

THE DEFINITION OF MIGRATION AND ITS APPLICATION: MAKING SENSE OF RECENT SOUTH AFRICAN CENSUS AND SURVEY DATA

PIETER KOK

Defining migration (especially internal migration) is a controversial activity. At one end of the spectrum migration is defined as the movement of people over some distance (or at least from one "migration-defining area" to another) and from one "usual place of residence" to another. At the other end of the spectrum the definition of migration discards the requirements that migration must involve a change of residence and a move across some distance. In this article a compromise between these two positions is suggested. Migration is defined here as the crossing of the boundary of a predefined spatial unit by one or more persons involved in a change of residence. The implications of this definition for the use of recent South African migration data are discussed. It is concluded that the data from Census '96 are comprehensive and expected to be inherently sound, despite a definition problem caused by the absence of predetermined "migration-defining areas". The expected impact of this problem is assessed, and a partial compensation is suggested on the basis of findings from a national sample survey.

Introduction

According to Shaw's (1975) conventional definition, migration is "the relatively permanent movement of persons over a significant distance". However, the inclusion of the qualifiers "relatively" and "significant" in this formulation is perhaps indicative of a larger definitional problem. Apart from the "distance" ("spatial") dimension, migration also has a "time" ("duration-of-residence") dimension, although neither is referred to *per se* in currently applied definitions. Migration is nowadays defined as involving a change in place of abode, which criterion has practically replaced the notion of "permanence" (denoting the "time" dimension). Similarly, the criterion that the distance of the move should be "significant" has generally been replaced by the requirement that the boundary of a "migration-defining area" must have been crossed before a move can be classified as migration.

The purpose of this article is therefore to review some of the challenges to migration concepts encountered in the literature, and in this way to contribute to the study of internal migration in South Africa. Such a taxonomic exercise may seem pedantic, but the need for a clarification of migration concepts is substantiated by Skeldon (1990:11): "Although methodological discussions often lapse into pedantry, ... too often, researchers

accept census and survey results on migration without examining the implications of the ... questions asked." A typology of spatial mobility, albeit not conclusive, will be suggested to open up the debate around migration concepts. It is believed that an unpacking of these concepts should lead to their clarification, and should serve as a background for evaluating the appropriateness of the questions on migration asked in the 1996 South African population census and other recent household surveys. This will be done in the hope that researchers in particular, and planners and decision-makers in general, will obtain a better understanding of the potential utility and shortcomings of the information on migration available in the latest South African census and other surveys.

The definition (or classification) problems seem to apply to a greater extent to *internal* population movements (that is, moves within the same country) than to *international* moves between different countries. Of course there are also problems with the classification of some international moves but, if the definition problems that surround internal migration could be sorted out, greater clarity regarding the classification of international moves would probably follow almost automatically. This article therefore concentrates on internal migration, but the concepts evaluated here could also be applied to international migration.

Literature review of the conceptualisation of "migration"

It is generally accepted that migration has both "distance" and "time" dimensions. These dimensions have been built into the concept from the outset (see Woods 1982:232), but *this is where consensus among migration researchers ends.*

Pieter Kok, Chief Research Specialist, Group: Democracy and Governance, Human Sciences Research Council, Pretoria; e-mail: PCKok@silwane.hsrb.ac.za. The re-search on which this article is based, was funded by the Human Sciences Research Council (HSRC). However, the views expressed here are those of the author, and do not necessarily reflect the corporate opinion of the HSRC. The helpful comments of the two anonymous referees are gratefully acknowledged.

Many migration analysts have highlighted the numerous problems that come to light in any deeper conceptual analysis of these two dimensions. Morrison (c.1980) highlighted the main problems with the *distance* dimension, and he criticised the long-standing practice of movers being defined as migrants if they move some arbitrary distance, or if they cross some boundary that reflects a distant move. Neither is the *time* dimension free from serious problems (as will be seen later).

Migration is probably best defined (in general terms) as *the crossing of a spatial boundary by one or more persons involved in a change of residence*. Although this definition appears to be rather simple, underlying it is a complexity of issues and a very lengthy theoretical debate. It is not appropriate to dwell here on all these issues, but it is necessary to explain the rationale for this specific conceptualisation. The two main components included in the above definition, namely those dealing with "spatial boundaries" and "changes of residence", will be discussed below, as well as the component that has *not* been included in the above definition, namely the "time" dimension.

The "spatial boundary" component

The concept "spatial boundary" refers to the borders of a "migration-defining area". This could be a political area (e.g. country, province or local government), or an administrative unit (such as a magisterial district or even census enumerator area). To meet the requirements of the above definition, every migration study should therefore have its own (unambiguous) definition of an appropriate "spatial boundary".

The restriction concerning a "migration-defining area" has been severely criticised by many prominent migration researchers. The distance of a move is clearly important to distinguish migration from local moves (which are covered in the literature on migration under the term "residential mobility"). The problem is how to find an unambiguous definition of what Shaw (1975:6), quoting William Petersen, called a "significant" distance. The reality is that the use of actual distance in migration research has been rather limited, although contemporary technology, such as that offered by geographic information systems (GIS), can help to overcome many of these problems. If geographically precise information can be obtained on the point of origin of the most recent move, for example, an analysis of moves in terms of the actual distance covered will be possible. Still, some minimum-distance criterion may be necessary, and as Shryock, Siegel and associates (1976:373-374) point out, a definition of a "migrant" that is phrased in terms of a minimum distance moved would remain arbitrary "unless there were some natural break in the continuous distribution of moves". The actual distance of a move is therefore not a clear enough indicator to distinguish migration from other

forms of residential mobility.

