EVALUATING THE FUNCTIONS OF INTERNAL MIGRATION IN SETTLEMENT SYSTEMS

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Résumé — En premier lieu, cette étude ébauche le rôle changeant de la migration interne dans les systèmes d'habitat en considérant son caractère prédominant de processus de changement et son caractère de mécanisme d'équilibre qui maintient la répartition démographique. Puis, on décrit plusieurs méthodes pour l'estimation de la mesure dans laquelle la migration interne fonctionne pour modifier ou maintenir la tendance d'habitat et on présente quelques exemples sur différents pays.

Abstract — The paper first outlines the changing role of internal migration in settlement systems, from being predominantly a process of change to being more an equilibrating mechanism maintaining the distribution of population. Several methods are then described for evaluating the extent to which internal migration functions to modify or maintain the pattern of settlement, and some examples from different countries are presented.

Key Words — **internal migration; settlement equilibrium**

Stability or Change

Following the Industrial Revolution, internal migration became a process contributing to massive changes in the spatial structure of Western societies. For many decades, movement from rural areas to towns was the dominant trend in population redistribution and, consequently, much research on spatial aspects of internal migration has emphasized the role of migration in urbanization — the growth and proliferation of urban centres. In this last quarter of the twentieth century, however, it is clear that in many Western societies the era of rapid urbanization is over, and internal migration can no longer be regarded primarily as a process of settlement change.

In industrial and post-industrial societies contemporary levels of population movement are often very high, and 15 to 20 per cent of some national populations change their usual places of residence in the course of a year. Yet most of these movements occur within or between urban centres, since rural farm populations are approaching a size compatible with existing technological conditions. Richmond (1969:245) has described present-day inter-city migration in the United States as an exchange process, involving not only an exchange of similar numbers of people between places, but also an exchange of people with similar demographic and occupational characteristics. Moreover, in literature on urbanization it is recognized that settlement systems, rather than being continually in a state of upheaval, may stabilize as they become adapted to prevailing conditions (Stewart, 1947; Berry and Horton, 1970:73). Accordingly, it may be hypothesized that internal migration in post-industrial societies mainly serves as an equilibrating mechanism that tends to maintain the existing distribution of settlement. Just as societies experiencing the demographic transition tend to change from a semi-equilibrium in their population numbers, owing to high mortality offsetting high fertility, to a new semi-equilibrium with low fertility and low mortality, so too as societies pass through the mobility transition (Zelinsky, 1971) their settlement distributions may evolve from an initial equilibrium with low mobility to a final equilibrium with high mobility (Table 1).

TABLE 1. CHARACTERISTICS OF WESTERN SOCIETIES EXPERIENCING DEMOGRAPHIC TRANSITION

Time	Fertility	Mortality	Mobility	Settlement Distribution
Pre-Transition	high	high	low	semi-stable
Transition Period	declining	declining	increasing	urbanizing
Post-Transition	low	low	high	semi-stable

TABLE 2. INDICATORS AND STATISTICAL MEASURES OF THE FUNCTIONS OF INTERNAL MIGRATION

Indicator	Function of Migration		Statistical Measures
	To change the distribution of settlement	To maintain the distribution of settlement	
Counterstream development	low	high	migration effectiveness ratios
Population redistribution	high	low	net migration ratios, indices of redistribution
Settlement stability	low	high	Markov models, indices of disequilibrium
Similarity or complementarity of the characteristics of migrants in opposing streams	low	high	indices of dissimilarity, population classifications

The dominance of the equilibrating role of internal migration is viewed as a sign that the distribution of settlement is adapted to the prevailing technology. Changes may still be taking place, but they are not expected to be pronounced in the short term. Thus, in post-industrial societies, migrations that maintain the settlement distribution may be expected to outnumber movements that foster enduring changes. It should be mentioned that economists sometimes refer to internal migration as an equilibrating mechanism in the sense that it reduces economic differences between areas, but this interpretation is far removed from the one advanced here.

