thesis help to support some of the theories, models and past studies. If the move to an SCA is viewed as voluntary then the results of this study confirm

Disengagement Theory (pp. 8). The death of a spouse, the lack of car and home ownership may lead a person to move to an SCA. In this case seniors have the ability to control the decision to move, they are not forced to do so. If on the other hand a senior is forced to move because of high rents, poor health and mobility then the move to an SCA must be seen to be a process best described by Activity Theory (pp. 9). From the results of this thesis it is impossible to state which of these theories best describes the move by seniors to SCAs. Two individuals with very similar characteristics may choose to do completely opposite things, with one staying at home and the other choosing to move to an SCA. It is therefore plausible that both Disengagement and Activity theory can describe the move of seniors to SCAs.

Of the three models discussed in chapter two perhaps the best in terms of describing why seniors move to SCAs is Wiseman's model (pp. 13). Wiseman defined the first step in the movement process as a triggering mechanism. The death of a spouse, the lack of a car, or high rents may be this triggering mechanism. Additionally the model recognizes that the move process is very complex and that even though a person may wish to move they do not necessarily do so. This part of the model provides insight into why some seniors stay in their homes when it appears that the logical thing to do is to move. Thus the inclusion of personal choice and the recognition of the importance of triggering mechanisms make Wiseman's model very good for summarizing the results of this study.

In terms of the results of specific studies, this thesis has confirmed some of these. Like Wilner (1964), Meyer and Speare (1985), it was shown that people living in SCAs tended to be widowed females. The lack of home ownership prior

to moving was shown to be a main characteristic in this study just as it was in Blonsky (1975), Nelson and Winter (1975) and Beland (1984) and Varady (1984). While this study has confirmed the results of past studies it has done so by utilizing logit analysis, something that has seldom been used in studies of the elderly.

The introduction of various theories, models and past studies in the literature review was an attempt to provide the reader with a general understanding of the geography of the elderly in terms of the movement of seniors to SCAs. As it has been shown in the three previous paragraphs this study has worked within the existing framework of this line of study. Thus it has been possible to draw on past research as a basis for this study.

From the analysis it was possible then to draw inferences as to the reasons why the respondents had actually chosen to move to the SCA. It was determined that most of the respondents had likely moved because of loneliness, low income, high dwelling cost, poor accessibility to shopping and services, and difficulty in maintaining a home. This is not to say however, that every senior who experiences these problems will move to, or even want to move, to an SCA. Perhaps the biggest factor in an individual choosing to move to an SCA is their own personal desire to do so. Some seniors would never choose to move regardless of how bad their living conditions are. As a result, it is important to remember that while SCAs are a viable alternative for some seniors they are not for others, even though individuals may exhibit the same characteristics.

7.2.0 Suggestions for Future Research

Although the identification of the characteristics of SCA residents is important, we must also consider the implications that the preceding work has for future research and the needs of the elderly. Research work such as this can not be done in a vacuum, it must address the needs of the real world.

First and foremost this thesis has been an attempt to utilize discrete choice theory to identify the characteristics of SCA and non-SCA residents. Discrete choice theory can also be used as a probabilistic model to determine the need for goods or services. Past studies have often used only one or two variables in assessing the future need for SCA housing (Mercer, 1979). The identification of several variables as being important characteristics of SCA residents indicates that a more accurate projection of SCA demand could be made utilizing more factors and a model such as the logit model. A model for projecting SCA need should include at the very least marital status, income level, housing tenure, and car ownership variables. The utilization of multiple variables may provide better projections for future need.

An important topic for future research is the location of SCAs relative to shopping and services. It was shown that the lack of car ownership was a key difference between SCA and non-SCA respondents. In addition many SCA dwellers indicated that they had moved to improve their access to shopping and services. The combined need for better access with the lack of car ownership creates a large problem for seniors. In the past the main factor in locating SCA buildings was the availability of cheap land (Mercer, 1979). Within the context of this study only one of the three existing SCA complexes is within walking distance to grocery shopping.

In order to prevent situations like this from occurring, there must be more effort given to improving the location of future residences. Care must be given to consider all the aspects of the needs of seniors, not just the need for shelter.