A change of residence varies along a distance continuum, however. Highly localised moves – from one apartment to another in the same building, from one house to another in the same neighbourhood or town – are forms of residential mobility that should, according to the United Nations' manual on internal migration (1970), not be considered migratory moves. The concept of distance may therefore be a key spatial aspect of mobility, but in migration it is not a straightforward matter of mere kilometres because it also incorporates certain contextual factors related to changes in economic and social circumstances.

One is almost compelled, therefore, to return to the need for an area's boundary to be crossed. The question that begs to be answered is thus: What constitutes an "area"? The limits often placed on the concept "area" may be largely arbitrary or a mere expediency. This is so because these boundaries are usually determined by the administrative unit identified in censuses or surveys, to the detriment of scientific enquiry: "Somewhat remarkably, most demographers and other social scientists have let statisticians and survey administrators determine the areas between which moves are classified as 'migration'. In principle, this surely cannot be generally acceptable. Indeed, it has been said that areas between which moves count as migration are first defined by bureaucrats and later rationalised by social scientist researchers" (Standing, 1984:32).

Standing (1984) suggested that one should rather use a change in "activity space" as a criterion. However laudable this suggestion may seem, practical problems make it very difficult to implement. Inappropriate census and survey data usually prevent one from using activity change as a criterion in the practical definition of migration. Unless the research or census questionnaire specifically makes provision for the appropriate information to be obtained, it is virtually impossible to determine whether there has been a change in activity space or not. Furthermore, the theoretical debate on the matter has not subsided yet.¹

Shryock, Siegel and associates (1976:373-374) referred to an earlier suggestion that migrants should be defined as those persons moving relative to labour-market areas. Accordingly, the boundary of the migration-defining area should be set at the distance line where commuting to work becomes so time-consuming and expensive that a change of residence is required. The essence of this suggestion certainly has some appeal from a purely logical point of view, but it has not caught on in practice. This lack of interest can be explained partly by the view that economists who have analysed migration in terms of movements between labour markets "would surely have to admit that the criteria distinguishing the boundary lines of such

markets are conceptually weak and empirically somewhat arbitrary" (Standing, 1984:33). This problem is, of course, particularly relevant in the context of the long distances commuted by some workers in a country such as South Africa (Gelderblom & Kok, 1994:105). This complicates the scientific demarcation of labour-market areas as possible migration-defining areas.

The "change of residence" component

The "change of residence" requirement in the general definition proposed above, suggests that not all movements constitute migration (as in the case of commuting, for example), since only those moves that involve "moving house" would meet this basic requirement. This concept does away with the highly criticised conceptualisation of "usual place of residence", which has been found to lack sufficient applicability in both the less developed and the more developed countries.² The rather hazy notion of "usual" is inherently problematic: "Does it refer only to a relative amount of time spent in one place rather than another, or does it mean a place that an individual considers being his or her 'home'? Even if the former is taken as the yardstick it is necessary to consider an unambiguously specified reference period, either retrospectively or in anticipation. Furthermore, asking where someone lived 'most of the time' over the past six months or past year is not necessarily the same as asking where they regard as their 'home'" (Standing, 1984:34–35).

Also criticised is the underlying notion that people have only one place of residence, when they may have two (or perhaps even more) homes. McHugh et al. (1995) highlighted this problem in their article on the flaws in the official definition of "usual place of residence" used in the United States of America. They concluded that "today, the assumption of a single, fixed place of (usual) residence is untenable for a substantial number of Americans" (McHugh et al., 1995:251). This also applies to South Africa with its history and prospects of migrant labour. The occurrence of multiple residence may raise serious questions about the validity of migration analyses based on the principle of "usual place of residence", but a valid response would be: "Who says that a change of any (one or more) of these places of residence cannot be regarded as migration?"

The criticism concerning multiple residence becomes very relevant when one deals with *de jure* counts of the population. *De facto* counts of the population relate to the numbers at places where people were actually enumerated. *De jure* counts, on the other hand, cater for the fact that a notable proportion of the population may not be "home" on the night of the census, because of business, tourism or other reasons. Therefore, information on a person's "usual place of residence" is often needed to undertake a *de jure* count of the population. In general, however, it is rather difficult to obtain reliable information on people's "usual

places of residence" when a significant proportion of the population resides in two or more places. Such people do not have a single place called "home" in the traditional sense of the word. However, despite these potential pitfalls in a number of cases, the vast majority of people can be expected to identify their "usual place of residence" as that place where they spend most of their time (for example, at least four nights per week). For the most part, *de jure* counts should therefore be valid.

The "time" component

What has *not* been included in the general definition suggested above, is the temporal dimension. It has been excluded because of its limited utility in distinguishing migration from other forms of mobility. Morrison (c.1980) ascribed problems with the "permanence" of spatial mobility to mounting evidence that a range of impermanent moves, reflecting wide variations in length of stay, is at play when people are classified as "migrants" or "non-migrants". The problem is that some moves may be excluded unjustifiably.