Table 2 summarizes the main indicators of the functions of internal migration and the measures available to evaluate them. For example, if counterstreams are highly developed — as measured by migration effectiveness ratios — it is likely that internal migration is serving principally to maintain the existing settlement pattern. Collectively, measures of the functions of internal migration can provide a good indication of whether internal migration in a country is more important as an equilibrating mechanism or as a process of change. This paper describes these measures and provides examples of their applications. All of the methods mentioned here require fixed-period migration statistics,

such as for a whole intercensal period, and some require the statistics to be in matrix form, identifying origins and destinations.

Migration Effectiveness

Population replacement is a basic function of internal migration in a stable settlement system where major migration streams are accompanied by counterstreams of similar volume. To measure the magnitude of the replacement process it is necessary to obtain statistics on gross internal migration rather than on net migration alone, since net migration figures by itself can give undue emphasis to minor, short-lived or even random changes. Table 3 contains some statistics on interstate migration in Australia, 1966-71. The figures show that, in each state and territory, a large number of departures had to be replaced before the populations could experience net gains through internal migration. For example, in New South Wales there were 140,315 departures to be compensated for, while in Victoria the number was 118,063. In most states, internal migration arrivals were absorbed mainly in making up these losses, so that even large inflows had relatively little impact on population growth and decline. Only in Western Australia and the two Federal Territories, where employment opportunities were expanding rapidly, did the number of arrivals significantly exceed the number of departures. Thus, although internal migration substantially changed the membership of populations, its contribution to the redistribution of population between states was not pronounced during the intercensal period.

An index that measures the effectiveness of internal migration as a process of

TABLE 3. VOLUME, NET BALANCE AND EFFECTIVENESS OF INTERSTATE MIGRATION IN AUSTRALIA, 1966-1971^a

State or Territory	Arrivals	Departures	Gross Internal Migration	Net Internal Migration	Net Internal Migration Ratios ^b	Migration Effective- ness Ratios ^c
New South Wales	120,153	140,315	260,468	-20,162	-0.1	-7.7
Victoria	91,215	118,063	209,278	-26,848	-1.0	-12.8
Queensland	90,355	74,968	165,323	15,387	1.1	9.3
South Australia	37,953	54,820	92,773	-16,867	-1.8	-18.2
Western Australia	49,684	27,120	76,804	22,564	3.1	29.4
Tasmania	29,194	36,004	36,004	-6,810	-2.1	-18.9
Northern Territory	19,555	10,643	30,198	8,912	20.4	29.5
Australian Capital Territory	38,243	14,419	52,662	23,824	28.7	45.2

Notes: (a) The Table excludes children aged 0-4 in 1971, persons overseas in 1966 and others who were not usual residents of the dwelling they occupied on census night 1971, or who did not answer the census question on internal migration.

(b) Net migration ratio = $\frac{\text{net migration}}{1966 \text{ population}}$.100

(c) Migration effectiveness ratio = $\frac{\text{net migration}}{\text{gross migration}}$.100

Source: 1971 Census of Australia, Bulletin 1.9, p. 3

population redistribution is the migration effectiveness ratio, calculated by dividing an area's net migration by its gross migration, and expressing the result as a percentage (Shryock and Siegel, 1973:656). The lower the ratio, the less the effectiveness of internal migration in redistributing the population. The migration effectiveness ratios in Table 3 reflect that the great majority of interstate migrations were absorbed in population replacement rather than net redistribution, since only in three places did the ratios exceed 20 per cent. Statistics for whole states inevitably conceal important smaller scale variations, but the effectiveness ratios could be used equally well as indicators of stability or change in more detailed analyses.