Overall the largest area for future research is in the area of the problem of location allocation of future SCAs. As Canada's elderly population grows, the need and demand for SCAs is also likely to grow. Existing SCAs should be examined to determine whether or not they are actually meeting the needs of the residents, both in terms of facilities and location. The building of new SCAs should only be done in locations where they meet the needs and desires of the residents. Additionally, SCAs should only be constructed where they are needed most, both currently and for projected future need. While this is not a major problem in smaller communities because seniors may be more willing to move across town, in larger cities a move across the city can be seen to be a major move into a unfamiliar community. The problems of location and allocation are many and highly complicated and in the past have been all but ignored. Thus there is a great need for future research in this area.

7.3.0 Conclusion

As the age structure of Canada's population grows older, the need to provide housing for the elderly will also increase. It will be necessary to plan for this growth. This thesis has provided a technique for improving the planning process for future SCAs. It has been shown that a number of socio-economic factors are important in contributing to a senior's choice to move to an SCA. The main problem with a growing elderly population is the financial cost to the rest of

society. Government pension plans, medical and social programs including SCAs, will place a great strain on the economy of the country. There will likely always be a demand for SCAs no matter how government policies shift towards keeping seniors in their own home.

As geographers continue to study the elderly it is also hoped that there is a continuing development of the use of powerful statistical test. Too often in the past studies have relied on weak analysis techniques, especially when discrete dependent variables have been analyzed. If the study of the geography of the elderly is to continue to grow to meet the needs of society, then researchers must continue to develop the use of sophisticated analysis techniques in order to better understand and plan for the needs and desires of this growing population.

Although there is a need to develop the use of statistical techniques for study the geography of the elderly there is also a need to remember that this research is dealing with people and their lives. At this time there appears to a growing separation of two emerging research methodologies. Many studies like this one tend to look at the elderly as a group first and then try to fit the individual into the group. Other studies such as those by Rowles (1978 and 1983) examine the individual first and then make inferences from this for the whole group. While each of these methods has positive and negative points there must be a convergence of these two methodologies. We can never forget that the numbers we are dealing with are people but at the same time we must realize that it is necessary to look at the big picture in order to plan for all seniors.

In closing, the development and construction of SCAs have been seen to be both positive and negative. On the positive side, seniors are provided with decent

affordable housing along side their peers of the same age. This may enable a elderly person to enjoy their later years by reducing financial worries and provided friendship. On the negative, side it has been argued that SCAs "ghettoize" seniors by separating them from the rest of society. If SCAs are to continue to be part of the governmental programs then there must be an agreement on the validity of the whole concept of SCAs.

Appendix 1

Hello my name is David Diegel. I am a graduate student in geography at Wilfrid Laurier University in Waterloo. I am currently conducting a survey of senior citizens in Brantford and you have been randomly selected to be part of this survey. The following questionnaire contains questions about you and your housing. I am examining why some senior citizens move to senior citizen apartments and why some do not.

All information is confidential and will not be given to anyone else. I am doing this privately and I am not working for any government agency. If there are any questions that you do not wish to or can not answer simply leave the response blank. If you have any questions you may contact me at 753-5472. I would be very grateful if you could fill out this questionnaire and return it to me in the enclosed envelope.

David Diegel
18 William St.
Brantford.
753-5472

Appendix 1 continued

1) Do you currently live in a senior citizen apartment? yes_____ no___

2) How old are you?_____yrs.

3) Are you, male____female____

4) Are you married_____ widowed_____ divorced/separated____
single (never been married)_____

5) What level of education did the head of your household obtain? (check one)
grade 8 or less___ between grade 8 and 13___more than grade 13___

6) How many people live in your household ? _____

7) How many living children do you have ?_____

8) Where does your closest child live? (check one) same neighborhood_
same city___ different city, same province___ different province____,
other (please specify)_____

9) Do you have any other relatives living in Brantford? Yes___No___

10) How long have you lived in Brantford?_____

11) How long have you lived at your current address?_____yrs

12) What is your households approximate monthly income from all sources? (please check one) less than $1000____, between $1001 and $1500__
between $1501 and $2000___, greater than $2001___

