THE MEASUREMENT OF INTERNAL MIGRATION: 
ISSUES ARISING FROM A RECENT CENSUS IN THE CENTRAL PACIFIC

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In the United Nations Manual on Methods of Measuring Internal Migration it is stated that 'census data have been and still are the major source of information on internal migration in most countries of the world', and that 'until the time when more countries are able to set up efficient systems of population registration, it is likely that censuses will remain the best source of such information' (United Nations, 1970, 3). Over the past fifteen to twenty years there has been a fuller realisation of the potential of censuses for the collection of data on internal migration. Direct questions on this process have been asked in census enumerations in more than 100 countries around the world (Jackson, 1969; United Nations, 1970). Unfortunately, there has not been the expected increase in our knowledge and understanding of migration arising from inclusion of these questions (Elizaga, 1972).

This paper examines a number of issues associated with the collection of information on population movement in national censuses. A case study of the 1973 enumeration in the now independent states of Kiribati and Tuvalu (formerly the Gilbert and Ellice Islands Colony) reviews recent innovations in data collection on internal migration in a Pacific census (Fig. 1). A concluding section contains some suggestions concerning the content and utility of census questions on migration.

ISSUES OF ADEQUACY AND ACCURACY

The basic premise adopted here is that if questions are to be asked about a particular process then the census should be organised to acquire information which meets certain minimum standards of acceptability. The United Nations (1970, 23) outlines two considerations which are relevant here: the adequacy of the data for migration analysis and the accuracy of the responses.

It is very difficult to test the adequacy of data on population movement due to the complexity of the migration process itself. Most reviews of census data, including that by the United Nations (1970), carefully avoid making any definitive statements about adequacy. For example, it has been argued that:

The adequacy of data must be evaluated on the basis of a set of standards acceptable from the point of view of migration analysis. A desirable minimum requirement is that the data be available for reasonably small areal units and that they provide statistics of total in-migration, total out-migration, and net

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migration for each unit. In addition, it should be possible to show for each areal unit how much of the immigration came from each of the other areal units in the country and how much of the out-migration went to each of the other areal units (United Nations, 1970, 23).

This statement raises more questions than it answers. How are acceptable standards determined? What are reasonably small areal units? Why are certain data on total and net flows to and from regions necessarily important in all cases?

The fundamental weakness of this sort of approach is that no reference is made to the concept of migration for which 'an acceptable set of standards' is being established. Data derived from a census cannot be assessed in terms of adequacy unless the user has some understanding of the process that is being measured. In this regard the following observation by Goldstein (1978, 13) is a timely one:

... Even the most comprehensive data will yield only limited results without extensive rethinking of our basic concepts of migration and population movement. Although it is tempting to do so, we must be particularly careful not to generalize too freely to the less developed countries the migration and urbanisation experience of the more developed regions.

This issue has also been taken up by Wilson (1979) who, in an extensive review of the concept of migration, argued that critical definitional issues tend to be ignored by most planners and researchers. In the final analysis, it is a sound conceptual notion of what constitutes migration that underlies the elusive 'acceptable set of standards' referred to by the United Nations in their Manual on Methods of Measuring Internal Migration.

The second consideration, on which a great deal of emphasis is laid in the United Nations Manual, is the accuracy of responses. Obviously, adequacy and accuracy are interrelated: there will be some level of inaccuracy which yields inadequate data. In the United Nations Manual it is stated that the accuracy of response is likely to vary from one question to another, and the conclusion is reached that 'where a population is highly mobile, the resulting inaccuracies of response may be significant'. In this regard it is worth noting that the degree of mobility established for a given population is very much dependent on the definition of migration adopted in a census. Accuracy, like adequacy is influenced as much by conceptual issues as by methodological considerations.