Another consideration in discussing the notion of "permanence" is the issue of "intended time" (Standing, 1984:36). The lack of an underlying logic for restricting migration to a minimum period is probably best reflected in the different intended or actual minimum lengths of stay required for being counted as a migrant in the Scandinavian population registers. According to Bretz (1996:252, 253), these lengths of stay range from three months in Denmark, through six months in Norway, to 12 months in Sweden and Finland.³ It should be clear, therefore, that the "time" component is not particularly useful in migration studies, and should consequently not be used as a criterion in the definition of migration.

General conclusions

It can be said that the debate on migration definitions and concepts is far from concluded. It has been suggested that no *a priori* distinctions should be drawn, and that one should start off by treating migration and spatial mobility as synonymous:

"Distinctions drawn between population mobility, which encompasses all forms of geographical movement, and migration, which is supposedly restricted to longer-distance moves and more permanent changes of residence, are fraught with arbitrariness and empirical complications. ... If the information collected is broad in scope it should be possible to identify a set of recurrent patterns of mobility *after* the data are assembled, as well as the over-all extent of movement. Erecting *a priori* descriptive barriers is a regrettable outcome of wishing to impose an artificial simplicity on an inherently complex and multidimensional process" (Standing, 1984:35).

Table 1: A suggested (partial) typology of spatial mobility encompassing both circulation and more "permanent" moves, and incorporating the more flexible approaches to defining migration

BROAD CATEGORY	EXAMPLE	"TEMPORAL" DIMENSION		"SPATIAL" DIMENSION		CLASSIFICATION
		Description	Change in place of residence?	Description	Migration-defining boundary crossed?	
CIRCULATION	Nomads, "gatherers" and wanderers	People with no "fixed" place of residence	NO	Short or long-distance moves	YES/NO	"Transilient" mobility
	Shopping trips and tourist trips	Short-term circular moves involving <i>no</i> change of residence	NO	Short or long-distance moves	YES/NO	Short-term mobility
	Daily work trips					Daily commuting
	Trips home to visit, or back to place of employment after a period of stay (e.g. a week or weekend) at the origin of the move	Short-term circular moves that do not necessarily involve a change in <i>usual</i> place of residence, but do involve a change of residence	YES	Short or long-distance moves	NO	Local weekly commuting
					YES	Short-term labour migration
Long-term migrant labour absences (usually of longer than a week at a time) from home	A move taking place at the beginning or end of an extended migrant-labour period	YES	Short or long-distance moves	NO	Local long-term labour mobility	
				YES	Long-term labour migration	
MORE "PERMANENT" MOVES	Change of permanent residence ("moving home")	Short or long-term residence at place of destination	YES	Short or long-distance moves	YES	"Permanent" migration
					NO	Residential mobility

* See Kubat (1976:11) and Standing (1984:38-39) for a description of the moves covered by the term "transilient" mobility.

Unfortunately, as motivated before, there remains a need for some *a priori* decisions, particularly with regard to the concept of "areas", which refers to the smallest geographical units for which migration analyses can logically be undertaken. These units depend on the study concerned.⁴

A suggested partial typology of spatial mobility, encompassing both circulation and more "permanent" moves (see Gelderblom & Kok, 1994:52), and which is based on the two key dimensions of "time" and "space", is depicted in Table 1. The reason for treating this typology as incomplete lies in the fact that the examples listed in the second column are far from exhaustive. If the many different examples of mobility types mentioned by Standing (1984:38-53) and Van de Walle (1982:92) are considered, the examples in Table 1 may be seen as representing not much more than the proverbial tip of the iceberg. Nevertheless, typologies that do not cover all the possibilities can still have significant benefits. "General typologies of ... migration patterns are of limited value, because any comprehensive typology would have to take into account such a broad range

of issues" and, therefore, "... special-purpose typologies geared to particular analytical concerns are surely valuable as means of imposing a sense of discipline on analysis" (Standing, 1984:57).

The typology suggested here has been informed by various sources. Apart from the typologies proposed by Standing (1984:38-53) and Van de Walle (1982:92), the suggestion by Pressat and Wilson (1985:144) that tourist trips (irrespective of the distance) and nomadic movements should be classified as "circulation", also informed this typology. Skeldon's (1990:11) suggestion that commuting and other temporary movements can be referred to as "circulation" was incorporated as well. The suggested typology also accounts for circumstances where long-distance commuting and migrant labour are known to form a notable proportion of the spectrum of spatial movement (see also Gelderblom & Kok, 1994:105-106).

In this suggested (partial) typology there is no requirement that a change in *usual* place of residence must have taken place. What is required for migration is that a change of residence must

accompany the crossing of the boundary of a migration-defining area. The three shaded cells in the last column depict the only migratory moves that meet both these "time" and "distance" requirements. These migration types are "short-term labour migration" (see the topmost shaded cell in the last column of Table 1),⁵ "long-term labour migration" (third cell from the bottom in the last column), and "'permanent' migration" (second-last cell in the last column). (The non-shaded cells in the top part of the last column cover forms of spatial mobility that can only be described as forms of circulation. The very last cell in the table deals with "residential mobility", i.e. "intra-area" moves that do not qualify as migration even though they do involve a change of residence.)

