# A TYPOLOGY OF INTERNAL MIGRATION

**Jay Beaman**
*Parks Canada, Ottawa, Ontario, Canada*
and
**Carl D'Arcy**
*Saskatchewan Health, Saskatoon, Saskatchewan, Canada*

*Résumé* — Le présent article vise à démontrer que les ouvrages traditionnels portant sur la migration interne ou la mobilité démographique traitent de divers aspects du (ou types de) flux démographique. La migration répétée, la migration de retour, la migration totale, la stabilité à long terme et la croissance démographique servent à définir la typologie à cinq dimensions de la population mobile et de la population stable. Cette typologie identifie 32 tendances de migration interne ou de mobilité démographique. L'élaboration de la typologie de la population mobile et de la population stable a surtout permis de conclure que la *mobilité* ou la *migration* ne peut être mesurée que d'une seule façon. L'article démontre que la *mobilité* ou la *migration* ne comporte pas une variable mais une *complexité de variables*, qu'elle est plurielle et que les analyses de la migration interne qui ne tiennent pas compte des différentes dimensions de la mobilité sont fausses, tant sur le plan conceptuel que méthodologique.

*Abstract* — The objective of this article is to show that the traditional literature on internal migration or population mobility discusses a number of dimensions of (or types of) flows of people. These aspects of repeat migration, cyclic or return migration, population turnovers, long-term stability, and population growth are used to define a multivariate Mover-Stayer Typology. The typology specifies 32 patterns of internal migration or population mobility. In this regard the major implication resulting from the development of the Mover-Stayer Typology is that *mobility* or *migration* cannot be measured by a single measure, but must take into account its varied aspects. The central theme of the article is that *mobility* or *migration* is not a variable but is a complex of variables — is plural, and that analyses of internal migration that fail to consider the various aspects of mobility noted are conceptually, as well as methodologically, unsound.

## I. Introduction

This paper raises issues about misconceptions which often occur in the literature on internal migration. It is hoped that when the reader has finished this paper, he will be as uncomfortable with all common usages of the terms *mobile* and *stable* in relation to the phenomenon of migration, as are the authors. Specifically, the object of this paper is to show that the literature on the phenomenon of internal migration discusses a number of dimensions (or types) of flows of people that can be used to define a five-fold typology — the Mover-Stayer Typology. The major implication resulting from the development of the Mover-Stayer Typology is that *mobility* cannot be measured by a single measure but must be measured along several dimensions. Mobility/migration is a complex of variables — is plural. Analyses of internal migration that fail to consider the various aspects noted are methodologically, as well as conceptually unsound.

In formulating this typology based on concepts found in the literature on internal migration, the intention was not to definitively solve a methodological problem, but rather to bring the diversity of the various aspects of internal migration into clear relief. Throughout this article the terms *mobility* and *migration* are used synonymously. In practical terms, the typology is being presented because *mobility/migration* is cited as an important factor in almost all studies of growth and change, from studies of rural areas or urban neighborhoods, to studies of nations. As well, *mobility* as a variable is seen to be causally related to a host of social phenomena.

The contribution of the typology presented here is not in providing a simple guide for more rigorous analysis of research problems, but in demonstrating the complexity of the entity *mobility* which is usually measured as if it were a simple variable.

Unfortunately, recognizing the complexity of *mobility* does not lead to specific guidelines on how it can be measured or which aspects should be investigated in a given study. Even the use of sophisticated models with extensive longitudinal data has only begun to lead to an understanding of the nature of mobility/migration processes and the parameters that define these processes (Beaman, 1973; Beaman and McGinnis, 1974).

TABLE 1   SOME DEFINITIONS OF MOBILITY/MIGRATION

| Definition | Source |
| --- | --- |
| A person is a migrant if he leaves his area of birth. | Musgrove, The Migratory Elite, (1963). |
| A person is a migrant if he has been in a community less than ten years and is older than ten. | Goldstein, Patterns of Mobility, 1919-1950, (1958). |
| A person is a mover if he has changed residence during the last five years (or some period, e.g. one year for C.P.S.). | Standard U.S. and Canadian Census Definition: Being a migrant depends on crossing an appropriate boundary, e.g. see Shryock, Population Mobility Within the United States, (1964). |
| A person is a mover if he expresses the intention to move in the near future. | Rossi, Why Families Move, (1955). |
| A person is a migrant if he is gone from his place of residence for twenty-four hours or more. | M. T. Chapman, "Population Movement in Tribal Society: The Case of Duidui and Pichahila, British Solomon Islands" (Ph.D. Dissertation, University of Washington, 1970). |
| A group is mobile if a large proportion of its members are mobile. | Studies using differentials to compare groups or areas, e.g. see studies cited in Lee, Revision of Bulletin 43 of Social Science Research Council, (1953) and Thomas, Research Memorandum on Migration Differentials, (1938). |

