

## On the Definition of Migration

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As a rule, migration of the population is regarded in two ways. In one case, it is considered as a whole, as one of the bookkeeping entries in the total population balance of different areas. In the other case, there is greater detailed interest in mobility as an aspect of individual human behaviour. The commentary which follows below is concerned with the latter side of the question, in some respects from a microscalar viewpoint, which is not usual. The reason for the choice of the scale is my belief that a great deal can be learnt in regard to the macro aspects if familiarity has first been attained with some elementary microscopic features.

It is customary to introduce the basic concepts of the formal population theory with the aid of Becker's scheme. In this, the individual is represented as a straight *line of life*, which begins on a *day of birth* and ends at a *point of death*. In the scheme, time is the universally prevailing physical dimension, even to the extent that both the x and y coordinates represent time — naturally in itself on good foundations. If the question is now raised of how the individual occupies himself, while the line of life inexorably goes straight forward in time towards the point of death, the answer is — if we keep to the corresponding level of abstraction — that he indefatigably moves in the other physical dimension, in space. He moves there to be able to tend to this economy, and to satisfy his need of cooperation with other individuals.

It is not difficult to provide a graphic illustration of the individual's path in space-time, though it should be noted that we satisfy ourselves with a space which has just length and breadth, so that we can allow the abandoned third dimension to represent time (Fig. 1). Nothing is said here about the absolute values of either the space or the time scale. We can have in mind an hour in a living room, a day in a town, or a whole life in a country. In fact, we have to do with an entire hierarchy of movements, in which each lower level can be regarded as oscillations around a vertical line at a higher level.

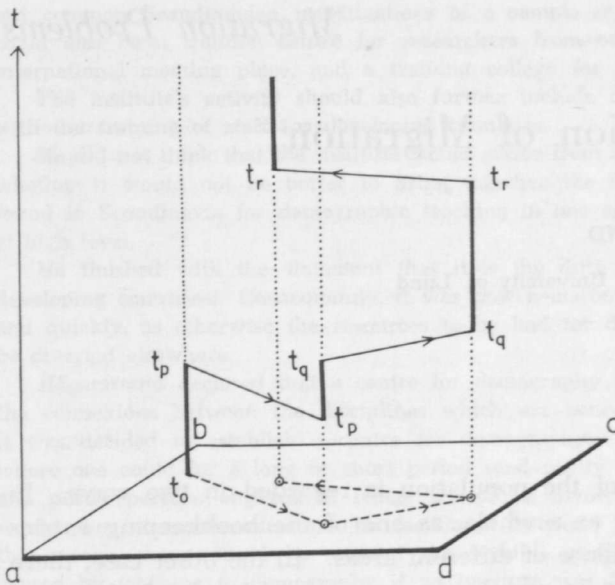


Fig. 1. Part of the time-space path of an individual. Dotted vertical lines represent stations. Movements take place between stations at times  $t_p$ ,  $t_q$  and  $t_r$ . Dashed lines project movements on the landscape.

Movements in space are regulated by an infrastructure of what we can term *stations*. The most important of these, reckoned in length of stay, are homes and workplaces. The primary sources of Swedish population statistics provide inexhaustible material from which one can, for the purposes of demonstration, pick random samples of the life-path of separate individuals, or the system of life-paths spent in common with others.

Figure 2 gives the skeleton of the history of a rural family. Admittedly, only one case is demonstrated, but it is typical of its environment and its period of time. The time scale runs from 1840 to 1940. The dwelling is the localising unit. For as long as the individual stays in a certain house, his life-path is indicated as vertical, with an unbroken line for a man, and a dotted line for a woman. Children are put immediately to the right of their parents. A circle denotes the point of birth, and a cross the point of death. Horizontal arrows indicate migratory movements made either into or out of the houses. Return to a place which has been lived in before is indicated. However, space has not permitted scalar representation of the distance of geographical movement.

At the age of four, our man accompanies his family on his first migration. At the age of 17, he leaves his home to work as a farm-worker on a number of farms not very far away. We omit the further fate of his family.

From the age of one, our woman accompanies her family on a number of short moves backwards and forwards between a couple of nearby smallholdings. At the age of 16, she leaves her home to work in domestic service on some neighbouring farms. The two people meet while they

are working on the same farm, and marry after two years, at the respective ages of 26 and 24. Soon after this they move to the first home of their own, and a son is born there. Shortly, the young family moves back again, and stays there for a long period. Six further children are born.

The man dies without any more migrations, at the age of 66. Two years later, his widow and an unmarried daughter move away to join the youngest son. The older brothers and sisters have left their home for the first time at ages varying between 17 and 22. It is characteristic that they have returned home once or more during their search for their own, entirely independent positions.