Interpreting these kinds of indices, Shryock (1959:693-694) commented that migration effectiveness was lower in the post-war period in the United States than previously, and that the change might represent a long-term trend. He also noted that migrations which have little effect on population redistribution may bring economic, social, or psychological benefits to individual movers (Shryock, 1959:685). Accordingly, low migration effectiveness might be interpreted not only as a sign of stability in the distribution of settlement, but also as an indication that individualistic factors — such as the life cycle, the career cycle, and migratory inclinations — are taking precedence over settlement change as stimuli to migration. In such a situation, many of the opportunities for migration depend upon population replacement rather than social change, for instance as vacancies are created when members of the labour force retire, gain promotion or move to find a different kind of environment.

The Equilibrium Distribution

Migration effectiveness ratios should be used in conjunction with other indices assessing the relative importance of internal migration as a process of change or as an equilibrating mechanism. A basic question in such an investigation is: How stable is the distribution of settlement? One approach to this question is to model internal migration as a regular Markov chain, to determine the extent to which intercensal migration was changing the relative distribution of population between areas. The equilibrium distribution, or unique vector, from such a model denotes the relative distribution of population that would result if a given pattern of internal migration continued indefinitely. Thus, comparison of the initial population distribution with the equilibrium distribution provides an indication of the stability, or otherwise, of the settlement distribution in the face of a specified pattern of internal migration. Derivation of the unique vector involves two steps which are readily performed on a computer: first, from a square matrix of migration flows between areas, calculate the probabilities of moving from place to place and of staying in the same area; secondly, raise this matrix to successively higher powers until all of the rows are the same — the outcome is the limit matrix, whose rows represent the unique vector of the Markov chain (Kemeny and Snell, 1960).

The Markov model exaggerates trends by extrapolating them and provides a new benchmark for comparisons — the equilibrium distribution. Muhsam (1961:4) has argued that the equilibrium distribution of a migration matrix is an unbiased indicator of the social and economic forces producing migration, since it is independent of the initial population distribution, being dependent only on migration trends. He noted that all population distributions, apart from that at equilibrium, are transitional stages that do not fully reflect the formative processes operating. Hence, comparisons between population distributions at a census and at equilibrium might be expected to provide insights into internal migration processes which cannot be obtained by comparing

TABLE 4. EQUILIBRIUM DISTRIBUTIONS OF THE POPULATIONS OF AUSTRALIAN STATES AND TERRITORIES

State or Territory	Base Year 1971	Equilibrium from Internal Migration	Equilibrium from Internal and External Migration
New South Wales	36	35	36
Victoria	28	23	25
Queensland	14	17	16
South Australia	9	7	7
Western Australia	8	13	11
Tasmania	3	2	2
Northern Territory	1	1	1
Australian Capital Territory	1	2	2
Total Percentage	100	100	100

Source: Extrapolation of 1966-71 migration trends as Markov processes.

population distributions in particular census years, such as the years at the start and at the end of the migration interval.

Table 4 shows the results of extrapolating the effects of migration in Australia by means of a regular Markov chain model. Two equilibrium distributions are given, one based on internal migration alone, the other based on the combined effects of internal and external migration. Comparing the former distribution with the base population indicates that internal migration between 1966 and 1971 was tending to maintain the relative population size of New South Wales in particular, and also those of Queensland and South Australia, while bringing appreciable increases to Western Australia, mainly at the expense of Victoria. Introducing external migration into the model indicates a greater degree of stability, since net gains from overseas were evidently compensating for some net internal migration losses, most noticeably in Victoria. This finding emphasizes that when assessing population redistribution trends it is necessary to take into account the interactions between different components of change: some internal migrations in Australia might not have occurred if there had been a closer correspondence between the immediate destinations of immigrants from overseas and the distribution of new employment opportunities.