For example, while writing about Canadian data, Kasahara (1965) pointed out that for the purposes of the study of migration and the family life cycle, using the data available to her, it was necesary to define a family as migrant on the basis of the migration status of the head of the family. She indicated the various ways this definition may lead to errors, but also pointed out that the operational definition adopted is what the data allow. Similarly, Shryock (1964) and others have discussed the problems involved when county lines, state lines, or other legal boundaries are used in defining persons to be migrants. The very fact that the United States Census has used different time periods in the questions concerning mobility indicates that time period also plays a problematic role in defining mobility.

Other directions of thought can be seen in Table 1, one of which is Rossi's (1955) definition of persons as migrants or potential migrants in terms of their mobility intentions. Wolpert (1965, 1966), Brown (1968a), Brown and Moore (1968), and others who are concerned with decisions to move, implicitly, if not explicitly, classify individuals as mobile in terms of probabilities of migrating.

Most students of mobility would not feel that the definitions contained in Table 1 for mobility/migration are totally satisfactory. The definitions outlined are by and large conceptually inadequate because of the constraints imposed by the nature of the data sources used in particular studies. They focus on only a single aspect of the complex mobility processes. The crucial point to be made and borne in mind is that the degree of association or correlation between various measures of mobility is unreliable and generally low. These measures are not necessarily correlated, measuring at best, different aspects of something called mobility or migration.

## II. The Need for a Multivariate Conceptualization of Mobility

It is claimed by Mangalam (1968), and other authors that problems in defining mobility and stability directly relate to attempts at conceptualization which are univariate. Mangalam, in his annotated bibliography on human migration, lists a few authors who have developed truly multivariate schemes for the analysis of mobility. However, he does not offer specific guidelines on how to advance along these lines.

Goldstein (1954, 1964) has made the seminal contribution in identifying the multivariate nature of mobility/migration. He stresses the importance of *repeat migration* in creating large mobility differentials for areas where a large percentage of the point-in-time population is composed of long-term residents. Goldstein implicitly stresses that internal migration has at least two uncorrelated aspects which may be called the *chronic mover* aspect and the *long-term stability* aspect. Goldstein does not, however, offer a definition of stability or mobility where the notion of repeat migration plays a clear role.

McGinnis (1968) has offered a multivariate approach to mobility analysis focusing on duration of residence in combination with other factors (also see MacFarland 1970). Morrison(1967), and Land(1969) have demonstrated the existence of a duration of residence, or cumulative inertia, effect. These two research projects were tests of McGinnis' *Cornell Mobility Model,* and considered duration of residence and age as distinct variables that played different roles in defining levels of mobility; age and duration of residence were related to distinct mathematical parameters defining the quantitative nature of mobility processes.

It is clear from what has been presented that analysis based on any particular measure of mobility may lead to conclusions that will not be supported in another investigation using an *equally valid* but different criterion to measure *mobility*. This means that in a study where *mobility* is conceptualized as a single variable, results may be a function of the measuring procedures involved. For example, which type of population is more *mobile:* a community dominated by people with a high possibility of being there next year but a low probability of being permanent residents (i.e., still being residents in fifteen years); or a community dominated by people with a lower possibility of being there next year, but a higher probability of being permanent residents — that is, a community with both a higher *repeat migration* and a high *stable population proportion* factor? The preceding observations are based on potential future migration behavior. When past behavior is considered at the same time the problem becomes even more difficult; that is, which population is more mobile, a large, *settled* in-migrant population, or a smaller, *unsettled* in-migrant population?

