Interprovincial Migration of the Elderly in Canada: A Micro-Level Study

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ABSTRACT

INTERPROVINCIAL MIGRATION OF THE ELDERLY IN CANADA: A MICRO-LEVEL STUDY

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This study focuses on interprovincial migration of the elderly in Canada at the micro level, using a family life cycle perspective. The sample was divided according to a six stage family life cycle typology, in which the final two stages represent the elderly. Two specifications of a cost-benefit model were tested on the subsamples, using OLS regression. In addition, LOGIT regression was used as a method of analysis on the final two stages.

The Individual and Family Files of the Public Use Sample Tapes of the 1971 Census of Canada were used as sources of data. The test of the "traditional" migration equation was made on samples for the first five life cycle stages, drawn from the Family File. Stage six families, defined as widowed individuals with no children living at home, are not included in the Family File and therefore could not be drawn. The test of the second migration equation, which includes those variables theoretically linked to elderly migration decisions, was made on stage five and six samples, drawn from the Individual File.

The findings from the analysis using OLS regression were generally consistent with those expected, with most coefficients produced having the same direction as proposed. The second specification of the model, was slightly more effective in explaining migration in the fifth and sixth family life cycle stages than was the "traditional" specification. The LOGIT regression analysis produced coefficients that were higher and more significant for the OLS regression analysis, but the pattern of effects remained generally the same.

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INTRODUCTION

The following is a micro-level study of interprovincial migration of the elderly in Canada, employing Public Use Sample Tapes of the 1971 Census of Canada as data. The literature on the topic of elderly migration indicates that there has been a lack of empirical testing of micro-level theories of migration of the general population, and especially of migration of the elderly, using appropriate, micro-level data, as is carried out in this study.

The first chapter of the paper includes a statement of the research problem in general terms, a rationale as to why such study is relevant at this time, and poses the specific research question that the study was designed to answer.

In the second chapter, the literature on interprovincial migration in Canada is reviewed. An overview of general and internal migration theory is included, and a critical review of micro and macro-level empirical tests of migration theory is provided. Also reviewed is the literature on elderly migration.

The third chapter of the paper details the theoretical

framework used in this study. The Family Life Cycle approach is outlined, and its applicability to the study of elderly migration is argued.

In chapter four, the empirical model is presented.

The methodology used is presented in chapter five. This section includes a description of the data employed, the indicators of the general concepts, and the method of data analysis used.

Chapter six is a presentation and discussion of the findings, comparing the relationships found to those hypothesized, and discussing the relevance of such comparisons.

The final chapter, seven, is a summary and conclusion of the study, in which the findings are briefly summarized, and suggestions for future study in the area are made.

I

THE RESEARCH PROBLEM

Statement of the Problem

This research is a consideration of interprovincial migration of the elderly in Canada, using a micro perspective. The concern is with the decision-making process involved in elderly migration, the factors which influence it, and if and how these factors differ from those of migration of the general population, and of younger age groups.

The availability of a large data base, in the form of the Individual and Family Files of the 1971 Census of Canada (Statistics Canada, 1975), presents an opportunity to examine this problem and derive conclusions that will be representative of the Canadian situation. These files contain individual-level data on the major variables cited in internal migration literature.

Rationale

Demographic research into behaviour of the elderly has been scarce until recently. More attention has been paid the elderly of late, mainly because of changes in the age composition of North America that have resulted from the post-war "baby boom", and the decrease in fertility in later years. Canada and the U.S. are becoming older countries; the older sector of the population is representing an ever-greater proportion of the population of both nations. The potential social and political consequences of this fact are being recognized not only in academic, but also political and economic circles. A society, such as that of North America, that has been geared towards youth, faces radical change. Knowledge regarding the elderly, which until recently was neglected, is now becoming increasingly valuable (Wiseman, 1978; Golant, 1972; Stone and Fletcher, 1980).

Migration of the elderly is one area in which research is required. In his presidential address to the Population Association of America, Siegel (1980) cited the importance of such research. Existing empirical research into migration of the elderly is generally descriptive, and considers macro-level processes.

The significance of research into interprovincial (or

interstate) migration, including that of the elderly, can be recognized at both macro and micro levels. At the macro level, migration from province to province represents a redistribution of significant numbers of the population and labour force, with potentially significant effects on the economies of Canada and the individual provinces. The recent attention being paid to outmigration from Quebec and to inmigration to Alberta is an expression of concern with this topic. At the micro level, interprovincial migration, unlike local residential moves, represents a major change to the lifestyle of the individual or family involved. Such migration generally means leaving established family and personal relationships, neighbourhoods, jobs, et cetera, and therefore demands that a major motivation and decision be involved.

Knowledge regarding migration of the elderly can be useful in predicting future migration plans of this sector of the population that is becoming more and more dominant (Wiseman, 1978). Knowledge of elderly migration streams and macro-level processes has become more developed recently, but, as Golant notes, "to date, research that focuses on migration behaviour as a decision-making process has been virtually non-existant" (1980: 276-277). He cites as one of the major obstacles to such research, the lack of disaggregated data. This statement is applicable to both American and Canadian research. In his consideration of

Canadian research into migration, Stone (1974) forsees important payoff from studies conducted into the micro-level processes related to migration.

The Research Question

This research tests whether or not the family life cycle is a valid context in which to explain differential effects of variables involved in the migration decision-making process of the elderly in Canada. The general hypothesis is that the effects of variables related to individual and family migration vary according to stage in the family life cycle, and that a specification of the cost-benefit model including variables traditionally used in explaining interprovincial or interstate migration of the general population will not adequately explain interprovincial migration of the older sector of the population, and a specification of the model including such variables as climate and retirement status will be more effective.

II

REVIEW OF THE LITERATURE

General Theories of Migration

In his two articles titled "The laws of migration" Ravenstein (1885 and 1889) became the first to analyze a large data base and derive theoretical propositions on migration, laying the groundwork for all modern migration studies. The first article was based on 19th Century British census data, the second on similar data from over twenty countries worldwide.

Ravenstein devoted page after page to descriptive statistics. Basically his "laws" represent the tendencies found in analyzing the data. 1. for the volume of migration to decrease with greater distances, and for long distance migrants to go to major industrial, commercial centres (cities); 2. for migration to take place in stages, in currents ("streams" in modern terms) towards cities, and from rural to urban areas, leaving a gap that is filled by migrants from increasingly remote districts (in stages)

until the effects are "kingdom"-wide, the process of dispersion being the inverse of absorption, exhibiting similar features; 3. for each current (stream) to produce a counter-current (counterstream); 4. for more rural than urban dwellers to migrate; and 5. for females to dominate short-term migration (Ravenstein, 1885:198-199; 1889:288; Lee, 1966: 48).[1]

Two additional "laws" of Ravenstein's, not normally cited, are listed by Lee (1966:48): the tendency for migration to increase with advances in technological means; and the tendency for an economic motive (inherent in most individuals, to better themselves in material respects) to influence the volume of migration. This final "law" remains one of the basic assumptions of micro-level migration theory.

Overall, Ravenstein's notions are generally considered "knowns" by today's demographers. While the articles considered below reveal advances in the field since Ravenstein wrote his two classic articles, those articles still remain the basis of all migration theory, and all empirical work based on such theory.

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[1]This listing of Ravenstein's "laws" is influenced to a degree by Lee's (1966:48) clear and concise summary of Ravenstein, consisting of verbatum exerpts from Ravenstein's articles.

Peterson (1968) provides a useful general overview of the field of migration studies since Ravenstein, emphasizing the social (as opposed to the strictly economic) viewpoint, and providing definitions, and some theoretical points. Migration is generally defined as "the relatively permanent movement of persons over a significant distance". Peterson notes the variations found in the interpretation of the term "relatively permanent", preferring the United Nations interpretation of "relatively permanent" as one year. "Significant distance" depends on the type of migration being studied. International migration is defined as the move from one country to any other. Generally, significant distance is considered to be the move from one community (nation, province, county, et cetera) to another.

While migration is commonly treated in theoretical models as the dependent variable in a causal relationship with several independent variables, there is one theoretical perspective that recognizes the relationship as one of reciprocal causation. In discussing his economic theory of migration, Spengler (1970) focuses on the ecological correlates of migration. The importance, and potential effects of international migration on national economies, are illustrated by Spengler, with the use of limited empirical data.

Initially, Spengler focuses on relatively short-term effects. In the proper setting, by affecting the size of the population, immigration is shown to have the potential to increase worker output per head, increase the rate at which a country forms capital, and determine the importance of external trade.

In many situations, notes Spengler, emigration can benefit an overcrowded nation by reducing the size of its labour force, and possibly encouraging increased investment by allowing introduction of labour-saving technology.

Overall, strong adverse effects of emigration are unlikely in well-populated countries in Spengler's view, since adverse effects balance the advantages gained. Thinly populated countries, according to Spengler, would very likely suffer economically as a result of continous emigration.

Through compositional change, the substitutive effects of migration are potentially powerful as well, according to Spengler, since they are able to affect changes in unemployment and wage rate levels in either direction. Unless the volume of migration is very large, however, no major effects on an economy will be evident.

Finally, Spengler notes the potential of long term

economic effects of migration. He cites the history of migration in America, and how it, to a large degree, shaped the evolution of the American economic system.

While Spengler's stress is on international migration, it should be noted that the potential redistributive effects that he refers to also apply in the case of internal migration.

Micro-level Migration Theory

The micro-level frameworks provide theories of migration at the individual level. Their focus is not on migration streams or other macro-level aspects of migration, but most often with the process by which individuals or families make decisions of whether or not to move, and if so, where. Generally, these models can be subsumed under one general framework. In this framework, it is assumed that the individual or family unit weighs the various economic and non-economic factors that encourage or discourage a move, and make a rational, calculated decision based on those factors.

These factors have most often been labelled "push" (those that induce an individual to move from an area) and "pull" (those that attract him or her to an area) (Peterson,

1968), but may be recognized in similar frameworks that employ different terminology.

Lee (1966) sees individuals as basing their decision to move on four factors: those associated with 1. the area of origin; 2. with the area of destination; 3. with intervening obstacles; and 4. with personal factors. Lee uses the terms "positives", and "negatives" when referring to an individual's attraction to or repulsion from such factors, corresponding respectively to "push" and "pull". He also adds a third descriptor, "zeroes", to indicate personal indifference to given factors. This is a mere elaboration of the general model, noting that each area (origin and destination) is judged separately, according to these factors.

Intervening obstacles are listed by Lee as including natural inertia, distance, physical barriers, restrictive immigration laws, costs of transportation and moving, and other "impendimenta" including children and other dependents.

The final set of factors, personal factors, includes personal sensitivities, intelligence, and awareness of conditions elsewhere. This is especially considered (by Lee) to affect the individual's evaluation of the situation at the point of origin.

Lee refers to personality traits as the irrational aspect in migration decision-making. Perhaps, more precisely, such traits should be considered as rational, but difficult to measure. Other such "irrationals" listed include transient emotions, mental disorders, and accidental occurances. Lee also notes that life cycle stages affect migration.

Lee's scheme is not entirely typical of micro-level frameworks, since it brings into play the notion of "intervening obstacles" as an added factor in the decision-making process. This concept actually adds nothing new to the model. What Lee refers to as intervening obstacles (e.g. distance, costs of transportation and moving) would normally be included in this framework under the category of "costs" (in Lee's terms, a negative factor for the area of destination). The concept merely serves to complicate an already adequate and fairly simple model.

