

I. REVIEW OF SOURCES OF DATA FOR MIGRATION PROJECTIONS

The three tasks of preparing migration data for subnational projections require three different types of data: (a) base-period estimates of the level or rate of migration between regions; (b) estimates of the age and sex distribution of migrants in different streams; and (c) indicators of likely future trends in migration. Sources for the first two types of estimates are discussed in this section, while the third type of estimates is discussed in chapter IV.

The different sources of migration data are discussed in order of usual preference. In general, the best source of migration data for projections is a census with a question on place of residence at a fixed prior time. If such a question was not asked, the next best alternative is usually a census with a pair of questions on place of previous residence and duration of residence. If neither type of question was asked in a census, migration estimates may be obtained from a large-scale survey or, in a few instances, from population registers or other administrative records.

The types of data for migration estimation and their strengths and weaknesses are discussed extensively in the literature on demographic techniques (see Shryock and Siegel, 1973; United Nations, 1970; Arriaga, 1977; Bogue, Hinze and White, 1982) and are reviewed only briefly here.

A. CENSUSES

Censuses usually provide the most complete count of the population by current residence. The exact definition of place of residence used in the census is very important to migration. If the census is taken according to legal residence, many migrants who have not yet changed their legal residence to the place of destination are not counted as migrants. If, on the other hand, a strict de facto definition is used, many short-term visitors to an area will be counted as migrants. Most countries use the concept of "usual place of residence", which is intended to avoid the two extremes represented by legal and de facto definitions but which can still vary considerably the way it is applied to recent migrants.

The main advantages of censuses is that they provide both fairly complete counts of persons in all geographical areas and estimates with either no sampling error or minimal sampling error. The disadvantages are related to the large scale of the operation, which limits the number of questions that can be asked about migration, interferes with the quality of reporting, and makes it expensive both to code places of origin and to tabulate and publish all the desired information on migration.

As of 1970, most censuses collected some information on migration. According to a United Nations survey of 121 countries (United Nations, 1978), 107 collected data on place of birth, 91 on place of previous residence, 70 on residence, and 75 on place of residence on a particular date in the past. The last-named question, which is best suited for estimating base-period migration for regional population projections, was available for 60 per cent of the countries surveyed. Although results of a similar survey of migration questions are not yet available for the 1980 and 1990 rounds of censuses, it is expected that the percentage of countries using a fixed-period migration question will have increased.

Although questions on migration were asked in the majority of censuses, they may not have been coded or tabulated appropriately. Even in the United States of America, where there is a very large budget for census operations, budget restrictions, prevented the coding of more than one half of the migration data collected in 1980. In many countries where questions are coded, only simple frequency distributions are published, and the necessary cross-tabulations, such as migration by age, sex and regions of origin and

destination, are not published. The lack of necessary tabulations should become less of a problem as more countries use computers for processing, because the cost of tabulating large data sets continues to decline.

B. SURVEYS

Surveys have the advantage that more questions can be asked about migration, and the costs of coding and tabulating the data are rarely a barrier to obtaining the results. In few surveys, however, is the geographical representation adequate for use as accurate measures of the volume of migration. Even when the surveys are taken in each of the regions of interest, the samples within the regions tend to be highly clustered and the clusters may not adequately represent the destination of migrants within the regions.

An analysis of the 1976 intercensal survey in Indonesia (Speare, 1979) shows significant underestimation of migration to areas of rural resettlement in the outer islands. Although 247,500 migrants had been recorded in the Government's programme and considerable numbers of unsponsored migrants had been observed in these areas, only 171,200 were estimated from the survey results. Speare attributes the difference to the fact that although the survey included over 60,000 households, they were clustered in some 770 villages and the chances of missing the main resettlement areas in a random sample were high. A similar result was observed in the 1985 intercensal survey (Mantra, 1986).

Another problem with survey samples is that they tend to be based on previous censuses or registers which do not include new areas of settlement within the region. Nevertheless, surveys can be useful in identifying some groups of migrants which may be missed in a census using a definition of residence that excludes these groups. In particular, surveys can provide information on sequences of moves and their timing which can be useful in correcting census data based on previous place of residence. Surveys can also provide age and sex distributions and distributions of other characteristics of migrants.

C. REGISTRATION DATA

Only a few countries have sufficiently complete household registers to be useful in the measurement of migration. Most of these countries are in Europe, although China, Japan and the Republic of Korea have registers that have been used for migration. Even when the registers are reasonably complete in terms of inclusion of the total population, they are not necessarily accurate in terms of current residence. In an evaluation of the household register at Taipei, Taiwan Province of China, Speare and associates (1975) found that 12 per cent of the people in a random sample of neighbourhoods were not registered in the neighbourhood and 14 per cent of those registered as living in these neighbourhoods were not actually living there. Much of the problem is due to a lag in the reporting of moves. Because the register serves as a proof of legal residence, however, people may sometimes prefer to maintain their registration at a place other than their usual place of residence. Some rural-urban migrants remained concerned about village politics and wanted to be able to continue to vote at their place of origin. Others who lived outside the city maintained their registration in the city to enable their children to attend city schools, to be able to own property in the city or for other legal reasons. Although there are penalties for failure to be registered at one's place of usual residence, these penalties are small and registration officials are too busy to seek out people who fail to report changes of address.

Despite these problems, household registers can provide annual data on migration for all geographical areas. They may also provide tabulations of migration by age and sex.

In addition to household registers, the amount of information collected by Governments for other purposes may be useful in estimating migration. In the United States, base data on migration streams between states is obtained from tax records. Because a substantial majority of American households file tax forms each year and because they are required by law to enter their social security number and current address, computers are able to match records for adjacent years and count the number of movers (see Wetrogan and Long, 1990). However, because low-income persons are not required to file tax forms and because persons entering the labour force or entering the country may not have filed in the previous year, only about 80 per cent of the population are covered by matching tax records for adjacent years. Although migration rates are based only on matched records, when these rates are applied to the total population, it is assumed that the uncovered population moves at the same rate. Wetrogan and Long (1990) compared these rates with census and Current Population Survey rates for comparable periods and found that the differences were small.