11

If a community's or an area's mobility coefficient varies with the measure of *mobility* used, then such statements as "more mobile communities tend to be . . ." are difficult to interpret and compare. They are essentially meaningless, until precise information concerning the measure of mobility is provided. The results of any research study, and especially those involving a notion of *mobility*, are to some extent methodological artifacts.

The point of the last paragraph, and indeed of this article, is implicit in the phrase *a community's mobility coefficient*. The phrase suggests that there is one measure of mobility, that there is one definition of mobility, which is good for all occasions and purposes. This is not the case. For example, a single coefficient cannot reflect both the level of return migration to a community and the volume of out-migration. Both Beaman (1973) and Miller (1973) have presented evidence that high return migration can frequently be associated with a low rate of out-migration.

*III. A Multivariate Framework for Analysis of Internal Migration*

In developing this typology of internal migration, it is found that the various aspects of internal migration are vague at an operational level. No clarification is attempted because two different operational approaches to measuring mobility may only be compared with respect to their assumptions about how mobility processes operate. To impose a structure on mobility processes in order to make comparisons would be to miss the point that not enough is known about these processes to state confidently a given model which may be taken as a good approximation to the *real world*.

The phenomenon of internal migration is conceived here to possess five aspects that should be taken into account in the design and analysis of mobility studies and in making propositional and/or speculative statements concerning both mobility itself and its effects. The aspects are:

A. Repeat migration or the chronic mover dimension;
B. Cyclic or return migration;
C. Population turnover;
D. Long-term stability;
E. Population growth.

Some may question the inclusion of the fifth aspect, *population growth*. It is included because population growth reflects an aspect of the mobility process not captured by the other four aspects. Indeed growth has, upon reflection, little to do with aspects such as long-term stability, repeat migration, *etc.*

*A.  Repeat Migration or the Chronic Mover Dimension*

As a result of his studies and the analysis of the results of other studies, Goldstein (1954) concluded that a high degree of residential stability for most of the population is not at all contradictory with high rates of mobility. In fact, before his Norristown Study, no one had considered repeat migration as a factor in internal migration in the same manner that Goldstein did. After the Norristown study, Goldstein used data available in the Danish Continuous Population Register to study the extent of repeat migration in Copenhagen, Denmark (Goldstein, 1964).

The research by Morrison (1967) and Land (1969), which has already been cited, is the most convincing and rigorous research available to date to show there are *repeat movers* who exhibit higher mobility rates than would be expected by chance and who persist in being frequent movers over time. This *most mobile group's* contribution to total

movement may be related to the *chronic mover dimension* of mobility, to use Morrison's (1970) term.

### B. Cyclic or Return Migration

Recently a number of persons have begun to consider the importance of return, or cyclic, mobility in understanding internal migration. Eldridge (1963) has discussed the influence of return migration on rates of net migration. Her 1965 paper was important in introducing a three-dimensional perspective into the discussion of geographic mobility (Eldridge, 1965). Eldridge's then unique perspective on internal migration was actualized by using U.S.A. census data on place of birth, place of residence in 1955, and place of residence in 1960. A return to place of birth after absence in 1955 was called "cyclic migration".

There are a number of other cases where the effects of return migration have been noted. Elkans (1967) discusses cyclic migration as it relates to the growth of towns in east Africa. Data from a thirteen-Canadian-cities study which clearly show effect of return migration were presented in 1967 (D'Arcy *et al.,* 1967), and also as new results became available in 1973 (Beaman, 1973). Howell (1968) who has studied migration of aerospace workers, introducing aerospace jargon to describe mobility patterns, terms a pattern of moves involving a return to a former place as *homing.* Taeuber and others have presented results in which the focus is not on returning to a particular place but on returning to a class of places (Taeuber *et al.,* 1961, 1968).

Gould and Prothero (1975) in their typology of space and time in the mobility of African populations delineate four types of cyclic movements: daily, periodic, seasonal, and long-term circulation. Because of the nature of the population studied in North America and Western Europe, we have emphasized longer term return migration in this discussion.

In a more theoretical vein, Miller (1973) also explicitly recognizes that one must express the migration of those returning home as a proportion of the population at risk rather than as a ratio to the population in the area of destination. Beaman (1973), in an analysis which does consider the size of the pool of people who have out-migrated and the ages of these people, has shown that where the level of return migration is found to be large, the levels of inter-area and intra-area movement are found to be small. In Miller's terms, this indicates that when the large size of the pool of out-migrants from an area is taken into account, areas with large return flows tend to have a low *overall* rate of return.