Mapping the findings obtained from Markov models can greatly assist in their interpretation, particularly when data on large numbers of areas are being considered. Figure 1 shows the results of a Markov model, based on internal migration between the 68 statistical divisions of Australia, 1966-71. The map distinguishes between areas where internal migration had little impact on population numbers (high stability) and those where its effects were more pronounced (medium and low stability). High stability is indicated by population growth or decline of less than 10 per cent between 1971 and equilibrium, medium stability by changes of 10 to 19 per cent, and low stability by greater changes. Generally, the map shows that the sparsely settled regions of central and northern Australia were most subject to population change through internal migration, in some areas reflecting the positive impact of the mining boom and in others the negative

FIGURE 1. RELATIVE STABILITY OF POPULATIONS IN STATISTICAL DIVISIONS OF AUSTRALIA, 1971

impact of economic recession in agriculture. This type of map, therefore, can show the relative importance of the equilibrating role of internal migration in different regions and can direct attention both to regional change and to regional stability.

Indices of Dissimilarity

Markov models, as used here, do not project future population movements, but simply extrapolate features of redistribution to reveal them more clearly. The models are particularly useful when examining the presence of tendencies toward stability and change, because they provide the only available measure of settlement equilibrium. To facilitate comparisons with the equilibrium distribution a simple index, based on the index of dissimilarity, may be calculated. The index — referred to here as the *index of disequilibrium* (I_E) — measures the dissimilarity between the percentage distribution of a population at the end of a migration interval and at equilibrium, the formula being as follows:

$$I_E = \frac{1}{2} \sum_{i=1}^n |x_i - y_i|$$

where x_i is the percentage of the total population in area i at the base year; y_i is the percentage of population in area i at equilibrium and n is the number of areas.

Theoretically, the index can range in size from zero to 100, a value of zero denoting perfect equilibrium, while a value of 100 indicates that the given pattern of internal migration was tending to transform completely the distribution of population. Table 5 contains indices of disequilibrium for a selection of countries and spatial units. As with most spatial statistics, the index is influenced by the nature of the statistical areas; other things being equal, the finer the subdivision, the higher the index.

In 1971, the index of disequilibrium for the eight Australian states and territories was 9 per cent, which means that this proportion of the population would have needed to be redistributed in order for the population distribution to be in perfect equilibrium with internal migration processes functioning in the period 1966-71. It is notable that there was only a small difference between this index and that calculated for the 68 statistical divisions of Australia (Table 5), which suggests that the principal changes in the settlement pattern during the late sixties resulted more from movement between states than from movement within them.

Indices of disequilibrium for New Zealand and the U.S.A. approximated those for Australia (Table 5), although more detailed information for the U.S.A. — for example, on a state or social group basis — might reveal greater changes, as well as differences between the relative equilibrium of subgroups such as the white and non-white populations. Of the four developed countries listed in Table 5, Canada had the highest index of disequilibrium — nearly 19 per cent — particularly because of redistributions favouring growth in British Columbia. On the whole, the equilibrating role of internal migration was most pronounced in Australia in the late sixties, but there still appears to

TABLE 5. INDICES OF DISEQUILIBRIUM, INDICES OF REDISTRIBUTION, AND INTERNAL MIGRATION RATIOS FOR SELECTED COUNTRIES

Country	Statistical Areas	Migration Interval	Index of Disequilibrium 1970 or 1971	Index of Redistribution 1966-71 or 1965-70	Internal Migration Ratios Per Cent
Australia	8 states and territories	1966-71	9.1	0.7	4.6
Australia	18 major divisions	1966-71	9.2	1.0	10.4
Australia	68 statistical divisions	1966-71	10.8	1.6	12.6
New Zealand	13 statistical areas	1966-71	11.0	1.3	11.9
United States	9 divisions	1965-70	11.1	0.9	6.6
Canada	12 provinces and territories	1966-71	18.6	1.1	4.6
Thailand	71 provinces	1965-70	27.6	1.5	5.2
Philippines	67 provinces	1965-70	35.0	2.2	5.9