Lee, like many others, loses any micro-level focus when he jumps from the theoretical to empirical. His attempts to operationalize the theory result in a shift away from a micro-level focus. He formulates a series of hypotheses for the volume of migration under varying conditions, for the development of stream and counterstream, and for the characteristics of migrants. Reconceptualizing the theory in terms of volume, streams, et cetera, he focuses on

macro-level processes.

Stouffer (1940) earlier attempted to take the basic model a step further, introducing the concept of "intervening opportunities." "Opportunities" is not a concept well-defined by Stouffer, appearing to refer to any or all major factors in the decision-making process. In Stouffer's own test of his hypothesis, "opportunities" is empirically defined as potential (equal) housing vacancies. Stouffer was attempting to provide a conceptual framework through which he could explain the relationship (first noted by Ravenstein) between distance and mobility. He proposes in this theory no direct relation between mobility and distance, hypothesizing that "the number of persons going a given distance is directly proportional to the number of opportunities at that distance and inversely proportional to the number of intervening opportunities" (Stouffer, 1940: 846).

While Stouffer's empirical findings support his hypothesis, they can be considered quite limited in scope. Intervening opportunities were empirically defined very specifically as potential housing vacancies between the dwellings of origin and those of the destination for Cleveland migrants in 1953-55 This was a test of a particular intervening opportunity and its relationship to intracity mobility. Further, the only information available

on the respondents included the address at their place of origin and destination, their rent value at their destination, and the race of the respondent. The micro-level decision-making process cannot be adequately inferred from such data. In all fairness to Stouffer, he does note that his is but the first test of his theory, and encourages widespread testing by other sociologists.

While some (including Peterson (1968)) have viewed the "intervening opportunities" theory as a valuable contribution to the field, it can also be said that this work, much like Lee's involving "intervening obstacles", serves only to unnecessarily complicate the model. If the individual is calculating a cost-benefit analysis of possible destinations, the distance between origin and each potential destination would be included as "costs" in each calculation. Since the results of the calculations would already have included these costs, the type of "equal" opportunities that Stouffer uses would no longer exist.

Mincer (1978) provides another, more recent version of the micro-level model, introducing the family (and not merely the individual) as the unit of analysis. He proposes various relationships between the variables in his version of the model, and while he does not test these propositions with his own data, Mincer does cite the findings of several other studies as support for them.

In his view, migration is not motivated by the net gain of the "head" of the household, but by net family gain. This is yet another version of the general cost-benefit analysis framework, recognizing joint decision-making. As in the individual's cost-benefit analysis, if the family's returns of migration outweigh its costs (including both monetary and non-monetary costs), i.e. a net gain, the decision is to migrate. As the costs and returns for one or more additional family members are included in the calculation, it becomes more difficult to achieve a universal advantage for individual family members. Married couples tend to be less mobile than singles, according to this argument. Mincer cites published migration statistics (rates) verifying this tendency in all groups but the 20-24 year old group.

Mincer focuses on the two member family, with husband and wife. In the simplest case, Mincer looks at the husband and wife deciding to move or not, and to a single possible destination. For a "move" decision, the family gain (the sum of husband's and wife's net gains) must be positive. To achieve this result, both husband and wife might individually have positive net gain and therefore benefit from a move, or, this positive family net gain could equal the sum of one spouse's (larger) positive gain and the other spouse's (smaller) negative gain, meaning that the latter spouse is disadvantaged personally by the move. Mincer

labels the disadvantaged partner a "tied mover".

Similarly, with a decision not to migrate, the result of calculations showing a negative net family gain, there is the possibility that neither would be disadvantaged by staying, or that there would be one "tied stayer". Mincer provides statistics indicating that it is the wife who tends to be "tied mover" or "tied stayer".

Mincer indicates that "ties" most frequently are seen in two-earner families. Since income is the major factor in the net gain calculation, and the husbands' salaries tend to be significantly greater than the wives', moves tend to maximize the husband's income, often at the expense of the wife's career. Non-working wives have little (that can be easily measured) to lose by a move that is good for the husband.

The more the wife contributes to family income, however, the less likely a positive net family gain (indicating a move) will favour only the husband. A positive net gain is more difficult to attain in families in which the wife contributes a significant proportion of total family income, and migration for such individuals is decreased. The wife's employment income, then, is identified by Mincer as a factor inversely related to family migration. He reviews findings indicating that families

with employed wives have lower migration rates than do families with non-working wives.

Maximum family net gain also determines the choice between several migration destination, according to Mincer. This could prevent one, both, or neither spouse from achieving maximum personal net gain (being tied). When job opportunities are the prime motivating factors in a move, and two-earner families are involved, the likelihood of both being "tied" is increased.

Mincer's concepts of "tied mover" and "tied stayer" seem to carry with them a sense of psychological frustration, perhaps supression. It is not surprising that Mincer indicates that families with marital problems, and families with "tied" individuals are correlated.

There is an increased tendency in recent years for a spouse to choose personal net gain over that of his/her family, contributing to marital separation, or divorce. According to Mincer, marital stability demands that spouses accept the possibility or necessity of being "tied" personally in order that the family may maximize its gain.

At the individual level, Mincer notes that there is a positive relationship between marital dissolution (divorce) and migration, of approximately the same strength as the

inverse relationship noted between marriage and migration. In addition to citing statistics that show lower migration rates for married individuals, Mincer indicates that migration rates are highest for individuals in years "bracketing" marital dissolution.

With the recent reality of marriage instability, there is less of a tendency to compromise and be tied, according to Mincer. When a spouse does not consider the family gain to be of paramount importance, net family gain remains a requisite to a move decision, but is not necessarily sufficient. Migration tends to increase marital instability, then, when the spouse's gains differ (one positive, one negative). Unless the concept of ties is internalized, the marriage may dissolve. Marital dissolution, in turn serves to increase migration.

The major problem with Mincer's study involves the jump from the theoretical to empirical levels. This involves an empirical definition that appears incompatible with the theoretical discussion provided by Mincer. As Mincer has operationalized the concepts "tied mover" and "tied stayer," he has considered only objective (measurable) economic costs and returns, such as salary, employment, et cetera, and he has ignored subjective (non-measurable) non-economic costs (based on, for example, attachment to family) that are included in the theory. The individual labelled by Mincer

as a "tied mover" might actually not be "tied" at all when one considers personal, non-economic factors in the analysis. The concepts of "tied mover" and "tied stayer", therefore, do not appear as empirically significant as Mincer might have us believe. His major contribution remains in stressing that the cost-benefit analysis must take into account the family context.

Internal Migration Theory

The frameworks discussed above represent literature regarding migration in general, and apply to both international and internal migration. There is also a body of literature dealing specifically with internal migration.

Bogue (1959) provides a useful overview of the field of internal migration theory. It emphasizes the potential of migration as an adjustive mechanism in society, able to preserve an existing social system by providing human resources where they are needed, but also able to disrupt that society.

Bogue makes the distinction between the "local mover", and "internal migrant". Theoretically, he states, migration involves changes of residence that involve complete change

and readjustment of the individual's community affiliations, with civil boundaries (generally national, provincial, county or civic) being traversed.

The various methods used to measure the migration of a country or area are reviewed and problems associated with each are cited. Indirect methods, including "vital statistics", "survival ratio" and "place of birth - present residence" methods, are considered by Bogue to be to a large degree inaccurate and unreliable. Statistics of migration obtained by direct methods allow for a more detailed look at migration. He notes that direct measurement is undertaken in several European and American countries, usually based on a system of continuous residential registration, or change of residence enumeration as part of census enumeration, as in Canada.

From direct observation, streams are classified, and in and out-migration rates computed. Bogue warns against improper use of migration rates, though, noting that migration rates should be taken as dependent variables, with "push" and "pull" factors as independents, in causal testing. These independent variables would include factors dealing with attributes of individuals and factors dealing with attributes and conditions in communities of origin and destination.

While Bogue's internal migration model is not particularly problematic in terms of what is included, it may be criticized as being too simple, failing to take into account that such ecological correlates as wages, employment rates, and so on, can have reciprocal correlation with migration, as discussed above.

Several of Bogue's recommendations for further research into internal migration in industrialized nations remain valid today, over twenty years after he made them. These include: that existing data banks be fully exploited, that multivariate analysis (including multiple regression) be applied to migration, and that a longitudinal type of analysis be applied.

Sjaastad's (1962) choice of a "resource allocation framework" includes the ecological variables missing in Bogue's model. He recognizes internal migration as a means of promoting efficient resource allocation, treating it not unlike Spengler treated international migration. Sjaastad aims to identify costs and returns to migration. The result is a consideration of the individual decision-making process, and its social (macro-level) implications.

Sjaastad's interest is with determining why the process of migration, despite the potential of its redistributive

effects, had not achieved a more equitable income distribution in America. Towards this end, he places an emphasis on age and occupational compositions of both areas of origin and destination of migrants. Migration is seen as an investment entailing costs and returns.

Private costs and returns are listed by Sjaastad, these referring to the individual decision-making process involved in migration, yet he never specifically considers the individuals weighing these costs and returns. Private costs include monetary and non-monetary costs. Monetary costs include the actual money spent on the move, and increases in food, transportation and lodging necessitated by the migration while non-monetary costs include opportunity costs (earnings foregone when moving and searching for new work, et cetera) and "psychic" costs (which become involved in the calculation of rate of return, and include loss of familiar surroundings, family, friends). Private returns of migration listed by Sjaastad include monetary returns (net gain in costs of employment, earnings, prices, et cetera).

Sjaastad notes that migration also involves costs and returns for non-migrants as well as migrants, again differential costs and returns. This is another reference to the individual cost-benefit analysis, and the "no move" decision that is most common.

Four conclusions are listed by Sjaastad as relevant to (macro-level) empirical study using his perspective: 1. returns to migration and impact of migration on earning differentials are best seen in the gross (rather than net) migration, 2. migration rates are not appropriate for measuring the effects of migration, 3. age is a significant variable to be considered in interpreting migration and earnings differentials over time and space, and among occupations, and finally, 4. the relation between private and social costs and returns of migration at best depend on market structure, resource mobility in general, and revenue policies of state and local governments.

Sjaastad's concern is with macro-level processes, as his theoretical framework implies. Despite his references to the individual, there is no explicit concern with micro-level processes in his work.

Interprovincial Migration in Canada

In reviewing Canadian studies considering those variables or characteristics listed in the theoretical frameworks for differential migration, Stone (1974) finds that age, education, occupation and ethnic origin are factors that have consistently been linked to differential

migration.

He reviews the relationship found between age and interprovincial migration, with migration rates falling between early childhood and late high school years, rising to peak in the mid-twenties, then gradually declining to the peak ages in retirement, rising slightly then dropping again (ages for peaks being slightly younger for females). With the elderly population, high return and multiple migration is seen.

A positive relationship between education level and migration is also evident, according to Stone's own findings, and those of other Canadian studies he reviews. Linked to education, those occupations requiring higher than average percentage of individuals at upper educational levels show higher than average mobility rates.