Miller's primary thesis is that much of the migration mechanism can be examined only by considering in- and out-migration separately. In defending this thesis, Miller is pursuing an idea that Anderson attempted to develop using a correlation analysis (Anderson, 1956). However, Miller focuses on return migration as one component of in-migration which must be considered to understand better the determinants of total in-migration.

A point to be made abundantly clear is that little is known about *cyclic* migrants. Researchers developing Markov and other stochastic mobility theories can visualize cyclic migration as a consequence of the logical structure of their mathematical systems, and calculate mean *cyclic times.* Yet, return migration is a phenomenon in which considerations of kinship ties, employer policy, and other factors are considered to be important variables (Isharwin and Piddington, 1965; Rubin, 1965). However, there may be a subclass of cyclic migrants whose behavior is well explained by a Markov model. Until more is known about cyclic migration, it must be recognized that erroneous conclusions may

result from invalid ways of comparing communities with high or low rates of cyclic migration and different types of cyclic migration.

A number of the statements made above suggest that cyclic, or return, migration is not a single dimension. Taeuber's return migrants who return to a similar size place may obviously differ from migrants who return to a specific place. The migrants described by Goldstein (1958), Eldridge (1965), and others, as leaving their place of birth and subsequently returning are not the same as African workers who *migrate* to a place where they work with every intention of returning *home*. Then there are the chronic movers moving from job site to job site whose movement may involve return migration by chance.

### C. Population Turnover

Turnover as used here refers to short-term flows in the population of a community that are a result of internal migration. The United States Current Population Survey (CPS) is in essence obtaining information on population turnover by asking an individual where he lived one year before being surveyed. Of course, repeat migrants would be expected to load heavily on turnover. The high mobility, or turnover, rates usually found in data like the CPS may reflect several divergent patterns of internal migration, such as: the mobility of the most transient component of the population — a population which incidentally has a large stable component; a continuing and consistently high level of departure even among people with a long duration of residence; or the age distribution of the population being studied. The real problem is how to decompose these elements. It is possible and consistent with the age specificity of mobility rates, that high population turnover in cities is only a function of age distributions. (See Lowry, 1966; and the discussion of the SAD models in Beaman, 1973; or Beaman and McGinnis, 1974.)

Return migrants who repeatedly leave an area and return to it contribute disproportionately to high population turnover in a community. Unless the definition of population turnover stated above is changed to exclude return migrants, return and turnover migration are not necessarily independent of each other. No pretence is made here that the aspects defined are completely unrelated, but the authors feel that there is no obvious reason to conclude that any of the dimensions discussed are redundant.

### D. Long-term Stability

When the stable portion of a population is defined in terms of the proportion of the population with significant continuous residence, one is concerned with a long-term measure of mobility. The ten-year measure of stability used by Goldstein (1958) or a fifteen-year measure as used by Beaman and Du Wors in their 1965 papers and by Du Wors *et al.* (1972) are such long-term measures.

Long-term stability is the kind of stability to which most politicians and social commentators seem to refer when they consider the *mobile segment of the population* as suspect. Individuals residing in a community for a short period, particularly those who do not meet the local stereotype which may include buying a house, participation in local organizations *etc.*, are suspected as not having the best interests of the community at heart. While Sorokin (1927) suggests both desirable and undesirable characteristics of *the mobile*, Goldstein (1958) gives the reader the impression that his data only show the undesirable characteristics of *the mobile* and the desirable characteristics of the long-term residents of an area. Morrison's (1970) application of the label *chronic mover* carries an implication of the deviance of the mobile.

Research done in mobility studies of Canadian cities suggests the long-term resident

plays a disproportionately significant role in political life of the community. (See Du Wors *et al.,* 1972; D'Arcy, 1966).