This example, and many like it, demonstrate clearly that the life cycle almost inevitably gives rise to a rather distinct migratory behaviour. When

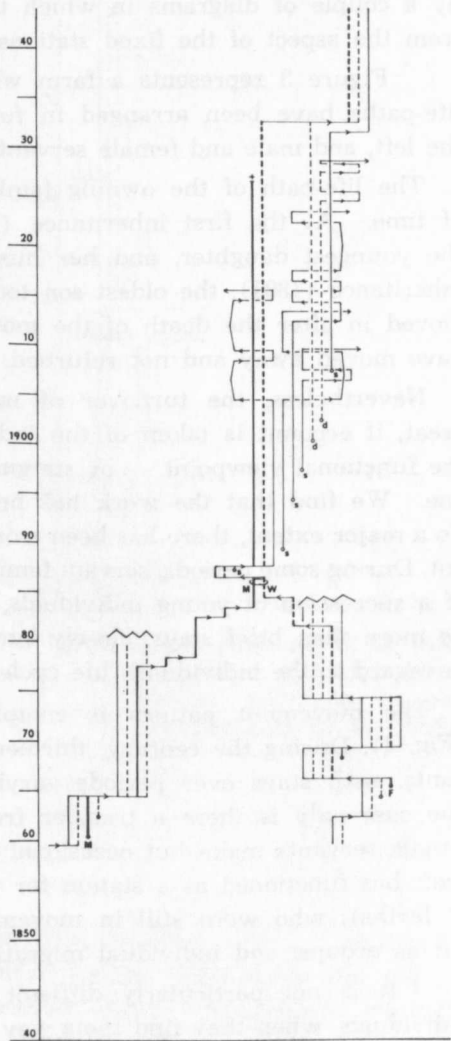


Fig. 2. Time-space paths of a family between 1860 and 1945. Solid vertical lines represent males, dashed vertical lines females. Horizontal arrows mark the time of movements between dwellings (distance not taken into account). M = husband, W = wife, s = son, d = daughter, o = birth, + = death.

an individual has left home, there follows a period of oscillation between different stations — often with intermediate returns home. This is a period of training for an occupation and searching — perhaps it could be termed a career period. This can proceed for some time after the formation of a family. We know from the general age distribution of migrants that rather many small children are in course of movement with their parents. Nonetheless, mobility diminishes sharply at the age of 25 to 30 years. A shorter period of movement is again discernible once occupational activity has ceased.

The pattern of the life-path naturally varies with the economic structure of the community and its work organisation. In rural districts, for example, land ownership and the circumstances of tenancy appear to influence the movement pattern of individuals. This can be demonstrated by a couple of diagrams in which the life-paths are throughout viewed from the aspect of the fixed stations.

Figure 3 represents a farm which is owned by the farmer. The life-paths have been arranged in functional groups, with the family to the left, and male and female servants to the right.

The life-path of the owning family is very stable during the course of time. At the first inheritance (1862), the farm was transferred to the youngest daughter, and her husband, who moved in. At the next inheritance (1891), the oldest son took over. He married a woman who moved in after the death of the mother. Gradually, the other children have moved away and not returned.

Nevertheless, the turnover of male and female servants has been great, if account is taken of the individuals concerned. But seen from the functional viewpoint — or station aspect — the picture is a different one. We find that the work has been organised in a very stable way. To a major extent, there has been work for one male and one female servant. During some periods, servant families filled both functions. This picture of a succession of young individuals, who stream through a station with no more than brief stays, closely agrees with what was observed earlier in regard to the individual's life cycle in a farming environment.

The movement pattern is completely different on a tenant farm (Fig. 4). During the century, thirteen different families have been occupants, with stays over periods varying between one and 19 years. In one case only is there a transfer from father to son. Here, male and female servants make but occasional appearance. To a great extent, the croft has functioned as a station for young families (note the abundance of births), who were still in movement. Families have moved in and out as groups, and individual migrations have been few in number.