Differences in migration based on ethnic origin are said to be partly due to language differences (mobility is reduced if a linguistic group is isolated, concentrated in a particular part of the country (especially the French in Quebec), minimizing potential destinations for that group. For groups living in areas where neither French nor English is spoken, the lowest migration rates were seen. Three groups are considered in terms of ethnic origin. Those of British Isles origin were the most internally mobile, the

French were the least, with "others" ranking second. The differentials were much higher for all interprovincial moves than for intra-provincial.

Explanatory analyses of regional migration patterns in Canada have been fairly numerous, according to Stone, with studies indicating a significant correlation between migration, particularly interprovincial migration, and population size, age, distance, distribution of friends and relatives, and employment opportunities and income.

Among significant findings of Canadian migration studies, Stone notes that statistical association has been shown between the level of geographic mobility and the tightness of labour markets. The general level of mobility varies inversely with unemployment rate levels, while job related factors are significantly linked to internal migration.

While Stone stresses that important work remains to be done with respect to the link between micro and macro theory in this area, he sees no convergence of micro perspectives themselves. Stone recognizes two dominant micro perspectives: 1. migration as a response to stress, which is in turn related to change in family life cycle, and 2. migration decision-making as a cost-benefit analysis. It is difficult to see why Stone can see no prospects for

synthesis of these two perspectives. Basically they are similar; it is mainly in terminology that there is a conflict. Perhaps it is because Stone's focus has shifted, for he questions whether the emphasis that has traditionally been placed on explaining migration with such factors as age, education and income, has been misplaced. He advocates that migration be considered as part of a strategy for acheiving mobility in other dimensions of one's life (occupational, industrial).

Stone's review emphasizes the predominance of macro-level studies. The area of micro analysis of migration (that is, individual decision-making), notes Stone, has been neglected in Canada, in terms of empirical analysis. This point of Stone's is a particularly valid one. While many theories discussed thus far present (at the very least implicitly) some variation of the theoretical model of individual, cost-benefit analysis in migration decision-making, most employ macro-level variables, and conduct research at the macro level. The suggestion by Stone that more research be focused on the micro decision-making processes linked to migration, is well taken.

Vanderkamp (1968) provides an empirical study of the time-pattern of migration between Canadian regions, over the twenty year period up to the mid-1960's. His theoretical

perspective considers migration as related to "net advantage". Again, implicit in this perspective is the rational, cost-benefit analysis, in this case focusing on employment opportunities.

Vanderkamp hypothesizes that an individual is more or less likely to move depending upon the employment opportunity variables. He identifies return migrants as a different group for consideration, explaining return migration as that of disappointed migrants who make the decision to return on the basis of more accurate data than they had for their decision to migrate originally. Vanderkamp, it follows, sees return migrants being more highly affected by "push" factors, and "new" migrants by "pull" factors. He tests two hypotheses, both based on these assumptions: 1. "new" migration rates are inversely related to (national) unemployment rates, 2. "return" migration rates are positively related to (national) unemployment rates.

Vanderkamp uses family allowance transfer data from Health and Welfare Canada to measure migration, and the 1951-61 Censuses of Canada for data on return migration. In looking at aggregate data, migration to net gainer regions is used to indicate migration most influenced by "pull" factors, that is, "new" migration. Similarly, migration to net loser regions indicates "return" migration. Total

migration to net inmigration regions is shown to be negatively related to unemployment. The regressions derived from the time series data further supported Vanderkamp's hypotheses, with the effect of unemployment on migration to net gainer regions generally much greater than for migration in the opposite direction. Unemployment coefficients were often insignificant, or had a positive effect.

Vanderkamp recognizes that while this 'evidence' is consistent with his proposition on return migration, it is also consistent with the alternative hypothesis that two migration flows may differ in the cyclical response because of differential occupational characteristics.

Overall, Vanderkamp's study illustrates the inverse relationship that exists between unemployment rates and "new" migration, and the positive relationship between unemployment rates and "return" migration. The emphasis on the "new" versus "return" migration distinction appears to be the first tested in a study of Canadian interprovincial migration.

Courchene's (1970) empirical study deals with interprovincial migration, in the context of "adequacy of regional readjustment." The basic theory is again cost-benefit type analysis, along the same lines as

Vanderkamp, and at a macroeconomic level, considering the ecological correlates of Canadian internal migration.

Average income per worker, unemployment rates, and federal transfer payments are considered to be on the benefit side of the calculation. An increase in average income in receiving province and a decrease in average income in sending provinces are hypothesized as being related to higher migration. The unemployment rate in the receiving province is inversely related to migration, while in the sending province it is positively related, according to Courchene's hypotheses, and the higher the intergovernmental transfer levels in the sending province relative to those of the receiving province, the lower the migration rate.

Costs in this model are principally derived from one element, distance, all costs increasing greatly with distance, and migration being inversely related to costs, according to Courchene. The rate of migration from one area to another is negatively related to the distance between the two. Education provides the migrant with greater knowledge of opportunities at the destination, decreasing the cost of the distance. Age is another determinant, old age increasing costs. Therefore, the impact of provincial income differentials on migration is negatively related to the age of the migrant, and the impact of the distance of

migration is positively related to the age of the migrant. Two hypotheses requiring longitudinal data (family allowance in this study) are presented based on the suggestion that migrants compile greater information of opportunities and income in other provinces, and transportation costs have declined relative to income, over time. One hypothesis states: interprovincial migration is proceeding with increased efficiency over time. The second hypothesis is related to the response of the migrant to the level of overall economic activity (using Canadian unemployment rate as an indicator): unemployment has a significantly negative effect on the volume of mobility between regions, and this relationship is not adequately captured by regional unemployment differentials.

Courchene's data consists of 1961 Census of Canada interprovincial labour force migration figures, and interprovincial family allowance account transfers for the years 1952-67. The empirical results derived from this data verify all of Courchene's hypotheses to varying degrees.

Empirical studies of Canadian interprovincial migration have principally involved the testing of both macro and micro-level theories using aggregate data. In the case of the micro-level theories, these tests must be considered inadequate to a degree. They do prove useful in that they

have helped to identify which factors are relevant to the migration decision-making process, and indicate the direction of the relationship. Such variables identified in the above include: age, education, occupation, ethnic origin, unemployment, income, and distance, but such a list is useful only to a point. To identify the interrelationships between these factors, and to determine the relative effects of these factors on interprovincial migration, individual data are required, allowing for multivariate analysis to be employed in hypothesis testing. This is the type of research that such authors as Bogue (1959) and Stone (1974) have advocated, and is still required.

Migration of the Elderly

Research into migration of the elderly, as with migration study in general, has done little to explain migration at the micro-level, the determinants or context of the individual decision-making process that individuals undertake with regards to migration.

The most frequently cited, and perhaps most accepted work in this area is that of Barsby and Cox (1975), who provide an "economic analysis" of elderly interstate migration in the U.S. Reviewing the relevant literature,

they note the lack of studies on this topic, and the tendency of those who do research in this area to provide only descriptive studies. They also note the lack of a proper theoretical framework, indicating that existing frameworks do not quite apply to elderly migration, especially since labour force related considerations become less important due to the simple fact of retirement.

Barsby and Cox consider that the literature has uncovered several variables or factors that affect migration rates of the elderly, providing additional insight into the forces acting upon the migration decision, particularly the choice of destination. These include the following:

1. family and social attachment. Increased social ties are negatively related to mobility of the aged if the ties are with individuals in their own town.

2. health and climate. Poor health is a deterrant to mobility alone, but when it is associated with a better climate for the health condition, it increases mobility.

3. home ownership. Ownership can retard mobility, yet increase it upon sale, due to increased liquid assets.

4. location at time of retirement. Suburbanites tend to migrate more than do city dwellers.

5. job opportunity. The opportunity for jobs may have some, but likely little effect on the elderly migrant's decision-making.

6. income. Since retirement has money costs, it is expected that post-retirement income is positively related to mobility, though actual results provide inconclusive evidence on this point.

7. labour force participation. Findings reviewed

indicate that participation in the labour force past the age of 65 seems to reduce the mobility of the elderly.

8. influence of (pre-retirement) occupation and education. Findings of the little research into this indicates that higher education is positively related to higher migration, and managerial and professional occupations are similarly related to migration.

(Barsby and Cox, 1975:9-18)

While pointing out that the evidence for these eight factors is weak, Barsby and Cox nevertheless see these factors as useful.

Barsby and Cox also produce their own empirical findings, using data at the macro level. They find that past migration experience is a powerful determinant of elderly migration patterns, but that public sector variables are mostly unrelated. Migration rates were found to be positively linked to income levels, with high income states having the highest migration rates, low income states the lowest migration rates. States with high wages in service occupations were found to have high elderly migration, but those with high wages in manufacturing did not. The authors cautioned that these findings should not be generalized, because of the the lack of reliability of the data.

States with high rental costs and low vacancy rates showed high outmigration. A high cost of living did not deter migration, though high occupancy rates reduced it.

The elderly appeared more affected by rental and occupancy rates than did younger groups.

In terms of education, net migration equations weakly suggested positive association with level of education, highly linked to occupation and income.

More general findings included that there were no significant differences between males and females. Interestingly, while the equations that were designed to explain migration of the general population tend not to explain elderly migration well, those designed by Barsby and Cox to explain elderly migration, effectively explained migration of younger age groups as well.

Chevan and Fischer (1979), using a sample of elderly individuals taken from the 1970 U.S. Census Public Use Tapes, provide a useful analysis of factors related to interstate migration of the elderly. Their model takes into consideration the fact that elderly migration is different from that of younger populations. Variables included in this model are: lifetime migration, unearned income, educational achievement, occupational prestige, climate, age, race, sex, and marital status. Retirement is also listed as a most important factor.

These authors recognize that migration and retirement

commonly take place within a family (or marriage) context. Retirement of both spouses is shown to be related to to higher migration, while single retirement of the wife is slightly more positively linked to higher migration than is single retirement of the husband. The importance of the family context is stressed.

From their findings Chevan and Fischer conclude that in certain respects elderly migration is similar to that of younger populations. Educational achievement, occupational prestige and income are positively associated with migration. They claim that retirement and climate are factors setting elderly migration apart from younger migration. It is stressed that retirement is a major factor to be taken into account. Several factors traditionally linked to migration were included in the model, but were not found to be significant in elderly migration.

The Canadian research and literature in the area is even more sparse than in the U.S. Again, descriptive studies of migration, including those of the elderly, do exist. The most recognized Canadian study is that by Golant (1972), focusing primarily on local moves, and only touching on the question of distance moves (migration). Golant's conclusions relevant to migration are that chronological age alone is not valuable in explaining spatial behaviour, although he notes that age 65 is interesting, not on the

basis of chronological age, but because it is associated with the loss of the work role through retirement, and therefore can help predict subsequent behaviour. Golant's empirical findings show that the 55-59 age group is more mobile, with higher interprovincial migration rates than the 60-64 age group, further illustrating the relationship of the loss of the work role to migration.

Little, if any, research has been published in Canada that specifically refers to the micro-level factors or determinants of individual migration of the elderly. Like most American studies, factors that have been identified in Canadian studies were found in tests with macro-level data. While they possibly indicate what the micro-level factors are, these factors need be tested using appropriate data. Models such as those used by Chevan and Fischer (1979) in their study of interstate migration of the American elderly, need be applied to individualized, micro-level, Canadian data.