THE 1973 CENSUS IN KIRIBATI AND TUVALU

Planners of the 1973 enumeration in Kiribati and Tuvalu were among the first in the Pacific to heed a suggestion by various United Nations agencies that more questions on migration be included in censuses (ECARE, 1968; United Nations, 1967, and 1970). In previous colony censuses information on two localities, home island and island of enumeration, had been cross-tabulated to generate data on population movement. The 1973 census included questions on two additional localities—a island of usual residence in 1968 and 1973. The Indigenous population of 67,247 could be classified by island of enumeration, island of usual residence in 1973, and home island. Those aged five years and over can
also be classified by island of usual residence in 1968. For this latter group, four geographic reference points and a maximum of three moves were identifiable, whereas for the population aged less than five years only three points and a maximum of two moves could be derived. An extensive analysis of the mover-stayer patterns and migration types that can be isolated using these data is contained in Wilson (1979).

With respect to the provision of data for analysis of migration, the 1973 census compares very favourably with previous enumerations in the former Colony. (McArthur and McAlig, 1964; Zwart and Groenewegen, 1970; Bedford, 1976), as well as recent censuses undertaken in other parts of the Pacific (Groenewegen, 1979). In particular, the extra questions on island of usual residence in 1968 and 1973 made it possible to assess, for the first time, something of the importance of return and repeat movements by migrants, which have emerged as significant dimensions of internal migration from detailed village case studies in various parts of the Third World (see, for example, Bedford, 1973; Chapman, 1976; Goldstein, 1978; Higgs, 1978).

In a number of ways, however, these data proved inadequate for meaningful analysis of internal migration in the former Colony. A detailed examination of definitional issues, spatial patterns of movement, and differentials between migrants and non-migrants (Wilson, 1979) revealed five major weaknesses of the census questions:

(1) the failure to distinguish between ‘rural’ and ‘urban’ areas in all the migration questions;

(2) failure to adopt the most appropriate spatial scale;

(3) failure to include foreigners resident in the Colony in a meaningful manner;

(4) use of the home Island reference point to identify migrants’ geographic origins; and

(5) the failure to derive questions which avoid omission of moves within specified time periods.

The implications of these weaknesses and some possible improvements to the census questions are discussed in turn.

As far as the first limitation is concerned, a sharp distinction in terms of socio-economic circumstances can be drawn between the urban area of south Tarawa and the remainder of the former Colony (fig. 1). This distinction, in itself, constitutes a major explanation for internal migration. Unfortunately the urban south was only specified in the coding scheme for island of enumeration. Failure to code this area separately for the other three geographic reference points prevented a thorough examination of rural-urban migration streams and differentials. To overcome this problem the instruction with regard to place of usual residence in earlier years needs only to be altered to distinguish between the two parts of the Island. There is no need for extra questions or any substantial increase in the census enumerators’ workload.

With regard to the second issue, choice of an appropriate spatial scale is crucial for the collection of adequate data on migration, irrespective of the questions asked or the accuracy of replies (Goldstein, 1978). In the case of the 1973 Census, the minimum spatial unit for which
data on population movement are available is the island. Information contained in detailed socio-economic surveys of selected islands in Kiribati and Tuvalu in the early 1970s suggest that the village would constitute a more appropriate spatial unit for the study of migration especially on the larger islands (Chambers, 1975; Geddes, 1975; Sewell, 1975; Lawrence, 1977; and Watters, 1977). It is obvious from analysis of the distribution of land resources, employment opportunities, and basic social services such as schools and hospitals on larger islands that inter-village migration is quite feasible. The scale problem could be overcome simply by substituting villages for islands in the questions asking about former residence places or reference points. Villages can always be aggregated into larger spatial units when required at the tabulation and processing stage. Adoption of the village as the basic reference point for migration questions would also render superfluous the need to distinguish between rural and urban areas at the enumeration stage and would make for more consistent questions and responses.

As far as the third weakness is concerned, it should be noted that the 1973 census generated no information on the internal migratory behaviour of foreigners enumerated in Kiribati and Tuvalu. Although a small minority (566 or just under 1 percent of the total in 1973), these people tend to have an influence on political and economic changes which far outweigh their numerical strength. Rather than just obtaining information on their countries of origin (the approach adopted in 1973), a preferable strategy would be to collect the same sorts of data as those requested for the indigenous population.