In terms of this partial typology it seems fair to suggest that one should define migration as *the crossing of the boundary of a predefined spatial unit by one or more persons involved in a change of residence*. This definition encompasses all the requirements agreed upon earlier. The "spatial unit" refers to the particular study's "migration-defining areas", which could be political, administrative or any other appropriate spatial entities.

South Africa's most recent data on internal migration

One of the few elements of South Africa's official population statistics that has hardly ever been seriously questioned in the literature is the official information on internal migration. This absence of criticism does not, by any stretch of the imagination, stem from flawless data on the topic – it can be ascribed purely to the virtual non-existence of any usable data.

The absence of usable data on internal migration will, it is hoped, be a problem of the past when the data from the most recent census have been evaluated appropriately. In an evaluation context, clarity on the meaning of a concept such as "internal migration" is likely to be very important.

The requirements for an appropriate definition of migration, which have been developed above, will now be used as the criteria for evaluating the implied definitions of migration in recent South African census and other surveys. The five surveys to be discussed obviously had different aims for their migration questions, and such differences should be borne in mind when the questions are evaluated.

Box 1 (on page 24) gives the batteries of questions on migration in South Africa's 1996 Population Census. Other recent surveys have also included a small number of questions on migration. The questions dealing with migration in the following surveys are discussed: (a) the 1994 and 1995 *October Household Surveys* (which are South Africa's equivalent of the "current population

surveys" found in many other countries); (b) the 1996 *KwaZulu-Natal Development Indicator Household Survey*; and (c) the October 1996 *MarkData Omnibus Survey*. These surveys can be used to complement the 1996 census data on migration for purposes of contextualisation and validation.

Census '96

Place of birth (for lifetime migration analyses) was covered by Questions 1.1 and 1.2 in Box 1, while Questions 2 and 5 dealt with information regarding migrant workers. Information was elicited on the *de jure* place of residence (see Question 3.1) as well as the *de facto* place of residence (i.e. where the person was enumerated).

Questions 4.1 and 4.2 were aimed specifically at determining the origin (read: spatial dimension) and time dimension of the most recent move to the current (usual) place of residence. The problem of no predetermined "migration-defining areas", referred to earlier, was brought to the fore when it became known that the spatial migration data from the census would reflect only the magisterial district of origin. This *post hoc* identification of "migration-defining areas" creates problems for migration analyses. If the most recent move was made from an origin within the same magisterial district and the individual concerned had previously moved there from another district, the latter (earlier) move would not be accounted for at all.

The approach followed in Census '96 may have advantages. For instance, knowledge of spatial boundaries was incomplete at the time of the census. By not predetermining migration-defining areas, the census probably avoided many response errors regarding the boundaries of predefined areas. The fact remains, however, that by not predetermining magisterial districts as the migration-defining areas for the census, the resulting information could be biased in favour of residential mobility instead of reflecting migration correctly.

Nevertheless, the census questions on migration were as comprehensive as one could have hoped for. For the very first time there ought to be suitable data on migration as well as labour mobility. The only hitherto unanswered question relates to the quality of the data.

October Household Surveys (1994 and 1995)

In these two large, nation-wide surveys, the following battery of questions on migration was fielded in respect of *all the household members*:

- (a) This person's place of birth
- (b) Did this person move into this area after 1 October a year ago?
- (c) If "Yes", from where?

BOX 1
MIGRATION QUESTIONS ASKED DURING CENSUS '96

SECTION A: IN RESPECT OF EACH HOUSEHOLD MEMBER

- 1.1 **"Was (the person) born in South Africa?** (Include the former Transkei, Bophuthatswana, Venda, Ciskei – TBVC states.)
1 = Yes
2 = No"
- 1.2 **"(If 'No') In what country was the person born?**
Write in the name of the country."
- 2 **"Is (the person) a migrant worker?** (Someone who is absent from home FOR MORE THAN A MONTH each year to work or to seek work.)
1 = Yes
2 = No"
- 3.1 **"Is this DWELLING** (e.g. house, room, shack, flat) **the place where (the person) usually lives, i.e. where (the person) spends at least four nights per week?**
1 = Yes
2 = No"
- 3.2 **"(If 'No') Where does (this person) usually live?**
Name of suburb/village/settlement:
Name of city/town/farm/tribal authority:
Name of magisterial district:
If not South Africa, please state name of country:"
- If no usual address, circle "3" 3"
- 4.1 **"In which year did (the person) move to the DWELLING** (e.g. house, room, shack, flat) **where he/she usually lives?**
Write in the year that he/she moved 19.....
OR
1 = The person has never moved. 1
(Lived in the dwelling since birth)"
- 4.2 **"(For the person who has moved)**
From where did (the person) move? (before moving into the dwelling where he/she usually lives)
Name of suburb/village/settlement:
Name of city/town/farm/tribal authority:
Name of magisterial district:
If not South Africa, please state name of country:"

