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Internal Migration: What Data are Available in Europe?

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The article discusses selected theoretical problems of measuring and collecting data on internal migration. It reports on the results of a survey of the National Statistical Offices of the member states of the Council of Europe, in which information was gathered on the kinds of internal migration data available. Summary tables contain a wealth of information about the nature of data on the internal migration produced by Council of Europe member states, using a migration cube framework developed by Rees and Willekens (1986). A key finding of the survey is that there is a great deal of detailed data on migration within countries that could be used to produce a comparative set of measures of migration. Of the 28 countries surveyed, one-half produced migration data mainly from Registers, while four countries relied principally on the Census as a source for internal migration information. Six countries reported that internal migration could be derived from both Registers and Censuses. Two countries depended on a comprehensive survey of migration, while another two used a mixture of Census information and a sample survey. The special features of internal migration data are outlined in Section 3.

1. Background to the Research

1.1. Why internal migration is important

On the regional level population redistribution in Europe occurs mainly as an effect of internal migration. It is therefore important from the point of view of policy makers, planners and academia to realise what were and what are the patterns of population redistribution over the last decade, and what lessons we can learn from the past. Knowledge of internal migration is crucial in the construction of population change accounts for subnational areas within countries and in the forecasting of that change. However, migration has a wider significance because it is a reflection of economic, social and environmental processes at work (Commission of the European Communities, DG V, 1994).

Among researchers who specialise in migration there is little doubt that regional differentiation in the economic situation and the level of the quality of life have profound impact on migration decisions. The evidence is scattered in a vast literature and will not be discussed here. Some examples of the impact of the economic situation on mobility

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will be given below. Per capita GDP varies substantially across Europe's regions (see European Commission 1994a, Maps 8 and 25). For example, for Germany GDP per capita oscillates between more than 127% of the EU average in Bayern to less than 73% of the EU average in all former East German Länder. Similar differences exist between the North and South of Italy and in Central Europe where urban centres are witnessing very fast economic growth, whereas some rural peripheries suffer from stagnation or further decline.

Another important factor which may trigger migration is unemployment (see European Commission 1994a, Maps 11, 26, and 27). In the EU countries the largest differences can be observed in Italy and to a lesser extent in Germany. Similarly large differences may be seen in Central and East European countries, where in many cases the unemployment growth is in reverse proportion to the size and centrality of location and, at least in Northern part of the region, increases from West to East.

The reaction of population, in terms of migration, has varied substantially from country to country. A recent book on Population Migration in the European Union (Rees, Stillwell, Convey, and Kupiszewski 1996) provides a useful insight into current trends. In wealthy European countries, migration flows clearly lead from poor to rich areas. This phenomenon has been clearly documented in the case of Germany (Gatzweiler and Bucher 1996), France (Baccaïni and Pumain 1996) and Italy (Bonaguidi and Terra Abrami 1996). In the research, which followed this survey of data sources, an attempt was made to go one step beyond existing international comparative research on population migration. This was done first by using unified methodology leading to comparable results and second by using smaller spatial units than the territorial units used so far, therefore extracting more useful information (Rees and Kupiszewski, forthcoming).

1.2. Aims

The aims of this article are two: (1) to provide a theoretical framework for a survey of data resources available for the study of internal migration in each of the Council of Europe members by making the conceptual use of a migration cube, by highlighting the distinction between transition and movement data, and by analysing factors important for an international comparison of intensities of internal migration; and (2) within the theoretical framework set up above to provide an inventory of data on migration available in the member states (as in June 1995) of the Council of Europe. Some of the smallest countries have been omitted from the analysis as were countries which joined after the questionnaire on the data had been circulated (see Table 1 for a full list of countries covered in this research).

1.3. The definition of internal migration

Let us begin by defining what we mean by *internal* migration. Internal migration is the movement of people between permanent residences within the territory of the country. There are several aspects involved; the role of space, the role of time, the actors involved and their characteristics.

The role of space. Some students of migration have placed restrictions on the definition, for example, by defining migration to be nonlocal and migration to be between localities. There is, however, great difficulty in defining what a locality should mean in different

countries. Tying the definition of migration to a certain spatial scale prevents the researcher from using the only strictly comparable measure of internal migration, namely, change of residence. It is, however, important to recognise that the meaning of migration shifts as the spatial extent increases. The probability that the change of residence for the migrant household will also mean a change of job and workplace increases as the distance of the migration increases. It is also well known that the distance between places influences the volume of migration between them. One interesting development in the 1990s is the increasing freedom of movement between European Union member states. These international migration streams are becoming more like internal migration and have been treated differently from other international migration in some European Union national and regional projections (Rees 1996).