III

THEORETICAL FRAMEWORK

The theoretical perspective upon which this study is based is the Family Life Cycle approach. Proponents of this perspective recognize that the link between the individual and his or her family is something that must be taken into account when studying the behaviour of the individual. Within a person's lifespan, the individual moves from the family of birth to the family of procreation, and within these two families, several important changes or shifts occur, in terms of number and ages of family members, family expenses, family resources, housing requirements and costs, as well as in the physical and emotional needs and resources of family members (Waite, 1980). Such transitions are timed through the interaction of economic and social factors as well as cultural and familial norms (Hareven, 1978).

Related to these important shifts is the behaviour of family members. They are affected by, and also affect, these shifts. Proponents of the family life cycle approach (for example, Waite, 1980; Hareven, 1978; Glick and Parke, 1969; and others) see that an individual's position in the

family life cycle is often a more useful variable in explaining such behaviour as family consumption patterns, use of time, and migration, than are traditionally used variables, such as age.

The argument for this position is that chronological age represents or reflects biological processes in the individual, whereas stage of family life cycle (admittedly related to age) represents changes in life experience, and has much greater reciprocal effect upon changes in attitude and behaviour.

Several typologies of the family life cycle have been developed, though the most frequently applied is one of the earliest, Glick's (1947) six stage "model". Included in this "model" are the following stages (Glick and Parke, 1969; Waite, 1980):

Stage 1. from period of first marriage to birth of first child.

Stage 2. from birth of first child to birth of last child. "Expanding Circle Stage."

Stage 3. from birth of last child to first child leaving home. The "Full House Plateau."

Stage 4. from first child leaving home to last child leaving home. The "Shrinking Cycle."

Stage 5. from last child leaving home to death of one spouse. The "Empty Nest Syndrome."

Stage 6. from death of one spouse to death of

remaining spouse.

According to Elder, family life cycle stages can be identified in terms of three criteria: 1) changes in size of family, 2) changes in age composition of the family, 3) and the father's (or family head's) retirement from the work force (differentiating post-parental stage from old age) (Elder, 1977). Generally, one would expect that retirement occurs during the fourth or fifth stage of a model such as Glick's.

The family life cycle typology has been extended and refined by others. Hill, for example, expands Glick's stages into a nineteen stage model (Elder, 1977). Glick's model remains the basis for other models, and his model appears to be the most widely applied. The usefulness of the family life cycle model and perspective is evident. Researchers such as Waite (1980); Hareven (1978); and many others have applied the family life cycle as a context in which to explain a wide range of phenomena.

The recognition of the family as a unit of analysis in micro-level migration research was stressed by Mincer (1978). He noted that an individual rarely makes such a decision on his or her own, and certainly not without considering the family costs and benefits.

The applicability of the family life cycle concept to the processes involved in individual migration appears to have some degree of acceptance in the field (Yee and Van Ardsol, 1977). This includes its application to elderly migration (Golant, 1980; Wiseman, 1978). With the elderly, the effects of variables traditionally used to explain migration are not expected to apply as they do with other sectors of the population. Employment, for example, might not have as much importance since a majority of the elderly are retired. Income, it follows, should also produce different effects on migration of the elderly. And since age has been shown to have varying effects on migration, a separate analysis at each life cycle stage will produce a more clear pattern of effects.

An obvious criticism of Glick's model is that it does not accurately reflect the reality of present day, North American society. This criticism is particularly valid in view of the considerable numbers of single parent families, particularly those headed by women, and childless marriages that exist. In the application of the model in this study, however, such criticism is irrelevant, due to the focus of the research on the elderly. Glick's stages reflect a "traditional" family life cycle, through which a great majority of today's elderly passed. For the purposes of the present study, the younger sector of the population, to which the model is also applied, serves as a comparison

only, in an effort to illustrate the uniqueness of migration in later stages, i.e. of the elderly.

As Waite (1980) argued in reference to younger women and their decision-making regarding employment when married, it can be said that the migration decision-making context changes in important ways during all the life cycle stages, in terms of costs and benefits of migration, particularly during the latter ones. The later stages of the life cycle are most interesting to this study, for reasons which should be obvious. By definition, the elderly are at these stages in their life cycles. Earlier stages, however, are valuable as well in a study of this type, for they provide comparison groups, helping to illustrate the uniqueness of migration and the related decision-making process of elderly individuals. By considering a specification of the model which includes variables or factors traditionally linked to interprovincial or interstate migration, one can see how different stages present different contexts which can result in differential effects of these factors.

IV

SPECIFICATION OF THE MODEL

The literature discussed above has linked certain variables or factors to migration decision making in theoretical terms, and has identified certain of these to be empirically correlated with migration behaviour. It is necessary to combine the empirical and theoretical discussions in relation to the research question and derive testable propositions.

While the theoretical literature refers to individual or family decision making, the empirical findings generally refer to characteristics of migrants and migration streams. The assumption made for present purposes is that family migration decisions are based on a rational, cost-benefit analysis conducted by the family. By considering the empirical findings of the literature in terms of the cost-benefit framework, certain expected findings can be derived.

In general, both the empirical and theoretical

literature identifies certain costs and returns of individual or family migration. When considered in terms of Mincer's discussion of "family migration decisions", these can be classified as below.

Mincer argues that families decide to migrate when the net family gain from migration is calculated to be positive. Net family gain can simply be stated as the sum of the net gain of the husband and the net gain of the wife, with net gains of children incorporated into parental gains. The net gain of an individual equals his or her returns minus his or her costs from migration, including both monetary and non-monetary costs. Since family net gain tends to favour the individual with the highest personal net gain, and net gain tends to be highest for the husband because of his greater market earnings potential, a decision to migrate generally will be made on the basis of the husband's returns. The result is an expected distribution of family costs and returns as follows.

A high employment income for the husband reduces the costs of migration. This high income makes the money costs of migration more affordable, and also represents greater labour market earnings potential. A higher level of education for the husband similarly lowers the costs of migration, in that it also increases his market earnings potential, and further provides him with greater resources

with which to evaluate the potential costs and returns of his migration.

In general, the costs of migration for families are greater than the returns, as shown by the low rates of migration of the general population. Two such costs occur when the wife has a high level of employment income and education. Because the migration decision tends to maximize the husbands' net gains, and it is more costly to move two people with incomes than it is to move one income earner, the wife's income and education are expected to be associated with costs of migrating.[2] Other costs of migration for the family are those associated with increased personal ties to the area of origin. Self employment represents such a tie. An individual cannot simply relocate a business without suffering from loss of clientele, goodwill, and so forth. The increasing age of the husband also increases community ties, since with increasing age, social relations become less flexible. The place of birth can also be important, since Canadian born individuals can be expected to have a stronger attachment to "home", and

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[2]Theoretically, the association of the wife's high level of employment income and education with costs of family migration is not based on sex, but on the "primary" and "secondary" income earner distinction. The nature of the census data being employed in this study is that husbands are arbitrarily designated as the head of the family. The discussion above is consistant with the nature of the data.

fewer Canadians have faced the "unknown" of migration, whereas all foreign-born individuals have experienced the act of migration. Owning one's home represents a further cost from the point of view of migration, for the family has money invested in the property, and it is more difficult emotionally to leave the house that the family has spent some time in, and is truly "theirs", than to leave a house or apartment that is not.

The above discussion identifies the costs and returns to migration that are employed in this study. As families pass through the various stages of the family life cycle, the context changes in which the migration decision making takes place. While this is unlikely to change the designation of any factor from "cost" to "return", or vice versa, the change in context may be expected to have some effect on the relative strength or importance of each cost or return in the family migration decision.

It is apparent from the literature that monetary considerations are most important to the migration decision. Since a husband's and wife's employment income are the central monetary components in the model, special attention must be paid to them.

In the first stage of the family life cycle, the family consists solely of the husband-wife pair, with no children

yet born. Such couples tend to be young, and with no dependents to consider, can be more responsive to the labour earnings market. Both the husband's and wife's income levels, and linked to these, their education levels, should be most important factors at this stage. Being young, "ties" to the community are likely not yet deep enough to be significant costs in the calculation.

Stage two represents a radical change in lifestyle, with the presence of preschool-age children, and the new need to coordinate their needs with those of the parents. Traditionally this has meant that the husband must attempt to maximize his earnings potential, while the wife devotes some time to childrearing. At the very least, the wife's labour force participation is traditionally discontinued temporarily, thereby reducing the importance of the wife's income and education as factors in the migration decision, while the husband's income and education remain most important. With young children in the home, those variables related to "ties" to the area of origin, likely become somewhat more important than in stage one.

In stage three, all children are of school age. The presence of school-aged children represents another change in context, inhibiting family migration as in stage two, but with some of the responsibility for childrearing in the hands of the school, the labour market earnings potential of

the wife can become an influence again, and employment income and education of the wife should become slightly more important factors in the migration decision. Other costs and benefits should remain as in stage two.

In stage four, some children have left home to live elsewhere while others remain. The employment income and education of the husband should become less important factors in migration at this stage, with the decrease in the dependence of his children upon him. The greater availability of the wife for work should result in an increase in the relative importance of her income and education as factors, since again her market earnings potential increases, though this potential is lessened by the discontinuity of her employment.

In stage five, the family consists of the husband-wife pair, with no children remaining at home. But it does not present a context such as that produced in the stage one "husband-wife" family, for the ages of both husband and wife are approaching, or at, retirement age. Since husband and wife are removed from the labour force, the importance of the husband's and wife's employment income and education (linked to income) as factors in the migration decision become much less significant. Indeed the higher the education of the husband and wife, the greater the returns in the family calculation, since in this stage education is

less linked to income, and instead provides the family with more resources with which to judge potential alternative migration destinations, and thereby can minimize the costs associated with migrating to an "unknown" destination.

The specification of the model using the same variables cannot be applied well to the sixth stage, for by definition, this stage includes only the widowed, and therefore, data on the spouse is inappropriate and must be excluded. Again, however, when one considers that the average age of individuals in this stage is past that of retirement age, it is unlikely that any of the job-related costs and benefits would be important in the decision-making process.

A new set of variables must be used to explain elderly (stage five and six) migration decision making using the cost-benefit model, including those factors cited as significant in the literature on elderly migration: retirement status, climate, education, age, sex, place of birth, total income. Retirement, the attraction of "sunshine" states (or in Canada, the "warmer" province, i.e. B.C.), a high level of education, and a high total income can be considered as variables which are associated with returns from migration, while the husband's increasing age, Canadian (versus foreign) place of birth, and being female are considered as variables associated with costs in

the calculation for the elderly.

In summary, the results produced from tests of the model with the census data are expected to be as follows: 1. the relative effects of husband's and wife's employment income and education, husband's self-employment status, husband's age, husband's place of birth, and homeownership, on the migration decision will vary significantly according to the family's stage in the family life cycle; 2. The first specification of the cost-benefit model, including those factors traditionally cited in the literature as significant to migration decisions of the general population, will be effective in explaining migration decisions in the earlier stages (one through four) of the family life cycle, and more ineffective in explaining migration decisions in the later stages (five and six); 3. The second specification of the cost-benefit model, including those factors cited in the literature as being theoretically significant to elderly migration decisions, will be effective in explaining migration in the later stages (five and six) of the family life cycle.