SECTION B: IN RESPECT OF THE ENTIRE HOUSEHOLD

5. **"Are there any persons who are usually members of this household, but who are away for a month or more because they are migrant workers?** (A migrant worker is someone who is absent from home for more than a month each year to work or to seek work.)
1 = Yes
2 = No
- (If "Yes") Indicate the person's particulars:**
Age in years:.....
Gender:
Relationship to head of household:
Where is (the person) living:
Name of suburb/village/settlement:
Name of city/town/farm/tribal authority:
Name of magisterial district:
If not South Africa, state name of country:"

The first question covered the issue of lifetime migration, while the next two questions dealt with migration during the 12 months preceding the survey. The reference period in the case of both surveys was therefore one year, and this created its own set of problems (as mentioned above). As in the case of Census '96, the absence of any predefined "migration-defining area" could create problems, because there was no clear description of what "this area" entailed. This problem also makes it difficult to determine what the best spatial basis of migration analysis should be. (In a sense, therefore, the reference to "this area" is even more problematic than the reference to "this residence" in the census.)

KwaZulu-Natal Household Survey, 1996

This development-indicator household survey was conducted for the HSRC in the province of KwaZulu-Natal during the period November–December 1996, which more or less overlapped with Census '96. The realised sample size was 6 506 households, with a minimum of 98 per magisterial district, which was the primary domain for the sampling. The following battery of questions was asked (*in respect of the selected respondent only*):

- (a) Have you ever lived in a magisterial district other than where you live now?
- (b) If yes, where did you live before moving to this magisterial district?
- (c) When did you move to this magisterial district?

It should be clear that the magisterial district was adopted as the predetermined migration-defining area in this study. Since the migration questions were asked only in respect of one selected respondent in the household, one could expect the interviewer to help the respondent with information on the district boundaries. Had the information been collected in respect of every member of the household, as in the census, it might have been unfair to expect such interviewer assistance in large households (especially those with adults who had moved independently).

MarkData Omnibus Survey, October 1996

The current author included a battery of migration questions in the national MarkData Omnibus survey of October 1996, which also virtually coincided with Census '96.⁶ The following migration questions had to be answered by *the selected respondent*:

- (a) Have you ever lived outside this district?
- (b) If yes, in which district did you live just before moving to this district?
- (c) When did you move to this district?
- (d) How long have you been living at this address?

The first three questions in the Omnibus survey covered the same topics as the three migration

questions of the KwaZulu-Natal survey. The idea with Questions 1 to 3 was to cater for analyses that required predetermined migration-defining areas, and it was decided to use the magisterial district as one of the most likely spatial units for migration analyses. Question 4, however, was added to help quantify the potential implications for a district-level migration analysis of the census data.

Question 4 was also included to help provide a (partial) solution to the expected problem in analyses of the 1996 census data (which had no *a priori* provision for any "migration-defining areas"). Since the two surveys more or less coincided, it was hoped that temporal differences would not have an effect on the comparability of the data from the census and Omnibus surveys.

By comparing Questions 3 and 4, one should be in a position to arrive at some estimate of the quantitative implications of the absence of a predetermined migration-defining area (in this case, the magisterial district) in the census. With the help of the answers to these questions it was hoped to compensate partly for the absence of a clear migration-defining area (in terms of the time dimension and the expected proportion of non-migratory moves).⁷

The first aim was to estimate the proportion of persons aged 18 years or older (the respondents in the Omnibus survey) who had migrated from outside their current district of residence before they changed residence within the same district. This fraction would indicate the proportion of all migratory moves that would be lost if the magisterial district were treated as the migration-defining area in any analysis of the 1996 census data. The second aim was to find a reasonable estimate of the temporal differences between the actual migration (from another district) and the last move (from another location within the same district) that can be expected in cases where these times actually differ.

Compensating for potential problems in district based analyses of the 1996 South African Census data

The last two questions of the Omnibus survey were designed to put the Census '96 issue of migration-defining areas (i.e. magisterial districts) into some perspective. Responses to the census questions on duration of stay at the current address and the origin of the last move (Questions 4.1 and 4.2 in Box 1) were likely to include information on moves that took place within the same migration-defining area. Using the data from the Omnibus survey could partially compensate for these potential "errors". The extent of two possible errors in the census data (because magisterial districts were only afterwards treated as migration-defining areas) could therefore

be quantified as:

- (a) the estimated proportion of all the recorded moves that should have been identified as *residential mobility* instead of *migration*, by expressing the number of responses with *different* durations of stay (reflected in the Omnibus survey's Questions 3 and 4) as a fraction in terms of the total number of former migrants, and
- (b) the estimated underestimation of the duration of stay in the current *district* relative to the current *address*.

These quantifications are discussed in more detail below.

Estimated extent of recent residential mobility that may be mistaken for migration

Of the total Omnibus sample of 2 231 respondents, 837 (38%) were former movers. Of these former movers, 287 (i.e. more than a third) indicated that the times at which they had moved to their current *districts* of residence differed from the times they moved to their current *addresses*. These individuals were the ones who had moved from one address to another in the *same* district, after having moved earlier from an (in the census unknown) origin outside the current district, and who would have recorded in the census only the origin of the very last move. Therefore, if the Omnibus information were any yardstick, one could predict the expected proportion of people whose last migratory move was not recorded in the census. The number of people expected to have migrated directly to their current *address* at the time when they migrated to the current *district* of residence, was roughly two-thirds (66%) of the total number of persons who ever migrated. These were the people whose information on area of origin was likely to be correct for all district-based migration analyses. The data on migration date and origin for the remaining 34% would, however, be *incorrect*.