be a significant contrast between the indices of disequilibrium for the developed countries on the one hand, and for Thailand and the Philippines, as developing countries, on the other. The indices for the two developing countries were 28 per cent and 35 per cent respectively, and the figures suggest that between 1965 and 1970 interprovincial migration in Thailand and the Philippines was tending to promote major changes in the relative distribution of population between provinces. However, internal migration alone would take a long time to transform their patterns of settlement, since a hypothetical continuation of the migration trends prevailing in the late sixties would produce indices of disequilibrium in Thailand and Philippines of 14 per cent and 17 per cent respectively in the year 2070, compared with 3 per cent in Australia in 2071. Yet the effects of internal migration in developing countries may be compounded by the birth of children to parents who moved, thereby giving internal migration a stronger and more rapid impact.

The index of disequilibrium also offers a way of measuring the rate at which a settlement pattern is approaching equilibrium with internal migration processes; the indices may be calculated for intervals between the base year and the year at which equilibrium is achieved, and by measuring the rate of change in the indices a measure of the rate of approach to equilibrium may be obtained. Alternatively, the year at which the index of disequilibrium declines below a particular value — such as one per cent — may be taken as an indicator of the approximate time to equilibrium. In Australia, the index fell below one per cent after 210 years, compared with 150 years in New Zealand, 180 in the United States, 485 in Canada and about 1,000 years in Thailand and the Philippines, suggesting that the developed countries were closer to equilibrium.

Another method is to express the rate of approach to equilibrium in terms of the time elapsing between the base year and the time of equilibrium. A problem, however, is that the time interval is influenced by the precision with which the unique vector is calculated: the greater the number of decimal places in the unique vector, the greater the time to equilibrium. For practical purposes, the probabilities in the unique vector might be computed to only two decimal places, so that when they are converted to percentages the equilibrium population can be expressed in whole numbers, as in Table 4.

Indices of concentration can be used in the Markov model to measure whether internal migration is functioning as a process of concentration or dispersal. The index of concentration may be calculated like an index of dissimilarity, from figures on the percentage of the total population in each region at a particular time and the percentage of the total area of the country in each region (Timms, 1965:241). The index of concentration, based on data for the 68 statistical divisions of Australia, was 80 per cent in 1971 and 81 per cent at equilibrium, which shows that internal migration was having little effect on the existing pattern of metropolitan concentration. By contrast, the corresponding indices of concentration for Thailand and the Philippines were 24 per cent and 32 per cent respectively at 1970, and 42 per cent and 40 per cent at equilibrium, suggesting that internal migration was more prominent as a force for population concentration, particularly in Thailand.

Another form of the index of dissimilarity, the index of redistribution, can be used to measure the extent of changes taking place during an intercensal period; it is derived from statistics on the distribution of population at the start and end of the interval (Timms, 1965:242). The index is especially informative when interpreted in conjunction with migration ratios, indicating the proportion of people moving. For example, figures in Table 5 show that, whereas about 12.6 per cent of the population of Australia moved between statistical divisions in the period 1966-71, less than 2 per cent would have needed to move to bring about the resulting redistribution (index of redistribution = 1.6 per cent). Thus the changes in population distribution occurring were small compared

with the total volume of movement, mainly reflecting a prevalence of short-distance moves — within statistical divisions — and the tendency for migration streams to have compensating counterstreams. Australia was not alone in experiencing far more internal migrations than were necessary to sustain the absolute changes in population distribution that were taking place. In New Zealand nearly 12 per cent of the population moved between the country's 13 statistical areas in the period 1966-71, but according to the index of redistribution there was only a 1.3 per cent change in the relative numbers of people in each area (Table 5). Also, in Canada 4.6 per cent moved between the country's provinces and territories in the period 1966-71, but the index of redistribution was little more than one per cent. In Thailand and the Philippines, however, the indices of redistribution were higher in relation to the migration ratios, again suggesting that internal migration's role as a process of settlement change was more pronounced in those two countries.