The role of time. In migration studies the role of time in measuring the phenomenon is crucial. When does a temporary migration become a permanent one? This was a particular problem in some Central and Eastern European states in which migrants had to acquire residence permits in order to move. Temporary permits were much easier to obtain than permanent and much temporary migration was disguised permanent migration. The time period of measurement also affects the level of migration when a retrospective question is asked in a census or survey. There is a nonlinear relationship between the level of migration measured and the time interval of the question because of return and repeat migration.

The actors involved. Migration can be undertaken by individuals or by small groups, such as households. Most statistics provide information about migrants as individuals, though most migrants move as part of larger households.

The characteristics of migrants. To understand the nature of migration it is necessary to know what kinds of people are taking part. The most crucial attributes are those of sex and age: Migration is associated with major transitions in the life course that persons or households go through, which are associated or linked to their age. Other socio-economic attributes are also important, though there is much less information on a cross-national basis.

These four dimensions need to be borne in mind when carrying out comparative cross-national research.

1.4. The theoretical framework: the migration cube

Previous comparative work carried out in the 1970s and 1980s at the International Institute for Applied Systems Analysis (IIASA) under the direction of Andrei Rogers (Rees and Willekens 1986) provided a very useful conceptual framework for the collection of data on migration. The first concept is the ''migration cube'' or three dimensional array of migration flow data needed for input to multiregional population projection models (Figure 1). The three dimensions of the cube are *origin*, *destination* and *age*. Very often only data corresponding to the faces of this cube are available: the matrices of migration by origin and destination, by origin and age, and by destination and age.

Let us consider a number of migrants from region i to region j at the age a, where $i, j = I, \ldots, n$ (n denotes the number of regions), $a = I, \ldots, x$ (x denotes the number of age groups, usually either a single year or five years long). All data referring to numbers of migrants migrating from i to j at the age a can be conveniently arranged into a three

dimensional array of flows by age origin and destination ($x*n*n$ elements) later on referred to as a full array of flows. Diagonal values for $i = j$ are not relevant and should be set to 0 for this specific migration system, even if they are of vital importance for other purposes, such as the assessment of overall mobility. Having a full three dimensional migration array, we may obtain faces of the cube by summing cells over one dimension. For example, by summing over age we receive a two dimensional origin-destination matrix (face) of $n*n$ elements. This matrix tells us how many people migrated from region i to region j. We will not know the age distribution of the migrants as this information has been lost in the process of summing up. By summing over all destinations we will get origin by age matrix (face) of $n*x$ elements, specifying where migrants come from and the age structure of migrants from each origin. We will not know where the migrants go. The third possibility is to sum over all origins in order to get an age by destination matrix (face). The next step is to further sum up over one of the dimensions of any of these two dimensional matrices. For example, if we sum origin-destination matrix over all origins, we will obtain a vector (edge) of destinations which represents the inflows to each of the regions without the information either on age or on origin of migrants. The same vector may be obtained by summing up age-destination matrix over age. We can get three vectors (edges): x-elements vector of the age structure of all migrants, and two n-elements vectors of the source of all migrants and of the destination of all migrants. Each of these vectors may be obtained from two dimensional matrices in two ways. Final reduction of the dimension of information available may be obtained by summing up elements in any of vectors (edges), resulting in a scalar denoting the total number of