Inevitably something is lost in the transition from the theoretical to the empirical. In this case, the personal factors, especially those involving tastes, family and other personal, emotional ties, are too difficult to integrate into propositions that can be tested with the available

data. Again, this is a problem that cannot be satisfactorily solved in this research. Indeed the problem has yet to be entirely satisfactorily dealt with be anyone in the field. But, given the above discussion, it is possible to derive testable propositions related directly to the research problem, as stated below.

1. In the first four stages, the husband's employment income, the husband's education, the wife's employment income, the husband's age, the husband's self-employment status, the husband's place of birth, and homeownership will be significant in the migration decision-making process.

2. In the first stage, the husband's employment income, the wife's employment income, the husband's education and the wife's education will be most important in the migration decision-making process.

3. In the second stage, the husband's employment income and the husband's education will be most important in the migration decision-making process, while the wife's employment income and the wife's education will become less important.

4. In the third stage, the husband's employment income and the husband's education will be most important in the migration decision-making process, while the wife's

employment income and the wife's education will become more important.

5. In the fourth stage, the husband's employment income and the husband's education will become less important, while the wife's employment income and the wife's education will become more important.

6. In the fifth stage, the husband's employement income, the husband's education, the wife's employment income and the wife's education become less important in the migration decision-making process.

7. In the fifth and sixth stages, the individual's retirement status, education, age, sex, place of birth, total income, and climate will all be statistically significant in the migration decision-making process.

V

METHODOLOGY

Data

The data source for this study is the 1971 Census of Canada Public Use Sample Tapes. Two specifications of the cost-benefit model are to be tested, one using the Family File of these tapes, the other the Individual File. The Family File consists of a systematic 1% sample of all 1971 Census Families, while the Individual File is a systematic 1% sample of all individuals enumerated. The entire Family File has a sample size of 50,207 while the size of the Individual File is 214,019.

For the purposes of this study certain individuals were excluded from both files, including families enumerated overseas, and international migrants. Those enumerated overseas could not be involved in interprovincial migration decision-making, and would affect the findings, as would international migration, since it refers to individuals who belong in neither category of the migration variable.

The first specification is tested with the Family File. Selected from the file were married couples, with both spouses in their first marriage. Subsamples corresponding to the first five of six family life cycle stages[3] were then selected, as follows. Glick's stages have been slightly modified to accomodate the Census data: stage 2 includes families in which all children everborn are present, and under six years of age; stage 3 includes families in which all children everborn are present, and six years of age or older.

For the Stage 1 subsample, in addition to the above selection process, families were selected in which the wife had no children everborn. Families with wives over thirty five years old were excluded, since this stage theoretically includes only those families who have not yet had children. The sample size was 4,004.

The Stage 2 subsample, from the original selection, further consisted of those couples with one or more children everborn, and all of those children being under the age of six. The sample size was 12,972.

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[3]By definition of a Census Family, only married couples with or without children living at home, or single parents with children living at home are included. Stage 6 includes widowed individuals with no children living at home, and, therefore cannot be selected from the Family File.

The Stage 3 subsample was selected from the originally selected group of once married couples, those with at least one child everborn, with all of those children over the age of six, and all present in the home. The sample size was 8,794.

Included in the Stage 4 subsample are those once married with at least one child everborn, all over the age of six, at least one present, at least one absent from the home. The size of this Stage 4 sample was 6,242.

The Stage 5 subsample includes once married couples with children everborn, all over six years of age, but none present in the home. The sample size was 700.

The second specification of the cost-benefit migration decision model is applied to data from the Individual File. Because it is intended to apply to the "older" sector of the population, only Stage 5 and Stage 6 subsamples are taken. To make clear the distinction between these subsamples (taken from the Individual File) and the other subsamples (taken from the Family File), these subsamples are designated the labels Stage 5a and Stage 6a.

The Stage 5a subsample was selected to include married individuals with a family size of two (no children at home).

Females were further selected if they had one or more children everborn, indicating that they had children but they were no longer at home. Unfortunately data on children "everfathered" are not provided, meaning that all married men (with or without children) would be included in this subsample. To counteract this, a further restriction (or selection) was made, eliminating those men who had been married less than sixteen years. Those men who had been married sixteen years yet were childless were unfortunately included in the sample, however all men married less than sixteen years without having children were rightfully excluded. Sixteen years was chosen because that is the age at which children are allowed to leave school and conceivably could be working and supporting themselves. The sample size for Stage 5a was 16,650.

Stage 6a includes widowed individuals, with no children living at home, who had children everborn. Again this latter selection is only possible to determine for females. By adding the additional restriction eliminating those individuals married under sixteen years, some childless males are wrongly included in the sample, but young widows who had only gone through Stage 1 would be eliminated. The sample size for Stage 6a was 6,221.

It must be noted that such a sample breakdown in recreating the family life cycle does not perfectly reflect the theoretical assumptions of the family life cycle concept. This concept is intended as a developmental concept, ideally measuring families as they pass through each stage in their lifetimes. Ideally this requires longitudinal data on individual families, which is, for most studies, unreasonable and impractical in terms of temporal and financial restrictions. The imposition of the model in a cross-sectional manner, as in this study, results in an artificial construct, but a highly useful one, consistent with current research using this framework (Waite, 1980; Hareven, 1978; and others). The use of a traditional model such as Glick's, allows the researcher to extract from a modern population only those families who are in traditional stages. Despite changes that have taken place in society since the time that today's elderly went through these stages themselves, the basic context that modern families face in each of these stages appears to be quite similar.

Indicators of Concepts

The first specification of the model uses indicators of general concepts from the Family File of the 1971 Public Use

Sample Tapes, as follows:

Migration.

Interprovincial migration is measured by "Migration Status of Head (DWL5YAHD), residence on June 1, 1966." The census categories have been recoded to create a dichotomous variable that includes the following categories:

0 = non interprovincial migrant, including: same dwelling; same city, town, village or municipality; different municipality, same county; different county, same province.

1 = interprovincial migrant, including: different province.

excluded category: outside Canada.

Husband's Age.

The Husband's Age is measured by "Age of Head (AGEHD)." Census coding remains unchanged, given in actual years to age 75, then 75 for 75 up.

Husband's Place of Birth.

The Husband's Place of Birth is measured by "Period of Immigration of Head (IMMIGHD)", listing the year in which

the head immigrated to Canada. Census categories were recoded to create a dichotomous variable.

0 = foreign born, including: before 1946; 1946-55; 1956-60; 1961-5; 1966; 1967-8; 1969-71.

1 = Canadian born, including: not applicable (Canadian born).

Husband's Education.

The Husband's Education is measured by "Level of Schooling of Head (EDUHD), highest level of schooling attained." Census coding was transformed into years of schooling, as follows:

no schooling	0.0 years
below grade 5	2.5
grades 5 - 8	6.5
grades 9 - 10	9.5
grade 11	11.0
grade 12	12.0
grade 13	13.0
university 1-2	14.5
university 3-4 without degree	16.5
university 3-4 with degree	16.5
university 5+ without degree	18.0
university 5+ with degree	18.0

Wife's Education.

The Wife's Education is measured by "Level of Schooling

of Spouse (EDUSP), highest level of schooling attained." Census categories are recoded into years of schooling, as with husband's education above.

Husband's Employment Income.

The Husband's Employment Income is measure by "Total Employment Income of Head (EMPHD)" which the includes the sum of income received by the family head in 1970 from wages and salaries, the net income from business or professional practices and/or the net farm income. Census coding is in actual dollars up to $49,999 then coded as $50,000 for any sum $50,000 or over. For this study, all values were truncated so that income is given in $1,000 intervals.

Wife's Employment Income.

The Wife's Employment Income is measured by "Total Employment Income of Spouse (EMPSP)." Census coding is the same as for EMPHD, except for respondents in the Atlantic Region, where income over $25,000 is coded as $25,000. For this study, all values were truncated so that income is given in $1,000 intervals.

Husband's Self Employment Status.

The Husband's Self Employment Status is measured by

"Class of Worker Status of Head (CLHD)." Census categories were recoded to create a dichotomous variable.

0 = not self-employed, including: wage earner; unpaid family worker; head not working in 1971,

1 = self-employed, including: self employed, incorporated; and self employed, unincorporated.

Homeownership.

Homeownership was measured by "Tenure (TENURE)." Census categories were recoded to create a dichotomous variable.

0 = non homeowner, including: rented; not applicable.

1 = homeowner, including: owned.

The second specification of the model uses indicators of the general concepts from the Individual File of the 1971 Public Use Sample Tapes, as follows:

Migration.

Migration is measured by "Migration Status - Residence on June 1, 1966 (RES66)." Census categories were recoded to create a dichotomous variable, including:

0 = non-interprovincial migrant, including: same

dwelling; different dwelling, same city, town, village or municipality; different municipality, same county; different county, same province.

1 = interprovincial migrant, including: different province.

excluded category: different country.

Place of Birth.

The Individual's Place of Birth is measured by "Period of Immigration (PRDIMMIG). Year of immigration to Canada is given. Census categories were recoded to create a dichotomous variable.

0 = foreign born, including: before 1946; 1946-55; 1956-60; 1961-65; 1966; 1967-8; 1969; 1970; 1971.

1 = Canadian born, including: not applicable (Canadian born).

Education.

The Individual's Education is measured by "Level of Schooling (EDUCAT)." Census coding was transformed into years of schooling, as follows:

no schooling	0 years
below grade 5	2.5
grades 5 - 8	6.5
grades 9 - 10	9.5
grade 11	11.0
grade 12	12.0

grade 13	13.0
university 1-2	14.5
university 3-4 without degree	16.5
university 3-4 with degree	16.5
university 5+ without degree	18.0
university 5+ with degree	18.0

Sex.

The Individual's sex is measured by "Sex (SEX)." The census coding remains unchanged.

0 = male

1 = female

Age.

The Individual's Age is measured by "Age (AGE)." The census coding remains unchanged, as actual single years of age from 0 to 111.

Total Income.

The Individual's Total Income is measured by "Income, Total (INCTOTAL)", including total 1971 income from wages and salaries, business or professional practice, farm operations, family and youth allowances, government old age pensions, other government payments, retirement pensions

from previous employment, bond and deposit interest and dividends, other investment sources and other sources. The census coding is in actual dollars, for all males and for females not in the Atlantic Region, up to $74,999, and then coded as $75,000 for $75,000 or more. For females in the Atlantic Region, an income of $50,000 or more is coded as $50,000. For this study, the total income was truncated, so that income is given in $1,000 intervals.

Retirement Status.

Retirement is constructed from two measures, "Major Source of Income (MAJSINC)" and "Labour Force Status (LFCODE1). The two were combined to create a new, dichotomous variable RETIRE, coded as follows:

0 = non retired, including both: MAJSINC = wages and salaries; or non-farm self employment; farm self employment; family and youth allowances, other; and LFCODE1 = worked for pay or profit (Armed Forces); worked for pay or profit (Civilian); worked in unpaid family work; looked for work; on temporary lay-off; with a job but not at work (Armed Forces); with a job but not at work (Civilian); not in labour force (inmate).

1 = retired, including both: MAJSINC = old age pensions; other government income; retirement pensions; bond and deposit interest and dividends;

other investment income; and LFCODE1 = not in labour force (non-inmate).