It is not particularly difficult to imagine how the life-paths of individuals, when they find their way between the stations of space while

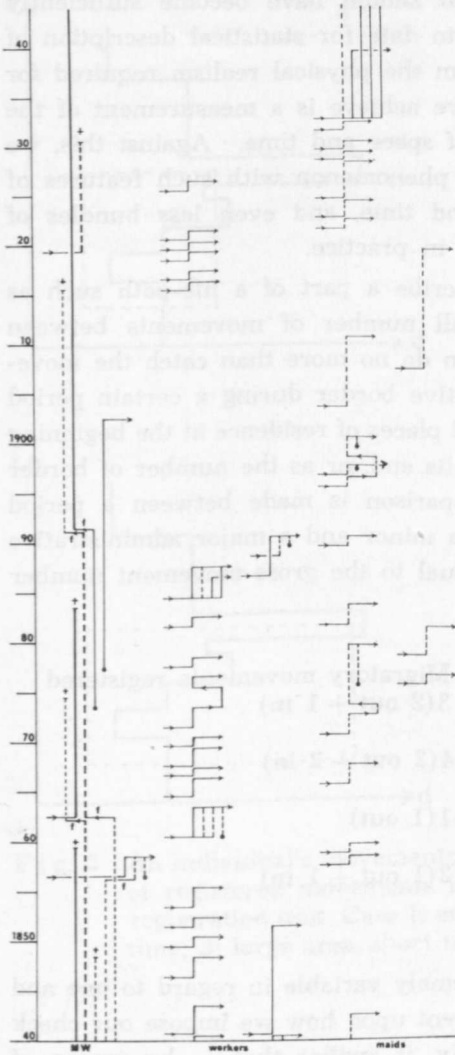


Fig. 3. Time-space paths in individuals living on an owner-operated farm with servants. Family members to the left, servants to the right. Here stations represent functional positions rather than dwellings.



Fig. 4. Time-space paths of individuals on a tenant farm. Family members to the left, servants to the right.

time goes by, form an intricate, but far from unordered fabric. Of course, it is impossible to describe this fabric satisfactorily with the aid of such detailed examples as those presented above. More global methods are called for, which could in figures indicate the most important types

of event in the system. However, it should have become sufficiently apparent that the methods practised to date for statistical description of migration are rather far removed from the physical realism required for a developed life-path model. What we achieve is a measurement of the number of discrete events per unit of space and time. Against this, we can not as yet describe in figures a phenomenon with such features of continuity as a life-path in space and time, and even less bundles of paths. Let us look at what is done in practice.

Assume that we are going to describe a part of a life-path such as that indicated in Figure 5. The full number of movements between stations is seven. Statistically, we can do no more than catch the movements which pass over an administrative border during a certain period of time. They can be taken as changed places of residence at the beginning of the period compared with those at its end, or as the number of border crossings during the period. A comparison is made between a period of five years and one of ten, and of a minor and a major administrative area. The contribution of the individual to the gross movement number then becomes:

	Changed residence	Migratory movements registered
Case 1)	Small area 1 out-migration 5 years	3(2 out + 1 in)
Case 2)	Small area 0 » 10 years	4(2 out + 2 in)
Case 3)	Large area 1 » 5 years	1(1 out)
Case 4)	Large area 0 » 10 years	2(1 out + 1 in)

Thus the statistical picture is extremely variable in regard to one and the same migratory behaviour, dependent upon how we impose our check borders in space and time. Generally, it applies that — by reason of the great distance friction that migrants usually display — the smaller the regional unit is, the greater is the probability that a movement will be registered. Moreover, it applies that the longer the time chosen, the greater is the probability that, in respect of the same individual, he will appear more than once in registered migration events. As a consequence of these circumstances, it is very difficult to make comparative measurements of relative mobility on the basis of the statistical data available.

Today, a further complication to the difficulties associated with measurement is that the concept of migration itself can be said to be linked with the experiences and ideas of the agrarian community. Migration was rather inevitably the same as to change home and workplace at the same