There are no clear-cut solutions for the fourth and fifth weaknesses outlined above, although a variety of options can be proposed. The Gilbert and Ellice Islands Colony was one of the few remaining countries in the Pacific to retain the 'home' island reference point in the 1970s to record a person's geographic origin. Zwart and Groenewegen (1970, 58-59) and Bedford (1976, 13-15) discuss the relative merits of the home island reference point and the most commonly used alternative, place of birth. Zwart and Groenewegen (1970, 60-61) correctly note that an individual's place of birth is, in theory anyway, fixed for life, whereas a person may change his home island at any time. However, as Bedford (1976, 14) argues, their statement that home island 'is often identical with island of birth' is not applicable for a significant proportion of the contemporary population.

The notion of 'home' island, as defined for the 1973 census and two previous enumerations (1963 and 1968) is no longer relevant for an increasing number of children born and raised in locations favoured as migrant destinations, who have parents claiming other islands in the former Colony as home. In their cases, the tendency has been for interviewers to assign children to the home island specified by their father. For the majority (63 per cent) of children under fourteen years of age on islands where wage employment is the dominant economic activity, none of their places of known residence coincided with their home islands. The relevant proportion for children of similar ages enumerated in other parts of Kiribati and Tuvalu was only seven per cent. This discrepancy can be attributed to one of two causes - either, the children migrated to other locations after birth on their home islands, or they were born on their island of enumeration and assigned to the home island of their parents, even though they may never have lived there. Wilson (1979, 56-58) established the likely importance of the latter from some data on the movement behaviour of children in the under five and five to nine year
age groups, and found that a substantial proportion of the migrations recorded to the employment destinations had never occurred. Instead, the children had been born at the destinations and assigned to the home islands of their parents, though they have never visited such islands themselves.

A home island question may be justified for other reasons, since it has a bearing on a large number of social and economic circumstances, but serious conceptual problems arise when it is used as a basic frame of reference for analysis of population movement. As already noted, most recent Pacific censuses include a birthplace question (Groenewegen, 1979). Inclusion of this reference point in census schedules was highly recommended by the United Nations (1967 and 1970). It was assumed that a birthplace question would be answered accurately, because normally the place where a person is born is well-known to those close to him and becomes fixed in his mind.

The birthplace question is not without its problems, however. There is still scope for inadequate data due to:

1. non-response, because birthplace is not known;
2. the incidence of 'delivery' migration, where mothers return to their parental home or travel to a distant hospital for childbirth;
3. deliberate mis-specification, for political or prestige reasons; and
4. boundary perception, for example where a birthplace is absorbed by urban growth.

Of these only 'delivery' migration has been identified as being important in the Pacific region (McArthur and Yaxley, 1968; Lodha, 1977). Where this occurs, birthplace per se cannot give an accurate indication of the geographic origins of young children. Movement following childbirth in an urban hospital does not appear to have been very prevalent in Kiribati and Tuvalu, at least at an inter-island scale, although Zwart and Groenewegen (1970) did refer to the need to avoid this conceptual problem in their discussion of the home island alternative. At the island spatial scale, then, place of birth is probably a more accurate indication of an individual's geographic origin than home island.

If a village spatial unit were adopted, the situation could be rather different. 'Delivery' migration appears to be widespread within islands, reflecting the spatial concentration of medical services in particular villages. In this case, the place of usual residence of the mother would provide the most satisfactory reference point for children at birth even though it may be difficult to define if neither parent is available to answer the question. Overall it would probably give the most accurate indication of individuals' geographic origins at the village spatial scale.

Perhaps the most significant weakness of the 1973 census data was the inevitable failure to identify a considerable amount of return and repeat migration. A comparison between the migration behaviour of Tuvaluans enumerated on Nanumea in the official census and work experiences of adults interviewed there by Chambers (1975) in 1973 revealed that the census questions failed to identify many two-way moves.
The census established that 27.8 per cent of the adult males had lived off Nuanee, whereas Chambers (1975) found that 67.3 per cent had worked off the island. This discrepancy highlights an inadequacy of the birth to 1968 and the 1968 to 1973 temporal scales which define moves in the census. In the case of movements during the 1968-73 intercensal period, this is serious because the census cannot provide adequate data on contemporary migration behaviour unless it captures a significant share of the relevant movement.