Similarity and Complementarity

As well as measures of counterstream development, settlement stability and population redistribution, there is another set of indicators that is important in the evaluations of the functions of internal migration. These indicators are the principles of similarity and complementarity. According to the similarity principle, internal migration tends to maintain the settlement distribution if the numbers and characteristics of migrants in streams and corresponding counterstreams are similar. For example, if two cities exchange fairly equal numbers of internal migrants with similar age structures and occupations, little change will occur in the size and demographic structures of their populations. Lee (1966:55) observed that migration efficiency (or effectiveness) tends to be low if origin and destination are similar, because migrants in opposing flows move largely for the same reasons. Extending this idea, it may be hypothesized that where the equilibrating role of internal migration is pronounced, there will be marked similarities both in the volume and in the characteristics of populations moving between places which resemble each other in size and function.

According to the principle of complementarity, the equilibrating role of internal migration is also evident when migration streams and counterstreams are similar in volume and have dissimilar, but demographically complementary, characteristics indicative of processes of population replacement and renewal. In Australia, the main example of complementary migration flows are the exchanges of population between capital cities and their hinterlands. There are two aspects to the complementarity of these flows: the revitalization of country age structures depleted by mortality and aging; secondly, the maintenance of the non-metropolitan labour force in the face of losses through retirements, promotions, transfers and other departures.

Because of slow growth in employment opportunities, country areas in Australia are unable to absorb all the increases in their locally born working age population. The shortage of vocational opportunities, together with the appeal of migration for its own sake, gives rise to high rates of outward migration from country districts of school leavers and young adults. This depletion of the child-bearing age groups raises the prospect of non-metropolitan population decline. It is here that the complementarity of the counterstream from the capital city to the country is evident, since the influx from the city of young parents and their children — as shown in census statistics — helps to maintain non-metropolitan fertility. In this way the age structures of non-metropolitan areas are renewed. The return of people who had earlier moved away for vocational advancement and experience could play an important part in this revitalization.

The second aspect of complementarity — the maintenance of the labour force —

requires that inward migration helps to compensate for losses of workers. In non-metropolitan areas, locally born adolescents may lack the skills, qualifications, experience, or inclinations to fill local employment vacancies and, hence, inward migration is necessary to counterbalance departures, most notably of people such as school teachers, bank officers, government officials, and company executives, who have retired or have been promoted or transferred elsewhere.

It should be mentioned that the migration of retired and elderly people may not be amenable to analysis in terms of looking for the similarity or complementarity of opposing migration streams. This is because such people may move with a view toward spending the rest of their lives in a particular place and counterflows of the aged, therefore, are absent or only poorly developed. Yet, as these people die, other elderly persons may move and occupy the housing left vacant, thereby giving rise to one-way replacement migrations, which can be regarded as equilibrating processes maintaining the distribution of the aged.

To assess whether opposing streams have similar, complementary, or antithetical characteristics, indices of dissimilarity may be developed to compare the age structures and other characteristics of populations in different migration streams. Low indices are indicative of an exchange process, while higher indices may occur either where streams have dissimilar, but complementary, structures, or where the differences between streams reflect changes taking place in the settlement pattern. Indices of dissimilarity could be presented in matrix form to illustrate the degree of variation within a great number of migration flows, perhaps using the total mobile population as the base for all the indices. However, indices of dissimilarity do not convey any details about the shape of statistical distributions and more sophisticated measures are needed.