Expected underestimation of the duration of stay in the current district

An attempt was made to provide some guidelines on how to deal with the expected underestimation of people's duration of stay in their magisterial district of usual residence. A multiple-classification analysis (MCA)⁸ was conducted on the Omnibus data to estimate the degree to which the duration of stay in the current magisterial district could be estimated and explained with the help of information on a number of other variables.

When interpreting these results, it should be noted that the analysis was restricted to persons 18 years and older. Unlike the situation in the census, where the data on duration of stay at the current (usual) residence (address) were available for all persons in the household (irrespective of age), the Omnibus

data only covered the adult respondents in the household. Also important to note is the fact that the "current district" and "current address" were the places where the person was *interviewed* – not his/her "usual residence" as in the census.

One dependent and nine independent variables were used in the analysis being reported here. The dependent variable for the analysis was the duration of stay (in years) in the current magisterial district. The independent variables (predictors) that were used to predict the dependent variable were the following:

- (a) Duration of stay at the current address
- (b) Type of area (where the respondent was interviewed)
- (c) Occupational status of the respondent
- (d) Marital status of the respondent
- (e) Highest educational qualification of the respondent

The four additional independent variables below were included as control variables. These may be hypothesised to have some important effect on the other predictors in the model without necessarily having any association with the dependent variable.

- (a) Age
- (b) Gender
- (c) Race
- (d) Province

In Table 2 the detailed results of the MCA are given. The *eta* and *beta* values indicate the degree of association between the predictor concerned and the dependent variable. The *eta* values are similar to the Pearson correlation coefficients in an ordinary correlation analysis, while the *beta* values are in effect partial correlation coefficients, which are obtained when the effects of the other variables in the model have been eliminated.

The (expected) close direct association between duration of stay at the current address and length of stay in the current district is clear from the *eta* and *beta* values in the table, and this explains to a large extent the model's relatively high goodness of fit (73%). The adjusted means for this predictor show that the other variables in the model even increased the already large variations in the unadjusted (raw) means.

The *eta* values in the table indicate that three of the control variables (gender, race and provincial location) had no significant relationship with a person's duration of stay in the current magisterial district. Apart from the variable "duration of stay at the current address", the predictors "area type", "occupational status", "marital status" "highest qualification" and "age" also have significant overall associations with the dependent variable (as reflected by the *eta* values). However, these independent variables have virtually no direct (partial) association with the dependent variable (see the *beta* values).

Table 2: Results of the MCA for the estimation of the duration of stay in the current magisterial district

Predictor	Level		Coefficient	Mean duration (years)	
	Description	n		Unadjusted	Adjusted*
Duration of stay at the current address	Less than 1 year	100	-9,80	2,79	3,33
	1,0–2,5 years	73	-8,28	4,20	4,85
	2,51–5,0 years	106	-5,89	6,98	7,24
	5,01–7,5 years	118	-4,39	8,14	8,74
	7,51–10,0 years	88	-2,43	10,33	10,70
	10,01–15,0 years	108	1,03	14,35	14,16
	15,01–20,0 years	96	4,51	18,27	17,64
	20,01–30,0 years	82	12,64	26,69	25,77
	Longer than 30 years	57	23,84	38,30	36,97
	<i>Eta (adjusted)</i>				0,84
<i>Beta</i>				-	0,79
Area type	Rural area	196	-0,24	14,33	12,89
	Urban area (non-metro.)	424	-0,31	13,40	12,82
	Metropolitan area	208	0,85	11,45	13,98
	<i>Eta (adjusted)</i>				0,08
<i>Beta</i>				-	0,04
Occupational status	Professional / Managerial	100	-0,27	10,24	12,86
	Skilled / Semi-skilled	229	-0,19	11,59	12,94
	Unskilled	134	-1,18	9,74	11,95
	Not economically active	365	0,63	16,13	13,76
	<i>Eta (adjusted)</i>				0,23
<i>Beta</i>				-	0,06
Marital status	Married / Living together	518	0,17	14,15	13,30
	Divorced / Widowed	99	0,91	16,79	14,04
	Never married (with children)	81	-0,98	9,33	12,15
	Never married (without children)	130	-0,78	8,64	12,35
	<i>Eta (adjusted)</i>				0,24
<i>Beta</i>				-	0,05
Highest qualification	No formal education	40	-1,35	18,11	11,78
	Primary school only	153	0,46	14,70	13,59
	Grades 7–11	277	0,22	13,51	13,35
	Grade 12 (Matric)	170	-0,18	11,83	12,95
	Post-school qualification	188	-0,25	11,41	12,88
	<i>Eta (adjusted)</i>				0,13
<i>Beta</i>				-	0,04
Age	18–24 years	104	-0,75	14,33	12,89
	25–34 years	209	-1,04	13,40	12,82
	35–44 years	202	-0,64	11,45	13,98
	45–54 years	138	0,96	11,45	13,98
	55–64 years	114	2,09	11,45	13,98
	65+ years	61	0,55	11,45	13,98
	<i>Eta (adjusted)</i>				0,46
<i>Beta</i>				-	0,09

Table 2 (to be continued)....