### E. *Population Growth*

Population growth is a component in the kind of mobility rates which are frequently calculated from census and CPS data. As Miller indicates, it is only necessary to reflect on the rate defined by the formula below to see that the mobility rate specified reflects both in-migration and population growth (Miller, 1973):

$$\text{Outmigration Rate} = \frac{\text{Number in Population Present in 1966 Residing Elsewhere in 1971}}{\text{Population in 1971 age 5+}}$$

In addition, if the last people into an area tend to be the first people to leave the area (*i.e.,* there is a duration of residence effect), it does not require much analysis to see that such a mobility rate is a quite complicated function of past gross in-migration, and gross in-migration is a function of growth and out-migration in a given year.

The rate defined in the above expression is one that has often been calculated from Canadian census data. It is clearly influenced by population growth since it involves a ratio of migrants to a population other than the *at risk population.* The population that was subject to the risk of out-migration was the 1966 population and even if that population was used in the denominator of the out-migration rate, there should be a mortality correction reflecting differential mortality losses of city areas having a higher proportion of their population in older age groups. As already implied, the difference in rates between using the 1971 population that is five and over in defining an out-migration rate and using a differential mortality-loss-corrected 1966 population is the difference caused by population growth, as well as by differential mortality and mobility loss of population five and over during the 1966 to 1971 period.

Population growth also constitutes a significant factor in mobility in a way described by Lowry (1966:95-96):

> At the same time, such prosperous communities experience a 'normal' amount of out-migration, varying somewhat with age-structure, the resident population will become increasingly concentrated in the most mobile age-brackets, and the prosperous community can expect actually a higher rate of out-migration than a depressed community. Growth through migration continues only because the inflow is even larger than the outflow.

Some readers may feel that the level of in-migration and the out-migration should have been considered as separate factors in the mobility process. However, at least one component of the level of in-migration, that of return migration, has been considered. In defense of their omission of other in-migration flows, the authors contend that unless other flows can be related to a population at risk in a structurally meaningful way, such as return flows, it is not reasonable to introduce a dimension into the typology other than population growth.

### IV. *A Typology for the Analysis of Mobility*

Given the preceding discussion, it is argued that at least the five aspects of mobility/migration noted above should be considered in designing any study involving a concept of internal geographic mobility/migration. This is especially the case for studies which are not based upon a formal theoretical system which postulates a set of quantitative mobility dimensions.

15

Dichotomizing the five aspects of mobility — turnover, long-term stability, return migration, repeat migration, and population growth — makes it possible to discuss *mobility* in terms of a variety of divergent patterns. The range of possible combinations of the five dichotomous variables is two to the fifth power.

This 32-fold typology illustrated in Table 2 is called the Mover-Stayer (M-S) Typology by the authors. This typology reflects important *general* dimensions of mobility which have been noted in traditional (non-modelling) geographic mobility literature and demonstrates that there are numerous divergent patterns of population movement under which the population of an area can be considered stable or mobile. Obviously the only unambiguous cells in the typology are 2 and 31 which respectively indicate high mobility and low mobility in all aspects.

TABLE 2   THE MOVER-STAYER TYPOLOGY OF PATTERNS OF INTERNAL MIGRATION

| Population Growth | Repeat Migration | Turnover | LOW (Few Longterm Residents) Low Return | High Return | HIGH (Many Longterm Residents) Low Return | High Return |
|---|---|---|---|---|---|---|
| High | High | High | 1 | 2 | 3 | 4 |
| | | Low | 5 | 6 | 7 | 8 |
| | Low | High | 9 | 10 | 11 | 12 |
| | | Low | 13 | 14 | 15 | 16 |
| Low | High | High | 17 | 18 | 19 | 20 |
| | | Low | 21 | 22 | 23 | 24 |
| | Low | High | 25 | 26 | 27 | 28 |
| | | Low | 29 | 30 | 31 | 32 |

Examination of actual mobility data may show that many cells of the typology are not relevant to real situations since cases typical of a cell may be rare. Furthermore, if one assigns numeric values to designate high and low levels on the various dimensions of mobility and considers classes of models, it may be possible to say that certain cells involve combinations of types of mobility that are impossible.

Beaman (1973), attempting to select one of several models as being most appropriate in explaining migration data on thirteen Canadian cities, concluded that no single model was clearly superior to another. The inability to select the *correct* model to explain given mobility observations leads to problems in quantitatively identifying parameters of the mobility process. One can discuss how the M-S Typology can be defined using each of several quantitative models and show why, if Beaman's (1973) OUT-SAD and RETURN-SAD (Simple Age Dependent) models are accepted, only three dimensions of the typology are needed: turnover, population growth, and return dimensions. In such models there is no duration of residence effect independent of age, and long-term stabil-

ity strictly depends on turnover. However, other mobility models cannot be rejected and accepting these leads to a quite different set of conclusions on the appropriateness the M-S Typology and the dimensions that should be included.