Various alternatives can be suggested to reduce the volume of movement omitted. The first involves replacing the two place of usual residence questions with a pair to elicit information on duration of residence and place of last residence. The existing questions on 'usual residence' at particular times are more likely to be answered inaccurately, since it is reasonable to assume that people will have greater difficulty recalling when they were living at some arbitrary place in the past than where they were in residence previously and/or the duration of their present stay. However, any advantages duration of residence and place of last residence may have in terms of accuracy are outweighed by analytical problems. These two questions do not provide a uniform temporal reference for moves and it is difficult, therefore, to compute meaningful intercensal migration rates and to compare results in successive censuses. More significantly, their substitution by duration of residence and place of last residence questions will not generate any more information on migration.

Another alternative involves supplementing the two place of usual residence questions spanning the intercensal period with a question which refers to numbers of moves during the interval. A further place of usual residence question referring, say, to the mid-period year is not very desirable. Although such a question would identify some of the intra-period moves, it merely divides the interval without giving any indication of how many moves are still missed, or identifying migrants who have not made any intermediate moves.

A similar, but much better, option would be to ask the two questions on place of last residence and duration of present residence in addition to the two usual residence questions. This would ensure that a distinction could be drawn between all the migrants who had moved once during the interval and those who had moved more than once. It would also give some indication of the temporal scale relevant to third and subsequent moves. Where a person had lived at their current residence longer than the five years spanned by the place of usual residence questions, additional information relating to the coincidence of place of last residence and home island would also be forthcoming. Some indication of intermediate moves in the period before the previous enumeration may also be obtained.

If the objective is to collect information on the incidence and volume of migration within discrete periods, the most desirable alternative would be to supplement the two usual residence questions with an open-ended question asking people to write down all their places of residence (with relevant dates) for the intercensal period. This option would necessitate the collection of recent migration histories. Although there would be few ways to check the accuracy of responses, and the analytical and tabulation requirements would be greatly extended, recent exploratory work with life history data by Parham (1976) and Loury (1977) suggests the numerous methodological problems are not insurmountable.
SOME WIDER IMPLICATIONS

In the discussion so far the aim has been to evaluate aspects of a census strategy to generate data on internal migration in a particular enumeration in the central Pacific. This evaluation needs to be assessed in the wider context of the entire census exercise, because many of the suggestions we make involve adding new questions to the census schedule, and almost all of them would require more elaborate data processing to realise the more useful information on population movement. We appreciate that censuses are very costly exercises to undertake and that enumeration and processing costs make it desirable to keep the number of questions on a census schedule down to a minimum. Nevertheless, if it is considered desirable to collect information on a particular process in the first place, then sufficient questions should be included to ensure that this information is adequate, accurate, and above all, relevant to the needs of planners who constitute the most important users of census data. Otherwise it can be argued that collection of the information involves a waste of valuable financial resources and schedule space. The wider implications of these considerations for census enumerations in Kiribati and Tuvalu can be explored by examining the time span over which questions on migration should be asked.

Every five years

From 1963 censuses have been held every five years in the two countries, and questions on migration have been asked in all these enumerations. The alternatives suggested earlier point to the desirability of including one or two additional questions if useful data on population movement are to be generated. Consistent with comments on length of schedule and costs of enumeration and processing, a decision would have to be made either to lengthen the schedule or to drop questions on other subjects. Repeating the questions asked in 1973 with modifications outlined in the previous section every five years will realise considerable cross-sectional data on migration during five year periods. However, there is a real danger that differences in migration rates will not necessarily reflect changes in movement behaviour. This is especially the case where return migration is significant in the movement streams. If the return migrants spend longer than five years away from their home islands at just one place, their original moves and subsequent return moves will be recorded in successive censuses. For example, successive censuses may record increasing net flows in favour of migrants' home islands. These flows could reflect the return of migrants who left during earlier census periods, as opposed to a change in the perceived attractiveness of these islands as migrant destinations during the current period being examined.