Classification of Populations

One solution to this problem is to employ cluster analysis to group populations on the basis of the similarities in their age structures, occupational distributions, or any other set of variables. Cluster analysis is a useful means of summarizing the voluminous and complex internal migration statistics obtained in censuses, particularly since the results can be presented in diagrammatic form for easier interpretation. Using migration statistics from the 1971 census of Australia, cluster analysis was employed to group male populations with similar occupational structures. Originally, there were 324 populations to be considered, although, for simplicity, those with less than 200 males in the labour force were later omitted, and they consisted of 18 stayer populations that remained in the same places throughout the intercensal period, and 306 mover populations that shifted between the 18 origins and destinations. This 18 x 18 origin-destination matrix is depicted in Figure 2, where row and column numbers 1 through 7 refer to capital city statistical divisions, numbers 8 through 10 to other statistical divisions containing cities with more than 100,000 people, and numbers 11 through 18 to the remaining non-metropolitan sections of states and territories. A modified version of Veldman's (1967) *HGROUP* programme was used for the cluster analysis, changes to the original having been necessary to enable the large number of cases (324) to be handled. The principal modification to *HGROUP* involved replacing the matrix of error potentials with a single vector, which reduced the required computer memory space by 44 per cent.

The cluster analysis identified five principal types of occupational structures in the mover and stayer populations, the characteristics of which are shown by the percentages in the key to Figure 2. In the diagram, each type is identified by a particular kind of shading, so that the classification of populations can be read from the matrix. For

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FIGURE 2. CLASSIFICATION OF THE OCCUPATIONAL COMPOSITION OF MALE MOVER AND STAYER POPULATIONS IN AUSTRALIA, 1966-71

example, the population moving from Melbourne (row 2) to Sydney (column 1) had a Type 1 classification, while the population moving from Brisbane (row 3) to Darwin (column 17) belonged to Type 3. The main features discernible from Figure 2 are as follows:

1. An exchange of populations with similar occupational characteristics between capital cities, as shown by the Type 1 classifications of most of the cells in the top left of the diagram. Type 1 was notable for the high percentages in professional, clerical and administrative occupations. The principal exception here was that four of the populations moving from other capital cities to the federal capital of Canberra in the Australian Capital Territory (column 7) were classified as Type 2, which had very high percentages in professional and clerical occupations, reflecting the rapid growth of white-collar government employment in Canberra during the 1960s.
2. Migration streams from non-metropolitan areas (Figure 2, rows 8 to 18) to state capitals (columns 1 to 6) were mostly of Type 3 and resembled the male labour force as a whole in their high percentages in the category "tradesmen, production process workers, and labourers." Counterstreams of male workers migrating from the capital city to non-metropolitan areas in the same state were also of Type 3, suggesting some degree of exchange of workers between metropolis and hinterland (Figure 2, cells 1.11, 2.12, 3.13, 4.14, 5.15, and 6.16).
3. Interstate migration streams to non-metropolitan destinations were principally of Types 4 and 5, the former having relatively high percentage of farmers, farm workers, and miners; the latter being differentiated by high percentages in the armed services.

Thus the matrix diagram indicates that exchanges of populations with similar occupational characteristics were important in inter-metropolitan migrations, in intrastate flows between capital cities and their hinterlands and in many interstate flows between non-metropolitan areas. The diagram suggests that the many counterbalancing labour force movements helped to maintain the existing distribution of labour, although a more detailed study of the diagram indicates other features associated with changes (Rowland, 1979).

Conclusion

By attempting to differentiate between migrations which produce changes and migrations which maintain existing distributions, better insights into migration selectivity might be obtained. As far as practicable in such studies, migration streams should not be aggregated, because aggregation can conceal the different kinds of interrelationships between areas. For example, a study of the characteristics of all inward migrants to a particular city might be inconclusive because the flow is a combination of many migration streams, some reflecting change, others reflecting the principles of similarity and complementarity. Moreover, if net migration is studied to the exclusion of gross migration, an exaggerated impression of the importance of change may be obtained.

Many kinds of measures can be used to assess whether migration flows reflect stability or change, and they introduce the possibility of posing not only the traditional question, "Why are changes taking place?" but also the question, "Why is stability important?" Elements of settlement stability are probably apparent in most societies, but in some contemporary Western societies, where mobility levels are high and settlement distributions are evolving fairly slowly, the equilibrating role of internal migration may be very significant.

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