Some social scientists may feel that a complex multivariate typology like the one presented does not contribute *scientifically* to the field, and that research effort would be better spent in identifying specific aspects of mobility. It may be argued that such typologies show *population mobility* as so complex that the data requirements for a thorough and rigorous analysis cannot be satisfied, making further analysis pointless. To the contrary, we believe that our experience with the analysis of mobility has shown that both work on the development of typologies to integrate research results and mathematical modelling are crucial to gaining an understanding of mobility processes.

It is of interest to note that Gould and Prothero (1975), in their recent paper on mobility in African populations, delineate a typology of migration patterns in terms of time (*i.e.,* short-term and long-term circulation, migration) and directionality (*i.e.,* rural-rural and rural-urban movement). They feel that their typology will facilitate the study of African population mobility by identifying its important dimensions. We make no less a claim.

Progress is in fact made if one is able to identify the dimensions of mobility that characterize a population. For example, examining data from a research program on mobility in Canadian cities (Du Wors *et al.,* 1972; Beaman, 1973) and in light of the five dimensions of mobility cited earlier, it is possible to characterize the migration patterns of twelve cities relative to each other for the period 1948 to 1962. In Table 3 each dimension was dichotomized so that about half the cities fell into the high (=*1*) and low (=*2*) categories.

TABLE 3   MOBILITY PATTERNS IN TWELVE CANADIAN CITIES 1948-1962
(Based on dichotomized variable scores, High=1, Low=2)

| City | Repeat[1] Migration | Level of[2] Return Migration | Turnover[3] | Longterm[4] Stability | Population[5] Growth | Mover-Stayer Typology Cell Number |
|------|------|------|------|------|------|------|
| Toronto | 2 | 1 | 2 | 2 | 2 | 30 |
| Winnipeg | 2 | 1 | 2 | 1 | 2 | 32 |
| Hamilton | 2 | 1 | 2 | 2 | 2 | 30 |
| Edmonton | 1 | 2 | 2 | 1 | 1 | 7 |
| Calgary | 1 | 2 | 1 | 2 | 1 | 1 |
| Sudbury | 2 | 1 | 1 | 1 | 1 | 12 |
| Regina | 1 | 2 | 1 | 2 | 2 | 17 |
| St. Catherines | 2 | 1 | 2 | 2 | 2 | 30 |
| Saskatoon | 1 | 2 | 1 | 1 | 1 | 3 |
| Sault Ste. Marie | 1 | 1 | 2 | 1 | 1 | 8 |
| Moose Jaw | 1 | 2 | 1 | 1 | 1 | 3 |
| Prince Albert | 1 | 2 | 2 | 2 | 2 | 21 |

1. Based on a duration of residence effect. The model used to derive the magnitude of the effect is described in Beaman (1973). The values used are found in Table 5.2 in Beaman (1973).
2. For details on the "Return-SAD" model see Beaman (1973). The values used are found in Table 5.1 in Beaman (1973).
3. For details and values used see Du Wors et al. (1972), particularly Table 48, page 19.
4. For details and values used see Beaman (1973:44).
5. For details and values see Du Wors et al. (1972), particularly Tables 4B and 5A, pages 19 - 20.

The last column in Table 3 specifies the cell of the Mover-Stayer Typology into which each city falls. For example, Table 3 shows that Toronto, Hamilton and St. Catharines are similar in terms of their population mobility patterns. Their 2, 1, 2, 2, 2 pattern of scores shows that they fall into cell 30 of the Mover-Stayer Typology. They are *mobile* with respect to the level of return migration and long-term stability, and are *stable* with respect to repeat migration, turnover, and population growth.

We stated that the only cells in the Mover-Stayer Typology which are unambiguous in terms of a population exhibiting uniformly high or low *mobility* are cells 2 and 31. These cells correspond to scores in Table 3 of 1, 1, 1, 2, 1 and 2, 2, 2, 1, 2, respectively. None of the twelve cities studied fall into these cells. Calgary appears to be the most *mobile* of the Canadian cities studied, being highly mobile on all but the return migration dimension. In contrast, Winnipeg appears to be a comparatively stable city, being highly mobile with respect to the level of return migration.