Climate.

Climate is measured as follows: Individual's province of residence is measured by "Geographic Code (GEO-CODE)." A new dichotomous variable is created, named CLIMATE, including the following categories:

0 = "colder" provinces, including all provinces except B.C.

1 = "warmer" province, including: British Columbia.

The use of Census data in this study is consistent with the practice of most present-day demographers. The advantages of using such data include: the reliability and the size of the sample, which in turn serves to improve the generalizability of the research findings, and the inclusion of so many basic variables relevant to demographic models. For the purposes of this research, the Public Use Sample Tapes are by far the most extensive data source available. A survey designed specifically to fill the requirements of the study would be able to provide slightly more accurate indicators of only a few concepts, but to gather a representative sample of Canadians would be next to

impossible.

In that the Census variables were not designed for the specific purposes of of this study, certain variables are to some degree inconsistent with the theoretical concepts, and this problem must be addressed. An individual's migration status is measured by comparison of residence at the beginning and end of the five year census period. Most other variables, however, are measured only at the end of the interval, and therefore may in certain instances provide inflated or misleading results. The variable most affected by this problem is Homeownership. It must be assumed, for present purposes, that homeowners at the end of the census period were homeowners at the start. This, of course, results in an overestimation of homeownership. Renters who did not migrate but did buy homes within the census period are assumed to be homeowners who did not migrate, while renters who did migrate and become homeowners are assumed to be homeowners who did move. Since migrants represent a very minor segment of the population, it is fairly safe to say that the inverse relationship that is expected between homeownership and migration will be inflated. But since homeownership is an essential variable in the first specification of the cost-benefit migration model, it must remain in the analysis.

Overall, the variables chosen were unlikely to vary

significantly as a result of migration, since they were not necessarily tied to the area of origin, but represented personal attributes, either achieved or ascribed. Only minor difficulties with the variables are likely to occur. Should there be a need, these problems will be discussed as they become relevant to the discussion.

Method of Data Analysis

The test of the general hypothesis involves two steps. The first step is aimed at showing that the relative significance and strength of the factors related to interprovincial migration change from stage to stage in the life cycle. For this, the five subsamples were selected from the Family File, representing the first five stages in the family life cycle, according to the definition given above. The sixth stage could not be reproduced from the Family File, since this file does not include widowed individuals without children living at home. The data were then analyzed using OLS regression techniques. The structural form of the regression equation is as follows:

$$\text{Migration}_1 = a + b_1\text{EMPHD} + b_2\text{EMPSP} + b_3\text{EDUHD} + b_4\text{EDUSP} + b_5\text{TENURE} + b_6\text{AGEHD} + b_7\text{IMMIGHD} + b_8\text{CLHD}$$

where

a = constant

b_i = unstandardized regression coefficient

EMPHD = husband's employment income
EMPSP = wife's employment income
EDUHD = husband's education
EDUSP = wife's education
TENURE = homeownership
AGEHD = husband's age
IMMIGHD = husband's place of birth
CLHD = husband's self-employment status

This equation was tested with each of the five subsamples. The results are provided in chapter six. Comparisons were made to determine if the factors did differ from stage to stage, and if the first specification was least useful for the fifth stage.

The second step was a specification of the model relevant to elderly migration, incorporating those variables or factors listed as relevant in the literature. Again regression analysis was conducted, with the migration equation taking the following structural form:

$$Migration_2 = a + c_1 RETIRE + c_2 CLIMATE + c_3 SEX + c_4 PRDIMM + c_5 EDUCAT + c_6 INCTOTAL + c_7 AGE$$

where
a = constant
c_i = unstandardized regression coefficients
RETIRE = retirement status
CLIMATE = climate
SEX = sex
PRDIMM = place of birth
EDUCAT = level of education
INCTOTAL = total annual income
AGE = age

This equation was tested with two subsamples from the Individual File, corresponding to those described for stages five and six of the life cycle. Findings would indicate if

this second specification of the cost-benefit model was more successful than the first in explaining elderly migration. These results are presented in chapter six.

VI

FINDINGS

This chapter entails a discussion of the empirical findings of the research. The test of each specification of the cost-benefit migration model is dealt with separately, with the results of these tests being compared to the effects predicted in the discussion of the two specifications in chapter four.

Specification 1

Sample Characteristics

Table 1 presents the means and standard deviations for the variables included in the first specification of the model for the five samples representing the first five stages of the family life cycle. The data was drawn from the Family File of the 1971 Census.

The Stage 1 sample, including once married couples

Table 1. Sample Means for Variables in Migration Equation 1, for Stage 1 to Stage 5 of the Family Life Cycle.

Variable	Family Life Cycle Stage 1	2	3	4	5
DWL5YAHD	.102	.067	.038	028	.009
	(.303)	(.251)	(.191)	(.166)	(.092)
EMPHD	6.037	7.216	8.433	6.892	3.776
	(3.629)	(4.996)	(6.059)	(5.945)	(4.660)
EMPSP	3.094	.711	1.110	.952	.473
	(2.496)	(1.717)	(2.162)	(2.021)	(1.372)
EDUHD	11.727	10.095	9.821	8.532	7.556
	(3.337)	(3.641)	(3.652)	(3.620)	(3.720)
EDUSP	11.497	9.944	9.605	8.747	7.817
	(2.677)	(2.926)	(3.002)	(3.129)	(3.286)
AGEHD	26.872	33.509	43.497	52.747	64.548
	(5.046)	(7.663)	(7.628)	(7.701)	(7.630)
CLHD	.009	.022	.035	.030	.014
	(.096)	(.146)	(.183)	(.170)	(.116)
IMMIGHD	.872	.844	.800	.821	.712
	(.326)	(.363)	(.400)	(.383)	(.453)
TENURE	.282	.599	.773	.812	.814
	(.450)	(.490)	(.419)	(.391)	(.390)
N	3097	10516	7482	5193	590

Notes:
figures in brackets are standard deviations

without children everborn, is the most interprovincially migratory, with 10% having migrated within the past five years (see DWL5YAHD). The mean age of the husband in this

stage is 26.9 years. The mean employment income of the husband (EMPHD) is $6,087 per year, while for the wife (EMPSP) it is $3,094. The mean years of education are slightly higher for the husband (EDUHD) than for the wife (EDUSP), 11.7 to 11.5. 87.9% of the husbands in stage one are Canadian born (IMMIGHD), 0.9% are self-employed (CLHD), and 28.2% of families are homeowners (TENURE).

Stage 2 families (married with preschool age children), are less interprovincially migratory than are families in stage one. The mean age of the husband in this stage is 33.5 years. The mean annual employment income for the husband is $7,216, higher than in stage one, while for the wife it is much lower, $711, making the husband almost the sole provider. The mean number of years of education is higher for the husband (10.1) than for the wife (9.9). A great majority of the husbands are Canadian born (84.4%). In comparison to Stage 1 families, a greater percentage of Stage 2 families are homeowners (59.9%), or self-employed (2.2%).

Stage 3 families consist of once married couples with children everborn, all children at home and living in school. They are even less migratory than the previous stage families, with only 3.8% being interprovincial migrants within the past five years. The mean age of the husband is 43.5 years. The mean for the husband's annual

employment income peaks in stage 3, at $8,433, while the wife's mean annual employment income also increases from stage 2 to a level of $1,110. The mean number of years of education remain slightly higher for the stage 3 husband (9.82) than for the wife (9.61). Canadian born husbands represent 80% of the families at this stage. Again, both the percentage of self-employed husbands (3.5%) and homeowners (73.3%) increase from the previous stage.

The Stage 4 sample, comprised of families whose children are beginning to leave home, continues the trend, as even a smaller percentage of families (2.8%) are interprovincially migratory. The mean age of the stage four husband is 52.7 years. For both husbands and wives, the mean annual employment income is lower than in the previous stage, and the husband continues to earn much more than the wife, $6,892 to $952 respectively. In this fourth stage sample, wives for the first time have a slightly higher level of education (8.75 years) than husbands (8.53 years). Again, over 82% of husbands are Canadian born. Slightly fewer (3.0%) are self-employed than in the third stage, but again even a greater percentage of families (81.2%) are homeowners.

Couples with no children remaining at home, those in Stage 5, are the least interprovincially migratory of the five samples in table 1. The mean age of the husband (64.5

years) is near retirement age and, correspondingly, for both spouses the lowest means for employment income are seen, $3,776 for husbands, $473 for wives. As in stage four, the mean years of education are slightly higher for wives (7.8 years) than for husbands (7.6 years). The lowest percentage of Canadian born husbands (71.2%) is found in this sample. A lower percentage of self-employed husbands (1.4%) is found for in this sample than for all but the stage one sample. 81.4% of families in this stage five sample are homeowners, representing the highest percentage of the five samples.

Certain of these figures are worthy of discussion. Interprovincial migration is seen to decline steadily from stage one to stage five, following the inverse relationship generally found in the literature between age and migration. Homeownership increases over the five stages. Self-employment is seen to be most prevalent in the age group from the early thirties to pre-retirement.

Two unusual sets of means are seen in table 1. The husband's income drops suddenly in stage 4, in which the mean age for the husband is only 52.7 years. This finding is a result of the use of crossectional data. The figures do not indicate that as families reach stage four the husband's employment income is reduced, rather, they reflect the lower salary scales that individuals in stage four in 1979 have followed through their work careers. In present

day society, it is not uncommon for a young man to be making more than his middle age father. Crossectional data also produces an unusual declining trend in years of education of both husband and wife through the life cycle. It is distressing to see that for each successive stage of the life cycle, the level of education decreases. It is obviously not possible for individuals to accumulate fewer years of education as they pass through the life cycle. The explanation is, of course, that each successive cohort is attaining a higher mean level of education in Canada. It is interesting to note that in the "oldest" stages, women are more highly educated than men, a tendency which is reversed in the "younger" stages, reflecting changes in school attendance over time.

The samples presented in table 1 were those used to test the first specification of the cost-benefit migration model using OLS regression.

Findings

The regression coefficients obtained for the test of the first specification of the cost-benefit model of migration are presented in tables 2 and 3. The discussion of these findings can begin with a simple comparison of the expected and actual relationships found between migration

and each of the independent variables in the specification, through the first five stages of the family life cycle. The unstandardized regression coefficients in table 2 are referred to in this discussion.

Husband's employment income (EMPHD) and husband's education (EDUHD) were found to have the expected overall positive effect on interprovincial migration. The only exceptions to this, evident in extremely low coefficients in stages one and five, were predicted, with the high labour mobility of this younger group expecting to reduce the strength of this positive effect, while all stage five variables related to occupation were expected to produce such effects due to the greater tendency of stage five individuals to be retired. This was also evident in the negative effect of husband's self-employment status on migration.

Wife's employment income (EMPSP) also was found to have the predicted, negative effect on migration across all stages of the family life cycle. Also expected was the decline in this effect in stages two and three, due to the high proportion of women who restrict full-time employment while all their children are at home. The low, insignificant effect noted in stage five, related to the nearing or reaching of retirement age, also fulfilled expectations made in the discussion in chapter four.

Table 2. Unstandardized OLS Regression Coefficients for Migration Equation 1, for Census Families in Stage 1 to Stage 5 of the Family Life Cycle.