Table 2 (continued)

Predictor	Level		Coefficient	Mean duration (years)	
	Description	n		Unadjusted	Adjusted*
Gender	Man	382	0,22	12,79	13,35
	Woman	446	-0,19	13,42	12,94
	<i>Eta</i> (adjusted)			0,00**	-
	<i>Beta</i>			-	0,02
Race	African/Black	369	0,26	12,30	13,39
	"Coloured"	79	0,25	15,01	13,38
	Indian/Asian	82	-0,29	14,92	12,84
	White	298	-0,31	13,16	12,82
	<i>Eta</i> (adjusted)			0,06**	-
	<i>Beta</i>			-	0,02
Province	Western Cape	113	0,71	14,29	13,84
	Northern Cape	31	2,14	15,24	15,27
	Eastern Cape	75	1,67	14,45	14,80
	Free State	56	-0,69	12,49	12,44
	KwaZulu-Natal	168	-0,36	13,06	12,76
	Mpumalanga	43	0,64	15,10	13,77
	Northern Province	28	-1,37	11,31	11,76
	Gauteng	253	-0,72	12,60	12,41
	North West	61	0,36	10,70	13,49
	<i>Eta</i> (adjusted)			0,03**	-
	<i>Beta</i>			-	0,08

* Adjusted for all the other variables in the model.

**The (unadjusted) *eta* is not significant at the 5% level.

Overall mean duration: 13,13 years (with a 95% confidence interval of 12,34–13,91 years)

Number of respondents on which the analysis is based: 828

Proportion of the variation in the dependent variable explained by this model: 73%

Multiple correlation coefficient (adjusted): 0,85

Significance of the model: <1%

The coefficients in the fourth column can be used to produce an estimate for the duration of stay in the current district for any individual if information for each of the predictors in the above model is available. For an individual person, the coefficients that apply to his/her profile are summed and added to the overall mean. Let us take a hypothetical case to illustrate the procedure. How long would a 60-year-old, divorced, African woman be expected to have been living in her current magisterial district (say, Kimberley in the Northern Cape province), if the highest school standard that she passed was Grade 10 (Std 8)? She has been living in her current house in Kimberley for 16 years, and is currently working in the sales department of a local store. The calculation procedure will be as follows:

Estimated duration of stay in the district
 $= \text{Mean} + x_1 + x_2 + x_3 + x_4 + x_5 + x_6 + x_7 + x_8 + x_9$

where:

Mean=Overall mean for duration of stay in the current district (i.e. 13,13 years)

- x_1 = Coefficient for appropriate category of "duration stay at current address" (i.e. category "15,01–20,0 years" to cater for the "16 years" = 4,51);
- x_2 = Appropriate coefficient for "area type" (i.e. "Urban area [non-metro]" in this case = - 0,31)
- x_3 = Appropriate coefficient for "occupational status" (i.e. "Skilled/Semi-skilled" = - 0,19)
- x_4 = Appropriate coefficient for "marital status" (i.e. "Divorced/Widowed" = 0,91)
- x_5 = Appropriate coefficient for "highest qualification" (i.e. "Grades 7–11" = 0,22)
- x_6 = Appropriate coefficient for "age category" (i.e. "55-64 years" = 2,09)
- x_7 = Appropriate coefficient for "gender" (i.e. "Woman" = - 0,19)
- x_8 = Appropriate coefficient for "race" (i.e. "African/Black" = 0,26)
- x_9 = Appropriate coefficient for "province" (i.e. "Northern Cape" = 2,14)

This results in the following sum:

$$13,13 + 4,51 - 0,31 - 0,19 + 0,91 + 0,22 + 2,09 - 0,19 + 0,26 + 2,14 = 22,57.$$

Our hypothetical woman could therefore have been living in her current district for almost 23 years. By constructing a series of computer-program statements on the basis of these MCA coefficients, one can cover all the individual profiles. This should cover the main problems.

Conclusions

In the conventional approaches to the definition of migration, two elements – a change in usual place of residence and a move from one migration-defining area to another – had to be present before an occurrence of spatial mobility could be classified as migration. The migration literature indicates that the requirement of *usual* place of residence can confidently be done away with, and the more flexible criterion of a *change of residence* be adopted instead. This implies that short-term migrant labour moves also have to be included in the category "migration".

The requirement that migration should involve a change of *residence from one migration-defining area to another* cannot be scaled down or removed, however. There have been strong arguments not to define these migration-defining areas on an *a priori* basis, but in some cases (such as for censuses and surveys with only a few migration questions) it is advisable to have predefined migration-defining areas. This will ensure that the correct information is obtained.⁹

A partial typology that covers these requirements has been presented, and it is hoped that this contribution will lead to active debates and more research to refine the concepts used in migration research. The problems caused by ill-conceived questions in censuses and surveys should be avoided. For example, the most recent South African census did not incorporate the concept of predetermined migration-defining areas from the outset. This complicates matters for the researcher who wishes to use the data effectively for migration analyses. The migration data from Census '96 are available only at the magisterial district level, and thus certain assumptions will have to be made about the numerical implications of the absence of *predetermined* migration-defining areas in the census data.