As can be seen from Table 3, the twelve Canadian cities fall into different cells of the Mover-Stayer Typology. Five of the cities, Toronto, Hamilton, Edmonton, St. Catharines, and Prince Albert, fall into three different typology cells, all of which are characterized as being mobile with respect to two aspects of the mobility process. Another five cities, Sudbury, Regina, Saskatoon, Sault Ste. Marie, and Moose Jaw, fall into four different typology cells, all of which are characterized as being mobile with respect to three aspects of mobility/migration. With Calgary mobile on four aspects, and Winnipeg on only one, these two cities form the end points of the distribution.

If two separate studies were to analyze mobility data for these cities, one using turnover as the mobility measure and the other long-term stability their result would agree for only five out of the twelve cases. This typology allows the presentation of a more detailed account of the patterns of mobility present in these Canadian cities.

From the preceding discussion, it is apparent that the Mover-Stayer Typology presents a variety of possible mobility patterns and makes it clear that geographic mobility, or internal migration, is a multivariate phenomenon. Hopefully, the discussion of our research findings on the patterns of population mobility of twelve Canadian cities illustrates how the typology aids the appreciation of the geographic and idiographic character of population mobility in Canada. It identifies not only patterns of mobility which are widely recognized, but those about which relatively little is known and to which attention should be given.

An important consequence of accepting the multidimensional nature of mobility is that the researcher who uses a *simple operational measure* which taps several dimensions of mobility runs the distinct risk of presenting an average of significant and meaningful differentials as irretrievable components of a single number. It follows that the researcher cannot simply use an *accepted* measure of mobility but ask what aspect or aspects of mobility are really of interest in the study in question. In reviewing the literature, the researcher must examine the mobility measures used by other researchers to see what was intended to be measured, and if it seems plausible that it was indeed measured as indicated. These two steps should be followed before accepting the findings of other researchers which appear, superficially, to be relevant to the problems being considered.

*References*

Anderson, T. A. 1956. Inter-Regional Migration: A Correlation Analysis, American Journal of Sociology 61:459-462.

Beaman, J. 1973. A Framework for Modelling Geographic Mobility with Test Applications to the Analysis of Mobility Data for Thirteen Canadian Cities. Unpublished Ph.D. Dissertation, Cornell University, Ithaca, N.Y.

———. and R. McGinnis. 1974. Modelling Out-Migration from Cities: Parameter Estimation and Related Hypothesis Testing. The Monographs of the Social Review, No. 24. Leeds: Leeds University.

———. and R. E. Du Wors. 1965a. A Study of the Dynamics of Residential Populations in Six Prairie Cities: Phase II, Advancement in Method and Hypothesis Testing. A paper presented to the Canadian Sociology and Anthropology Annual Meetings, at the Learned Societies Meetings, Simon Fraser University, Burnaby, B.C.

———. 1965b. A Study of the Dynamics of Residential Population in Six Prairie Cities: Phase III, Inter-Occupational Flow and Total In-City Out-City Population Movement. A paper presented to the Ecology Section of the American Sociological Association Meetings in Chicago.

Brown, L. A. 1968. Diffusion Processes and Location: A Conceptual Framework and Bibliography. Bibliography Series #4. Philadelphia: Regional Science Research Institute.

Brown, L. A. and E. G. Moore. 1968. Intra-Urban Migration, Mimeo. Iowa City: Department of Geography, University of Iowa.

Chapman, M. T. 1970. Population Movement in Tribal Society: The Case of Duidui and Pichahila, British Solomon Islands. Unpublished Ph.D. dissertation. Seattle: University of Washington.

D'Arcy, C., J. Beaman, L. O. Stone and R. E. Du Wors. 1967. Conceptions of Population Stability and Mobility Models. A paper presented to Canadian Sociology and Anthropology Association Meetings, at the Learned Societies Meetings, Carleton University, Ottawa.

D'Arcy, S. 1966. Occupational Stability and Political Participation. Mimeo. Saskatoon: Department of Sociology, University of Saskatchewan.