Independent Variables	Family Life Cycle Stages 1	2	3	4	5
EMPHD	-.000	.001	.001**	.002**	.000
	(.002)	(.001)	(.000)	(.000)	(.001)
IMMIGHD	.019	-.012	.002	-.013*	.002
	(.017)	(.007)	(.006)	(.006)	(.009)
TENURE	-.036**	-.062**	-.053**	-.046**	-.011
	(.013)	(.005)	(.005)	(.006)	(.010)
EMPSP	-.007**	-.002	-.001	-.003*	-.002
	(.002)	(.001)	(.001)	(.001)	(.003)
AGEHD	-.000	-.001	-.002**	-.001**	.000
	(.001)	(.000)	(.000)	(.000)	(.001)
EDUSP	.008**	.068**	.002*	.002*	.001
	(.002)	(.001)	(.001)	(.001)	(.002)
EDUHD	.006**	.005**	.003**	.002**	.001
	(.002)	(.001)	(.001)	(.001)	(.001)
CLHD	-.060	-.015	-.028	-.002	-.008
	(.056)	(.017)	(.011)	(.014)	(.033)
Constant	-.043	.008	.096	.084	-.003
R^2	.017	.037	.029	.028	.009
Adjusted R^2	.015	.036	.028	.027	.000
N	3097	10516	7482	5193	590

Notes:
figures in brackets are standard errors
a value of .000 represents a coefficient of less than .001.
* significant at .05 level
** significant at .001 level

The positive effect of wife's education (EDUSP) on migration evident in the findings was contrary to the

expectation of a negative relationship, an expectation based on the assumption that education was positively related to the wife's occupational status, which in turn would be inversely related to migration in all stages but five. The actual findings can be explained by an alternate argument, put forth by Courchene (1970). In this argument, education is seen as a factor that reduces the cost of distance by providing the individual with the resources necessary to accurately evaluate potential migration destinations. This is the same argument used to accurately predict the positive effect of wife's education in stage five, where occupation was not expected to be a determining factor.

Husband's age (AGEHD) was found to have the expected negative effect on migration through the first four stages, though in stage five this effect became slightly positive. This serves to illustrate the uniqueness of later-stage (elderly) migration. The expected negative effect of self employment status (CLHD) in all stages was also found.

Husband's place of birth (IMMIGHD) provided some unusual, highly variable findings, with Canadians more likely to migrate in stages one, three and five, but less likely than the foreign born to migrate in stages two and four. It is possible that the great majority of Canadian born respondents in the sample may have produced these surprising effects. It is worth noting that only one

coefficient is significant at the .05 level; in stage four, the expected significant, negative effect was found.

The final independent variable in the first model specification is homeownership (TENURE). The expected negative effects on migration were found for all stages, including the lowest value in the fifth stage, when the family home may lose some of its hold because the children are all gone.

Overall, the effects of each independent variable on interprovincial migration, with the exception of wife's education, were consistent with those expected.

Next, the discussion turns to the propositions stated in chapter four, and whether or not the empirical findings are consistent with them. The reader is referred to tables 3 and 4. . .

Proposition one states that the relative effects of the independent variables in the first specification of the model will vary from stage to stage in the family life cycle. Relative effects of the variables in each stage are determined by the standardized regression coefficients (table 3). Table 4 illustrates the relative effects in each stage, by listing the independent variables in ranked order, according to their corresponding standardized coefficients.

Table 3. Standardized OLS Regression Coefficients for Migration Equation 1, for Census Families in Stage 1 to Stage 5 of the Family Life Cycle.

Independent Variables	Family Life Cycle Stages 1	2	3	4	5
EMPHD	-.000	.001	.042	.058	.002
IMMIGHD	.020	-.017	.004	-.030	.012
TENURE	-.054	-.121	-.117	-.109	-.046
EMPSP	-.058	-.013	-.010	-.033	-.031
AGEHD	-.000	-.017	-.069	-.046	.002
EDUSP	.074	.079	.054	.051	.044
EDUHD	.061	.079	.054	.051	.044
CLHD	-.019	-.008	-.027	-.003	-.010
Constant	-.043	.008	.096	.084	-.003
R^2	.017	.037	.029	.028	.009
Adjusted R^2	.015	.036	.028	.027	.000
N	3097	10516	7482	5193	590

Notes:
a value of .000 represents a coefficient of less than .001

Order is from highest to lowest effects.

That the relative effects of the independent variable.

change from stage to stage is evident in table 4. At least one of the four highest ranked variables change as one moves from each stage to the next, with the exception of the transition from stage three to four. Between all stages, including three and four, the ranking of all variables change in some way.

Certain major trends are evident that are generally consistent with the discussion and the statement of the second through fifth propositions in chapter four. Variables related to the wife are found to be most important or significant factors in stage one, but in stages two through four, with children present in the home, these factors become relatively unimportant, only to again become among the most important in stage five, with all children gone. This trend is evident in the ranking of two variables: wife's employment income (EMPSP) and wife's education (EDUSP). The ranking of wife's employment income changes through the five stages as follows: third, sixth, seventh, sixth, and fourth. Wife's education changes according to a similar pattern: first, second (tied), fifth, fifth, and first (tied).

Corresponding to the trend in factors related to the wife, was the expected "mirror-image" trend found in two factors related to the husband: employment income (EMPHD) and age (AGEHD). Husband's employment income is ranked:

Table 4. Independent Variables in Migration Equation 1, Ranked by Standardized OLS Regression Coefficients, for Stage 1 to Stage 5 of the Family Life Cycle.

Rank	Family Life Cycle Stage 1	2	3	4	5
1	EDUSP (.074)	TENURE (-.121)	TENURE (-.117)	TENURE (-.109)	TENURE * (-.046)
2	EDUHD (.061)	EDUHD * (.079)	AGEHD (-.069)	SALHD (.058)	EDUSP * (.046)
3	EMPSP (-.058)	EDUSP * (.079)	EDUHD (.054)	EDUHD (.051)	EDUHD (.044)
4	TENURE (-.054)	AGEHD + (-.017)	EMPHD (042)	AGEHD (.046)	EMPSP (-.031)
5	IMMIGHD (.020)	IMMIGHD + (-.017)	EDUSP (.032)	EDUSP (.035)	IMMIGHD (.012)
6	CLHD (-.019)	EMPSP (-.013)	CLHD (-.027)	EMPSP (.033)	CLHD (-.010)
7	EMPHD (-.000)	EMPHD (-.013)	EMPSP (-.010)	IMMIGHD (.030)	EMPHD + (.002)
8	AGEHD (-.000)	CLHD (-.008)	IMMIGHD (.004)	CLHD (.003)	AGEHD + (.002)
N	3097	10516	7482	5193	590

Notes:
figures in brackets are standardized coefficients
a value of .000 represents a coefficient of less than .001
* tied rank
+ tied rank

seventh, seventh, fourth, second, and seventh. Through the five stages, husband's age is ranked: eighth, fourth (tied),

second, fourth, and eighth. While these trends do not represent perfect "mirror-images" of those seen for factors related to the wife, they do correpond overall to one another, as predicted.

The first proposition in chapter four implies that the first specification of the model would be effective in explaining migration in stages one through four, and ineffective in explaining migration in stage five. Again we must refer back to table 2 In stage one coefficients for four variables - wife's education (EDUSP), wife's employment income (EMPSP), homeownership (TENURE), and husband's education (EDUHD) - are statistically significant at the .001 level. In stage two, coefficients for three variables - homeownership (TENURE), wife's education (EDUSP) and husband's education (EDUHD) - are statistically significant at the .001 level. Four coefficients are significant at the .001 level for the stage three regression, including husband's employment income (EMPHD), homeownership (TENURE), husband's age (AGEHD), and husband's education (EDUHD). In addition, the coefficient for wife's education (EDUSP) is statistically significant at the .05 level.

For the first four stages, then, at least three variables in each regression proved significantly linked to interprovincial migration, according to statistical tests.

The test of the first specification on the fifth stage resulted in no coefficient being statistically significant at the .05 level. These results are consistent with the first proposition in chapter four. This proposition was based on the assumption that there are differences between the factors related to elderly migration (the mean age of the husband in the stage five sample is 64.5 years), and those related to migration of the younger segment of the population. That most of the variables in this specification do not even apply to individuals in stage six, further indicates its ineffectiveness in explaining later-stage migration.

As indicated by the extremely low R^2 values, however, it is evident that the first specification of the model is generally ineffective in explaining migration decision-making for all five stages. This questions the strength of the specifications of the cost-benefit model being used in the study. It was stated earlier that personal factors, including tastes, personal attachments, et cetera, were not being tested with this model. With the results seen here it is reasonable to surmise that a more effective specification of the model need include attitudinal or psychological factors. The census data used also appear to be somewhat inadequate, a more effective study would require supplemental data to more accurately analyze micro-level migration processes.

Specification 2

Sample Characteristics

The means and standard deviations of the variables in the second specification of the migration model, for the stage five and six samples from the Individual File of the

Table 5. Sample Means for Variables in Migration Equation 2, for Stage 1 to Stage 5 of the Family Life Cycle.

Independent Variables	Family Life Cycle Stage 5a		6a	
RES66	.024	(.151)	.023	(.150)
RETIRE	.356	(.479)	.690	(.462)
SEX	.428	(.495)	.758	(.429)
PRDIMM	.692	(.462)	.651	(.477)
EDUCAT	8.235	(3.604)	7.289	(3.640)
INCTOTAL	2.437	(4.401)	.691	(2.066)
AGE	62.526	(9.754)	72.404	(10.589)
CLIMATE	.135	(.342)	.119	(.324)
N	15252		5944	

Notes: figures in brackets are standard deviations

1971 Census are presented in table 5.

The stage 5a sample includes married individuals who have children everborn, but none still living at home. 2.4%

of such individuals migrated interprovincially during the past five years. 35.6% of this sample was retired. 42.8% were female; 69.2% were Canadian born. That this is an elderly sample is confirmed by the mean age of the sample, 62.5 years. The mean education of the sample was 8.24 years. The mean income from all sources for such individuals was $2,437. 13.5% lived in the warmer climate of British Columbia.

Stage 6a individuals, widowed and with children everborn, but, again, none living at home, were slightly less migratory than the earlier stage, with 23% having migrated interprovincially within the past five years. The mean age of such individuals was well beyond retirement age, at 72.4 years. Correspondingly, 69% were retired, and the mean income was much lower than for the stage 5a sample ($69.10). 75.8% of this sample was female. 65.1% of the stage 5a individuals were Canadian born, the mean years of education were slightly lower than for the previous stage, at 7.29. A slightly lower percentage of this sample (11.9%) lived in British Columbia's warmer climate.

Both samples are similar, the major difference in means being evident in the income levels, associated with the increased retirement and age levels. Also, there was a great increase in the proportion of females in the final stage, reflecting the higher survival ratio of women.

These were the two samples used in the test of the second migration model, using OLS regression.

Findings

Table 6 presents the regression coefficients obtained from the test of the second specification of the migration model. This includes variables considered in the literature to be relevant to migration of the elderly. The effects of each independent variable in the specification to interprovincial migration of families in stage five and six are first considered, in terms of the brief discussion of this specification included in chapter four. The unstandardized regression coefficients are referred to in this consideration. Generally, the effects of the independent variables on migration at both stages were expected to be similar, both reflecting elderly migration effects. Differences found between the effects in both stages can in part be explained in terms of the sample distribution.