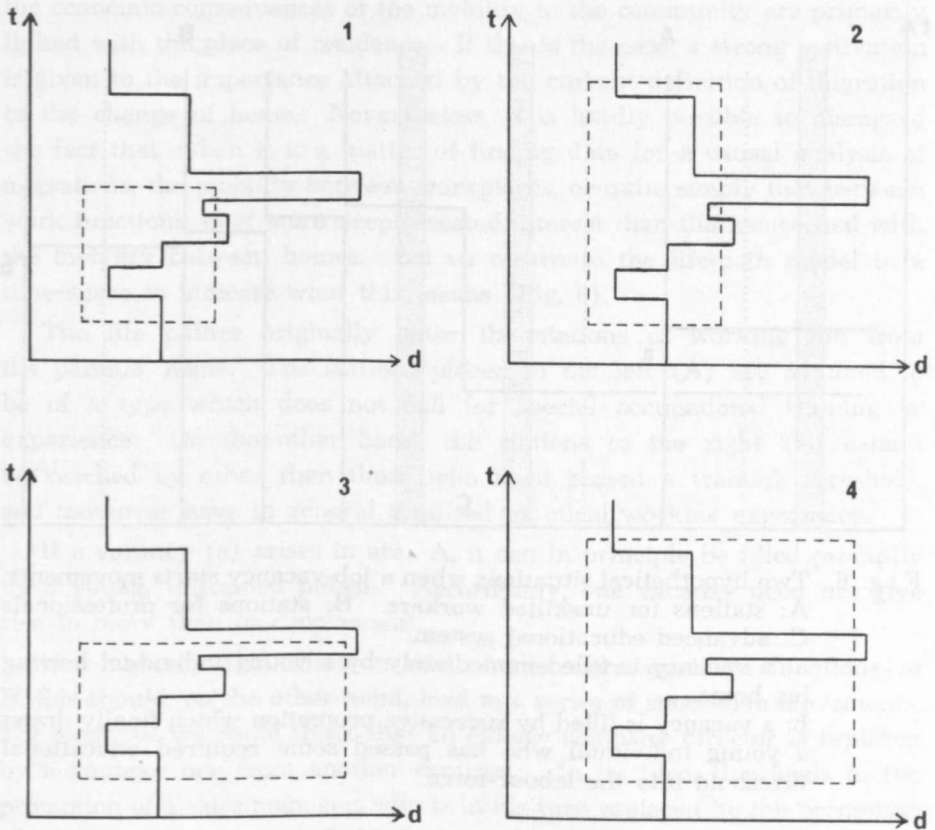


Fig. 5. An individual's movements between dwellings over time. Number of registered movements is a function of the time-space size of registration unit. Case 1: small area, short time; 2: small area long time; 3: large area, short time; 4: large area, long time.

time. As a consequence, there was hardly any difficulty, from the aspect of definition, of what was of importance to register. That at such an early stage a beginning was made in noting migrations, in any event in Sweden and Finland, depended otherwise naturally not upon any scientific interest in human behaviour, but upon the desire of the clergy to exercise social and religious control, and later upon fiscal and military demands. The result is that now we have a generally accepted definition of migration, which beyond minor variations implies a change of residence between administrative units.

Data compiled according to this definition now provides an insight worse than before of how the individual steers his life-path in the system of dwellings and workplaces. We have hardly adapted the statistical

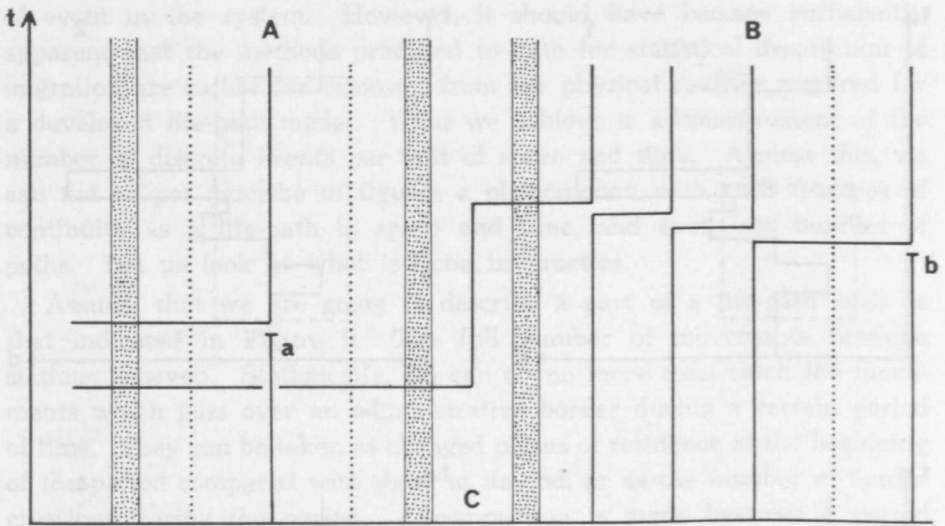


Fig. 6. Two hypothetical situations when a job-vacancy starts movements. A: stations for unskilled workers. B: stations for professionals. C: advanced educational system. a: a vacancy is filled immediately by a young individual leaving his home. b: a vacancy is filled by successive promotion which finally draws a young individual who has passed some required educational threshold into the labour-force.

description to phenomena created by the greater freedom of movement and the more complicated community structure.

If we — using the terminology of the life-path model — descend to the station level, we find today at least three separate population distributions, viz. the population of permanent housing (night population), the workplace population (day population) and the population in leisure-time accommodation. All of these have their interest, both from a purely behavioural aspect, and with respect to practical economy and community planning.