Du Wors, R. E., J. Beaman and A. Olmstead. 1972. Studies in the Dynamics of the Residential Populations of Thirteen Canadian Cities, Series 5: Occasional Paper No. 3. Winnipeg: Centre for Settlement Studies, University of Manitoba.

Eldridge, H. T. 1963. The Influence of Return Migration Upon Rates of Net Migration. Bulletin of the International Statistical Institute: Proceedings of the 8th Session, Ottawa, 50:321-349.

———. 1965. Primary, Secondary and Return Migration in the United States, 1955-1960. Demography 2:444-455.

Elkans, W. 1967. Circular Migration and Growth of Town in East Africa. International Labor Review 96:581-589.

Goldstein, S. 1954. Repeat Migration as a Factor in High Mobility Rates. American Sociological Review 19:536-541.

_____.1958. Patterns of Mobility, 1910-1950. Philadephia: University of Pennsylvania Press.

_____.1964. The Extent of Repeated Migration: An Analysis Based on the Danish Population Register. Journal of the American Statistical Association 59:1131-1132.

Gould, W. T. S. and R. M. Prothero. 1975. Space and Time in African Population Mobility, in L.A. Kosinski and R. Mansell Prothero (eds.) People on the Move: Studies on Internal Migration. London: Methuen & Co. Ltd.

Howell, R. P. 1968. On the Mobility of Professional Manpower in Aerospace. A paper presented to the Cornell Mobility Conference at Cornell University, Ithaca, N.Y.

Isharwin, K. and R. Piddington (eds.). 1965. Kinship and Geographic Mobility, Vol. III. Leiden: Brill.

Kasahara, Y. 1965. Internal Migration and the Family Life Cycle, Canadian Experience 1956-1961. Proceedings of the 1965 World Population Conference.

Land, K. C. 1969. Duration of Residence and Prospective Migration: Further Evidence. Demography 6:133-140.

Lee, E. S. 1953. Revision of Bulletin 43 of the Social Sciences Research Council. Mimeo.

Lowry, I. S. 1966. Migration and Metropolitan Growth: Two Analytical Models. San Francisco: Chandler.

Mangalam, J. J. 1968. Human Migration: A Guide to Migration Literature in English, 1955-1962. Lexington: University of Kentucky Press.

McFarland, D. 1970. Intergenerational Social Mobility as a Markov Process: Including a Time-Stationary Markov Model that Explains Observed Declines in Mobility Rates over Time. American Sociological Review 34:463-476.

McGinnis, R. 1968. A Stochastic Model of Social Mobility. American Sociological Review 33:712-722.

Miller, E. 1973. Return and Non-Return Migration. Growth and Change 4:3-9.

Morrison, P. A. 1967. Duration of Residence and Prospective Migration: The Evaluation of a Stochastic Model. Demography 4:553-561.

_____. 1968. Alternative Models of Population Mobility. A paper presented to the Cornell Conference on Human Mobility at Cornell Univeristy in Ithaca, N.Y.

_____. 1970. Chronic Movers and the Future Distribution of Population. Santa Monica: Rand Corporation.

Musgrove, P. 1963. The Migratory Elite. London: Hinemann.

Rossi, P. H. 1955. Why Families Move. Glencoe, Illinois: The Free Press.

Rubin, H. 1965. Pensions and Employee Mobility Within the United States. New York: The Twentieth Century Fund.

Shryock, H. S. Jr. 1964. Population Mobility Within the United States. Chicago: Community and Family Study Centre, University of Chicago.

Sorokin, P. 1927. Social Mobility. New York: Harper and Brothers.

Taeuber, K. E. et al. 1961. Residence Histories and Exposure Residences for the United States Population. Journal of the American Statistical Association 55:824-834.

_____. 1968. Migration in the United States. Washington, D.C.: Public Health Monograph No. 77, U.S. Department of Health, Education and Welfare.

Thomas, D. S. 1938. Research Memorandum on Migration Differentials. New York: Social Science Research Council.

Wolpert, J. 1965. Behavioral aspects of the Decision to Migrate. Paper and Proceedings of the Regional Science Association 15:159-169.

_____. 1966. Migration as an Adjustment to Environment Stress. Journal of Social Issues 22:92-102.