13) How often do you participate in the following activities? daily, weekly, monthly, less often.
1)shopping_____3)senior citizen group_____
2)watchingT.V._____4)church_____

14) Do you currently own an automobile? yes____no____

15) How far do you travel to:
1)doctor_____ minutes 4)grocery shopping_____minutes
2)pharmacy_____ minutes 5)other shopping_____minutes
3)church_____ minutes

16) How often do you visit with: daily, weekly, monthly,less
family_____friends_____

17) How often do you talk on the phone to: daily,weekly,monthly,less
family_____friends_____

18) Do you currently use any social or medical services.
meals on wheels_____Homemaker_____
V.O.N._____
Other (pleasespecify)_____

19) Why did you or why would you seek a senior citizen apartment.
death of spouse_____ health problems_____ loneliness_____
cheaper rent_____ less upkeep_____
accessibility to stores and services_____
other (please specify)_____

Please complete questions 21 to 27 only if you live in a senior citizen apartment.

20) How did you find out about this type of housing?
friends_____ doctor_____
relatives_____ family_____
other (please specify)_____

21) Who was mainly responsible for you making the decision to move to a senior citizen apartment (check one)
self_____child_____friend_____doctor_____other_____

22) Where did you previously live?_____

23) Did you own_____your previous dwelling?
rent_____
board_____
other (please specify)_____

24) How old was your previous dwelling?_____

25) How many rooms did your previous dwelling have?

26) What is your current rent?_____

Complete the remainder of the questions only if you do not live in a senior citizen apartment

27) Do you own____your current dwelling?
rent____
board____
other(please specify)_____

28) What is the approximate monthly cost of:
rent$_____mortgage$_____hydro$_____water$_____

29) What are your annual housing cost for: taxes $_____repairs $____
heating$_____snow removal $_____

30) How old is your dwelling?_____

31) How many rooms does your dwelling have?_____

Thank-you for your cooperation

APPENDIX 2

Explanatory Variables

Code	Description	Specification
AGE	Age of respondent	Age in years
SEX	Gender of respondent	1 - male, 0 - female
MARST	Marital Status of respondent	1 - married, 0 - otherwise
EDULOW	Low Eductional status of respondent	1 - less than grade 9, 0 - otherwise
EDUMED	Medium Education status of respondent	1 - between grade 9 - 13 0 - if otherwise
INCLOW	Low monthly household income	1 - < $1000/month 0 - otherwise
$INCMED_1$	Low medium " "	1 - $1001-$1500/month 0 - otherwise
$INCMED_2$	High medium " "	1 - $1501-$2000/month 0 - otherwise
CAR	Car ownership of respondent	1 - car owned, 0 -otherwise
HCOST	Monthly housing cost	cost in dollars
ROOMS	Number of rooms in dwelling	Number of rooms in dwelling
OWNER*	Tenure; for SCA dwellers tenure before moving to SCA	1 - own home, 0 - otherwise
RENTER*	Tenure; for SCA dwellers tenure before moving to SCA	1 - rent, 0 - otherwise
RELICT	Relative in City	1 - Yes, 0 - otherwise
$CHILD_1$	Child in the neighborhood	1 - Yes, 0 - otherwise
$CHILD_2$	Child in same city but different neighborhood	1 - Yes, 0 - otherwise
$CHILD_3$	Child in province outside Brantford	1 - Yes, 0 - otherwise
$FAMVTS_1$	Daily family visits	1 - Yes, 0 - otherwise
$FAMVTS_2$	Weekly visits but not daily	1 - Yes, 0 - otherwise
$FAMVTS_3$	Monthly visits and not weekly or daily	1 - Yes, 0 - otherwise
$FAMCAL_1$	Daily family phone calls	1 - Yes, 0 - otherwise
$FAMCAL_2$	Weekly but not daily calls	1 - Yes, 0 - otherwise
$FAMCAL_3$	Monthly calls but not daily or weekly	1 - Yes, 0 - otherwise

* A third possible category is boarding (for example with a relative)

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