Retirement (RETIRE) was expected to have a positive effect on elderly migration. This was found in stage five, but not stage six. This latter finding may have been affected by the sample distribution, with 69.0% of those in the stage six sample being retired. The negative effect

Table 6. OLS Regression Coefficients for Migration Equation 2, for Census Families in Stage 5 and Stage 6 of the Family Life Cycle.

Independent Variables	Stage in Family Life Cycle 5a		6a	
	unstand. coeff.	stand. coeff.	unstand. coeff.	stand. coeff.
RETIRE	.011 ** (.003)	.035	-.004 (.005)	-.012
CLIMATE	.051 ** (.004)	.116	.035 ** (.006)	.076
SEX	-.008 * (.003)	-.025	.007 (.005)	.019
PRDIMM	-.004 (.003)	.012	-.008 (.004)	-.024
EDUCAT	.002 ** (.000)	.046	.001 * (.001)	.032
INCTOTAL	-.001 * (.000)	-.022	.001 (.001)	.009
AGE	-.001 ** (.000)	-.076	-.000 (.001)	-.016
Constant	.078		.028	
R^2	.021		.010	
Adjusted R^2	.021		.009	
N	15252		5944	

Notes:
figures in brackets are standard errors
a value of .000 represents a coefficient of less than .001
* significant at .05 level
** significant at .001 level

found in this stage was not significant at the .05 level.

These findings, however, are also consistent with the work of Golant (1972) who explained that "young" elderly retirees are more likely to move than are "old" elderly retirees.

Climate (CLIMATE) was found to have the expected significant, positive effect on migration in both stages five and six. This effect was slightly greater in stage five, again the tendency for "young" retirees to be more migratory than "old" migrants explaining the difference. Also consistent with expected findings were positive effects in both stages for education (EDUCAT), and negative effects for age (AGE) and place of birth (PRDIMM).

Several unusual effects were found, though none prove to be problematic. The expected negative effect of sex (SEX) on migration was also found in stage five, with females tending to migrate less than males, but the effect was unexpectedly positive in stage six. This could again be the result of a skewed distribution, with 75.8% of the stage six sample being female. This coefficient was not significant at the .05 level, indicating that such might be the case.

Total income (INCTOTAL) was expected to produce a positive effect on migration, the reasoning being that it would provide the potential elderly migrant with more resources with which to finance a move. This effect is

apparent in stage six, but not in stage five. This is likely explained by the fact that a certain group of individuals in stage five are not retired, and, therefore, higher total income in stage five is not merely a reflection of available resources, but employment status. This explanation is particularly justified when the positive effect of retirement on migration, previously discussed, is taken into consideration.

The above discussion tends to correct, clarify and expand upon the brief discussion in chapter four regarding the second specification of the model. As Barsby and Cox (1975) noted, the findings presented to this point in the study of elderly migration are variable, but the factors that they identify remain useful for research and theory building. This is why the discussion on the second specification of the model in chapter four was brief, and only formed one testable proposition.

The test of the second specification must be considered in terms of the seventh and final proposition, which implies that the second specification will be effective in explaining interprovincial migration in stages five and six. Again, the reader is referred to table 6.

Six of seven regression coefficients for variables in the second specification of the cost-benefit model were

statistically significant at the .05 level or greater for the stage 5a sample. In contrast to this result, no coefficients for the first specification of the model were statistically significant for the stage 5 sample in the first test. While only two of seven coefficients are statistically significant in the results from the test of the second specification of the model with the stage 6a sample, this may be, as discussed above, partly a function of the highly skewed distribution of the stage 6a sample. The first specification of the model could not even be properly tested on the stage 6 sample in the original test. It seems evident that the second specification is much more effective than the first in explaining elderly migration decision making, this finding supporting the third proposition in chapter four.

As with the first specification, very low R^2 values were found in the test of the second specification with the stage 5a and 6a samples, indicating that other variables, such as those measuring psychological and attitudinal factors need be included if a truly effective specification is to be designed to explain the elderly migration decision-making process.

To measure these, questionnaire items would have to be constructed that would ask respondents their reasons for moving or staying, their degree of satisfaction with the

area of origin and destination, what family or personal emotional ties they felt to either area, what employment or career considerations are involved in their decision to move or stay, and so on. These are the types of questions that are not included on the Census questionnaire. Again, the census data alone appear to be inadequate.

VII

SUMMARY AND CONCLUSION

This study has been a micro-level consideration of interprovincial migration in Canada, for the 1966-1971 census period, looking at factors related to the migration decision-making process at each stage of the family life cycle. The first specification of the cost-benefit migration model was tested using the Family File of the 1971 Census of Canada Public Use Sample Tapes, and a second specification, including factors more relevant to the decision-making of the elderly, was tested using the Individual File of the same data source.

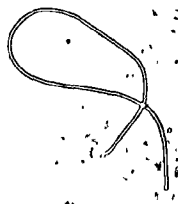
It was found that the first specification was minimally effective in explaining migration in the earlier stages of the family life cycle, especially those stages in which children are present in the home, but generally an ineffective explanatory model, as seen in the higher R^2 values for the middle stages, but the low R^2 values for all stages. Significant variation in the relative importance of the factors included in the specification was evident from

stage to stage. Migration in the later (elderly) stages of the family life cycle was not effectively explained by this specification of the model; the second specification was slightly more effective in explaining later stage migration, but it was also generally ineffective.

In general, these findings confirm the contention of most individuals involved in research into migration of the elderly, that elderly migration is different from migration of the general population, and that new explanatory models at the micro level need be developed and empirically tested. The second specification of the model, developed for this study, proved to be slightly more effective than the first specification in explaining elderly migration, but the low R^2 values indicate that it is not truly effective in its present form. These findings indicate that a specification of the cost-benefit model designed to address this problem need consider not only "traditional" demographic factors, but also psychological factors. This demands the use of additional data to be used supplementary to that available from public use sample census tapes. Still more research is required and improved models need be developed, especially those dealing with the micro-level processes related to elderly migration.

As discussed in the early part of this paper, the importance of research of the elderly is increasingly

becoming recognized in North America, as the fact of an aging population is made known to more and more people. While it appears that more research is being undertaken in America, it is essential that we develop a store of knowledge that is a reflection of the unique, Canadian situation. It is hoped that this thesis will contribute to such development.



APPENDIX

While the findings of the research discussed above were both interesting and informative, there was nevertheless a degree of disappointment at the low explanatory power of the second specification of the migration model, and at the general ineffectiveness of that specification to explain stage five and six migration. Upon completion of the thesis, however, it was pointed out that these low coefficients might be misleading, and that an alternate form of analysis might produce findings that would be more sensitive to the issue at hand.

The use of Ordinary Least Squares (OLS) Regression in analyzing data such as that used in this study can present a problem of sorts. Being a linear model, the OLS estimation technique may produce predicted values that are less than zero and greater than one. When the dependent variable can only have two values, zero or one, such predicted values are inaccurate.

The answer to this problem is to use a non-linear probability model. The LOGIT model does not allow predicted values to exceed the limits of the dichotomy, and when

plotted represents an S-shaped curve, as opposed to the straight line of linear models. By not allowing estimated values of the dependent variable to be less than zero or greater than one, the final coefficients produced are much more sensitive to the relationship being tested between the dichotomous dependent variable and the independent variables in the model.

The OLS regressions in the thesis were run using the REGRESSION command in the Statistical Package for the Social Sciences (SPSS). It proved to be too costly to test a LOGIT model using the NONLINEAR command in SPSS for the entire sample, primarily due to excessive core allocation requirements. It was important, however, to obtain some results for comparison, if only to test the potential effectiveness of the LOGIT model with the data. All variables from the second regression equation were included in a LOGIT model[4] which was tested on the maximum percentage sample allowable for each of stages 5a and 6a. The second OLS regression equation was also tested on the same samples.

The results of these tests are presented in table 7.

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[4]The non-linear (LOGIT) model is represented by the equation $P = 1/(1 + e^{-X\mathcal{B}})$ where P = probability of migration; X = vector of independent variables; $\mathcal{B}$ = vector of parameters. Hence, the effect of a unit change in one of the independent variables on migration calculated at the mean is:

$$\partial P/\partial xi = \bar{P}\,(1 - \bar{P})\mathcal{B}i$$

It is evident from the comparison, that for both samples, much higher statistical significance of coefficients was produced with the LOGIT model than with the OLS model. With only two exceptions, the signs of the coefficients remain the same, and, throughout, the statistically not significant OLS coefficients are coupled with much more respectable LOGIT coefficients. It would appear that the non-linear LOGIT specification is more appropriate to analyzing the migration decision-making process being examined. This is a strong indication that the variables included in the second specification of the cost-benefit migration model are more useful than thought in the discussion of the OLS test.

The usefulness of LOGIT analysis in dealing with the research problem is apparent, the results indicating an increased sensitivity of coefficient estimates to the method of estimation. It is also evident that the SPSS version of LOGIT has its own limitations in terms of the number of cases it can handle. Time constraints have prevented me from familiarizing myself with, and applying, the more powerful Time Series Processor (TSP) version of LOGIT to the data.

Increased use of non-linear analysis with micro-level data may be the key to future study of elderly migration decision-making processes. There remains much to be done in the area, especially in Canada.

Table 7. Unstandardized Coefficients for OLS and LOGIT Regressions for Stage 5 and Stage 6 of the Family Life Cycle.

Independent Variables	Stage in Family Life Cycle 5a (10% sample)		6a (30% sample)	
	OLS	LOGIT	OLS	LOGIT
RETIRE	-.006	-.427 **	.003	.504 **
	(.011)	(.312)	(.009)	(.410)
PRDIMM	-.005	-.264 **	-.006	-.211 **
	(.009)	(.226)	(.008)	(.254)
EDUCAT	.003 *	.050 **	.002	-.074 **
	(.001)	(.033)	(.001)	(.034)
SEX	-.006	-.240 **	.003	.499 **
	(.009)	(.238)	(.009)	(.405)
AGE	-.001	-.031 **	-.00002	-.005 **
	(.001)	(.015)	(.0003)	(.013)
CLIMATE	.067 **	1.592 **	.060 **	1.836 **
	(.011)	(.277)	(.011)	(.314)
SALHD	-.003 *	-.150 **	-.0003	.035 **
	(.001)	(.053)	(.002)	(.080)
CONSTANT	.071	-1.847	.005	-.411
	(.037)	(.972)	(.031)	(1.096)
RESIDUAL SUM OF SQUARES	36.634	36.518	42.052	42.080

Notes:
* significant at .05 level
** significant at .001 level
figures in brackets are standard errors
standard errors listed for the LOGIT model are inaccurate to some degree, but should not be problematic for the present, illustrative purposes. Breslaw and Irvine (1982) have developed the following correction formula, should the reader wish to calculate the precise values:

$$SEML = \frac{SELS}{\sqrt{2\sigma^2}}$$

where SE = standard error; LS = least squares; σ^2 = estimation of error variance.

Table 7 - Continued

For stage 5a, the correction factor is SE/8.54611; for stage 6a it is SE/9.17388. Applying this adjustment, all coefficients become statistically significant.

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