Analyses of other survey data indicate that about two-thirds of all the last moves to the current *address* were at the same time also made to the current *district* of residence. To cater for the remaining one-third of the census records, the coefficients needed to estimate the actual duration of residence in the current *magisterial district* from,

among other things, the data that are available in respect of the length of stay at the current *address*, have been provided. The analyses presented here therefore provide some general guidelines in the form of equations for adjusting the recorded census data on the most recent move (i.e. to the current address) to ensure that these conform to district-based analyses. This information only partly compensates for the problems inherent in the recent census. Migration questions in future censuses should be informed by further debate and appropriate research.

Notes

1. A thorny issue that still needs to be resolved is that of defining "activity space" and "activity change". Should the definition of migration exclude "changes in activity" within the same "activity space"? What about changes in "activity space" which do not involve any "activity change"? Should the definition include "activity changes" outside employment and education and, if so, where does one draw the line? Is a change of employer as important as a change in occupation? "Activity change" can therefore not be defined unambiguously. It should be clear that, at this point, "activity space" cannot serve as a criterion for a move to be classified as migration.
2. Of course, there are still debates about the issue of "residence" or "home". Restricting migration to "changes in residence" is seen to exclude homeless persons without any residential address, but then, who said anything about the need for an address?
3. The same problem exists in other countries with such registers. In Indonesia the criterion is six months or "less than six months but intended to stay there permanently", while the Japanese criterion is only three months (Skeldon, 1990:18).
4. In South Africa these could vary – at least in principle – from the enumerator-area level (for geographically extremely detailed analyses) through the district / local government / regional government / province to the country level (for international migration analyses).
5. "Short-term labour migration" qualifies for inclusion because there is no emphasis on *usual* place of residence.
6. The size of the sample for this survey was 2 200, and it was partly stratified according to province.
7. It would, however, remain impossible to compensate for the incomplete information on the *origin* of any move from outside the current district in cases where moves have since occurred *within the same district*.
8. MCA is essentially a multiple regression analysis using dummy variables, and therefore has the advantage of not requiring *a priori* assumptions about linearity of the function, as is the case with ordinary multiple linear regression analysis (Andrews et al., 1973). A further technical advantage of MCA is that it does not require the predictor variables to be independent (as in a traditional analysis of variance), as long as the weighted two-way frequencies of the levels of the independent variables do not have closely overlapping

categories (Andrews et al., 1973:25–27). The data used in the analyses that are described here were tested and found suitable for the application of a multiple-classification analysis.

9. When collecting information on all moves (as for the purpose of life-course migration analyses) or the last ten or so moves, no *a priori* definitions are needed, because these can be formulated and applied afterwards. With only a few questions at one's disposal (as in censuses or other multi-purpose surveys) *post hoc* classifications can be problematic.

References

- Andrews, F.M., Morgan, J.N., Sondquist, J.A. & Klem, L. 1973. *Multiple classification analysis: A report on a computer program for multiple regression using categorical predictors*. Ann Arbor: Institute for Social Research, University of Michigan.
- Bretz, M. 1996. "Migration statistics in Germany: Sources, concepts and selected results". *Espace Populations Societies*, No.2–3: 247–356.
- Gelderblom, D. & Kok, P. 1994. *Urbanisation: South Africa's challenge (Volume 1: Dynamics)*. Pretoria: Human Sciences Research Council.
- Kubat, D. 1976. "Introduction". In: Richmond, A.H. & Kubat, D. (Eds.). *Internal migration: The New World and the Third World*. Beverly Hills: Sage, pp. 9–22.
- McHugh, K.E., Hohan, T.D. & Happel, S.K. 1995. "Multiple residence and cyclical migration: A life course perspective." *Professional Geographer*, 47(3): 251–267.
- Morrison, P.A. circa 1980. "Introduction and overview". In: Morrison, P.A. (Ed.). *Population movements: Their forms and functions in urbanization and development*. Liège: International Union for the Scientific Study of Population (IUSSP), pp. 3–18.
- Pressat, R. & Wilson, C. 1985. "Migration". In: Wilson, C. (Ed.). *The dictionary of demography*. Oxford: Blackwell, pp. 144–145.
- Shaw, R.P. 1975. *Migration theory and fact*. Bibliography Series No. 5. Philadelphia: Regional Science Research Institute.
- Shryock, H.S., Siegel, J.S. & Associates. 1976. *The methods and materials of demography*. Condensed edition by Edward G. Stockwell. Orlando (Florida): Academic Press.
- Skeldon, R. 1990. *Population mobility in developing countries: A reinterpretation*. London: Belhaven.
- Standing, G. 1984. "Conceptualising territorial mobility". In: Bilsborrow, R.E., Oberai, A.S. & Standing, G. (Eds.). *Migration surveys in low income countries: Guidelines for survey and questionnaire design*. London: Croom Helm, pp. 31–59.
- United Nations. *Methods of measuring internal migration*. Manuals on methods of estimating population: Manual VI (Population studies, No. 47). New York: UN Department of Economic and Social Affairs.
- Van de Walle, E. 1982. *Multilingual demographic dictionary (English section)*. Liège: International Union for the Scientific Study of Population (IUSSP).
- Woods, R. 1982. *Theoretical population geography*. New York: Longman.