The migratory movements which give rise to these different population distributions can be complicated with regard to place relations. If we keep to the relation between home and workplace, we find that a person can change his home between two communes without thereby changing his place of work. He can change his workplace from one commune to another without changing his home. He can at one time change both home and workplace, whereby two, three or four separate communes are affected, all dependent upon the home-workplace constellations before and after the migration. In this spectrum of possibilities, it may be so that



the economic consequences of the mobility to the community are primarily linked with the place of residence. If this is the case, a strong motivation is given to the importance attached by the current definition of migration to the change of home. Nevertheless, it is hardly possible to disregard the fact that, when it is a matter of finding data for a causal analysis of migrations, the mobility between workplaces, or quite simply that between work functions, is of more deeply seated interest than that concerned with the mobility between homes. Let us return to the life-path model in a time-space to indicate what this means (Fig. 6).

The life paths originally enter the stations of working life from the parents' home. The stations placed to the left (A) are assumed to be of a type which does not call for special occupational training or experience. On the other hand, the stations to the right (B) cannot be reached by other than those who have passed a training threshold, and moreover have in general acquired practical working experience.

If a vacancy (a) arises in area A, it can in principle be filled promptly by a young, untrained person. Accordingly, *one* vacancy need not give rise to more than *one* movement.

If a vacancy (b) arises in one of the more qualified functions in B, this should, on the other hand, lead to a series of successive movements. For example, we could think that an elderly company director is replaced by a younger one from another company. In its turn, this leads to the promotion of a sales manager, who is in his turn replaced by the promotion of an assistant manager. Only the last-mentioned vacancy leads to a new professional man making his first entry into professional life. But he does not come direct from home: he has come via a training institution. In the example chosen, *one* vacancy brings about *four* movements, excluding the youngest individual's much earlier movement from home to the training establishment. Naturally, movements can take place in a company without movements between communes, but it is just as probable that the chain stretches out between a series of different places.

I am convinced that the majority of movements are replacement movements. They arise to fill vacancies, which in final cases are due to deaths or superannuation. Dependent upon the demands in regard to training and age imposed upon those who will fill the vacancy, there come into being long or short *movement chains*. These of course affect the volume of not only the functional mobility, but also the geographical. The dominance of replacement movements surely also explains why the large number of gross migrations registered is in fact accompanied by relatively small net profits and losses. Even when the primary vacancy relates to a new workplace, it means often enough a chain of replacement movements for it to be filled. Naturally, queues can arise in the system,

which means that youngsters must remain for a abnormally long time in the home, or must content themselves with jobs which lie beneath the training threshold they have passed. Emigration out of the country provides another solution. However, if the reserve of young people is inadequate, stations begin to be abandoned in the less attractive part of the system. If this is not sufficient either, then filling up through immigration from abroad becomes topical. If things are viewed in this way, it is not a matter for surprise that the immigrants get the jobs with less pay. The citizens proper have greater opportunities to lie further advanced in the movement chains.

The system aspect of movement is an area of research which has been rather neglected. It is naturally easier to ask people why they move, and then regard the whole as a function of the desires and evaluations of individual persons. I believe, however, that it would also be rewarding to look at the community as an enormous channel system, in which we more or less conciously regulate the streams by means of organisational arrangements which open and close channels. A large training institution in an economic wasteland is, for example, of necessity an effective machine for the creation of out-migration, if it is not at the right moment matched by a regional expansion of commercial and industrial life with vacancies which correspond to the examination given.

From a statistical aspect, we know just nothing of such things. And I believe that we shall find it difficult to achieve anything worthwhile with them if we do not, by the compilation of data concerned with migration, begin to take the consequences of society now being very much more complicated than when a start was made with the registration of movements as changes of dwelling between administrative units.

### *Discussion*

In the discussion which followed Hågerstrand's talk, views were expressed by the following: *Hofsten, Hyppölä, Hågerstrand, Kongstad, Majava, Myrdal, Quensel and Skancke.*

Emphasis was given to the fact that the official statistics deal with the migration phenomenon in a summary fashion, without distinction of »independent» movements.

The question concerned with out-migration and in-migration in Scandinavia can also differ in dependence upon how large areas are used in the analysis, and the difference in time between the measurements. There was further pointed out the difference in the propensity to migrate among the inhabitants of various parts of a town, dependent upon the form of housing.

It was also stated that earlier migrations were in general relatively long. It is only in modern times that short migrations have become common.

The question concerned with emigration and immigration in Scandinadia was also touched upon, and emphasis was laid upon the necessity of having inter-Scandinavian statistics about this rather extensive migration movement.