There seems to be little justification for repeating questions of the kind asked in 1973 every five years unless up-to-date information on migration is required, and the census information can be processed and analysed at least before the next enumeration. Regrettably there are usually long delays between enumeration and publication of results. However, if individuals could be identified in the census data from one census to the next, then a strong case for repeating the same questions every five years could be made. In this situation every individual would have a code number which would be used at each census. Successive censuses would add to the collection of complete migration histories for
persons who had not attained the age of five when the first such enumeration was undertaken. For older members of the population, the histories would only refer to the latter part of their lives.

Such a strategy is unlikely to be adopted in the foreseeable future, because of strict confidentiality requirements embodied in legislation covering census enumerations. It is worthwhile noting however that this strategy would eradicate any need for population registers which the United Nations (1970, 3), for example, regard as the most preferred source of data on migration. Indeed in some cases, such as dispersed archipelagos in the Pacific basin, the census strategy outlined above may generate more adequate and accurate data much more cheaply than a continuous population register programme.

Every ten years

Because censuses are very expensive to run, the situation whereby enumerations are undertaken every five years may well change now that Kiribati and Tuvalu have obtained independence. The governments may decide to follow a number of other Pacific countries and hold enumerations every ten years. A decennial census would involve asking selected questions on migration for the preceding ten year period. This could be organised in two five yearly blocks which were delimited by place of usual residence questions asking for people's residences ten, five, and zero years ago.

Some factors which should be taken into account when setting the length of the interval are outlined by the United Nations (1970), including:

1. the need for the interval to be long enough to permit accumulation of enough relatively permanent period moves so that the analyst can detect prevailing patterns of migration and can depend on finding numerical frequencies that are reasonably free from chance variations; and

2. the need to consider effective recall (including the likely accuracy of responses) bearing in mind age distribution and attrition due to mortality.

Serious doubts can be raised about the accuracy of answers to census questions on previous residence over the period of a decade. A significant proportion of a population which is very mobile may have difficulty in recalling place of usual residence ten years ago (Bedford, 1973 and 1975). Also, if an open-ended question was used to record residence places and dates of residence in the intercensal period problems of effective recall (i.e., omission and/or incorrect information about residences) could be expected especially for the first five years. Having regard to all these factors, the United Nations (1970, 39) concludes that an interval of five years is probably the most useful.

A compromise

Both of the options outlined so far have a number of disadvantages. Adequate migration questions administered every five years would cost a great deal of money, and would necessitate a much greater commitment to
data processing and analysis. In spite of the prospect of generating more useful data for planning purposes, financial and analytical pressures probably tip the scale against this strategy. Questions spanning a ten year cycle can be dismissed because of serious conceptual and analytical limitations. However, a compromise is possible. A strong case can be made for asking for information on migration in every second five year census enumeration, or alternatively for the latter five years in every ten year enumeration, so long as the best possible combinations of questions are chosen. In the cases of Kiribati and Tuvalu this could be equivalent to deriving migration history data for five yearly periods every decade.

Such a strategy would provide census data on migration which could be supplemented by information gained in the intervening years from other sources such as detailed mobility studies using localised prospective mobility register and migration history approaches. These methods for collecting data offer greater flexibility than the national census enumeration, and can be tailored to provide answers to specific queries through adjustment of the temporal and spatial domains over which they are undertaken. Census data on population movement, however, provide an invaluable source of bench-mark data for these small-scale intensive studies.

One of the most frequent drawbacks of recent censuses is a lack of consistency in questions. This must be avoided if meaningful analysis of the migration process is to be undertaken over time. Those responsible for devising census schedules also should endeavour to select migration questions which meet rigorous conceptual criteria. In this regard, the following comment from the United Nations Manual on the Measurement of Internal Migration (1970, 23) provides an appropriate conclusion to our argument: 'In assessing the potential value of these different approaches, it should be kept in mind that the desire to confine the inquiry on migration status to a single question should not be allowed to outweigh considerations of quality and usefulness of the results.'

REFERENCES


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