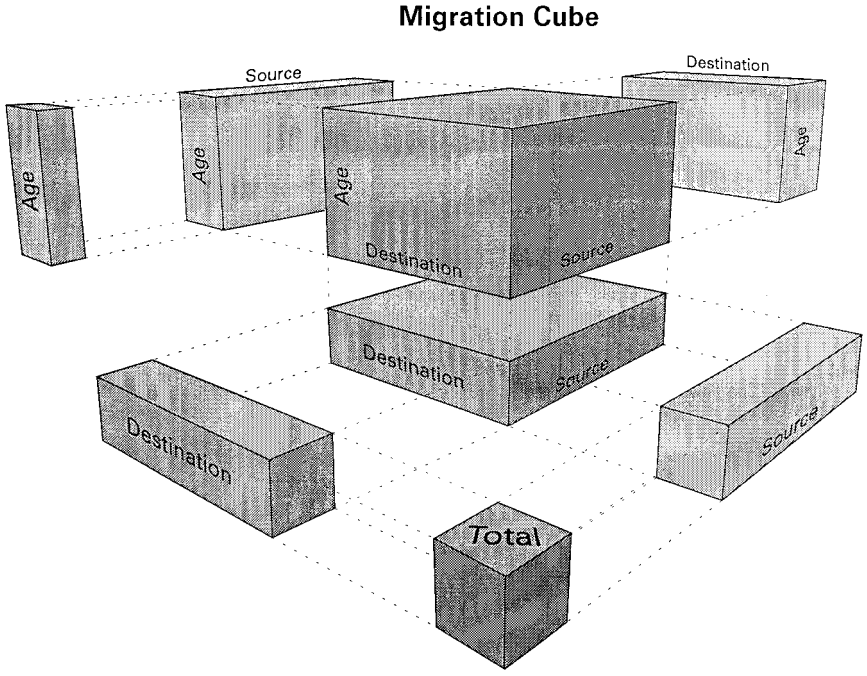

Fig. 1. The migration cube

migrants in a given regional setting. It does not matter which vector elements are summed up as in each case the result should be the same.

In practice, however, we rarely reduce the information we have. It is more frequent that we have the total number of migrations or one or more of the edges or faces of the migration cube and we have to estimate the full array of migration. The methodology of such estimates has been presented in Rees and Willekens (1986).

This conceptualisation is extremely useful for collecting information on what migration data are available in various countries, since it allows for a simple classification as well as a quick assessment of estimations necessary in order to bring all country data sets to the same standard in terms of the level of aggregation/disaggregation.

1.5. The theoretical framework: movement versus transition approach

The difference between various types of migration data have been known for a long time (Courgeau 1973a; Rees 1977). A finding from the IIASA work (Rees and Willekens 1986) was that it was very important to make a distinction between migration data recorded as relocation events (information typically derived from the change of address records of Population Registers) later on referred to as the movement approach, and migration data recorded as persons making a relocation transition over a fixed time interval (information typically derived from retrospective questions in censuses or household surveys) later on referred to as the transition approach.

In the former case we count all migrations (events) one by one. That means that if one migrant makes several migrations over a period of measurement each of these migrations will count separately. The death of a migrant has no influence on the migration count as his or her migration(s) took place between the start of a period and the time of death. If a migrant was born in the middle of a period of measurement and subsequently migrated, his migration will count as well. Return migration (from i to j and then from j to i) will count as two independent migrations. The count of migrations is in principle linearly dependent on the period of time, disregarding fluctuations which occur in time, and which depends on seasonal or external factors, such as the economy. Therefore movement data are additive.

Registration is the most exact form of gathering data on migration; it is particularly useful when longitudinal data for each individual are available as in some Scandinavian countries. It is, however, very expensive as it requires maintaining an administration able to collect and process the data. It also imposes on inhabitants of a country a requirement to report each change of the place of residence, which in some countries is considered a limitation on civil liberties. For these reasons some countries do not maintain information on migration in their population registers.

The other source of data on migration is obtained by a comparison of place of residence in two points in time. This information is often collected during censuses of population by asking a retrospective question. The question asked is about the place of residence either at a specific date or some (often one or five) years previous or at the time of the previous census. This allows for cross-tabulation of places of residence at the beginning and at the end of the period specified in the question. This approach is called the transition approach. It captures the result of all aggregated migrations of an individual over a period

of time, irrespective of the actual number of migration (events). It does not capture return migration at all (from *i* to *j* and then from *j* to *i*) if it occurred over the period covered in the question. Nor is the mobility of persons who had migrated and subsequently died over this period available (this information may be extracted by a comparison of the place of residence at the beginning of the period against the place of death, but this requires record matching and is not a routine procedure conducted by statistical offices). Migration of children who had been born and migrated during the period of measurement are accounted for. During census tabulation his or her place of residence at the start of the measurement period is frequently assumed to be the place of birth. Multiple migrations are not accounted for and are only represented as a transition resulting from the sum of migrations of an individual.

The period of measurement has an effect on the transition count. The longer the period, the smaller the intensity of migration as more multiple and return migrations (events) are not captured. The relation between the duration of the period and migration rates is non-linear and the transition data are nonadditive. The relation between one-year and five-year migration data have been discussed in general terms by Kitsul and Philipov (1981). The effect of the period of measurement has been estimated for the UK by Rees (1986) and found to be significant.

The transition data lose some detailed information available from movement data. It was proved that they can be used in migration analysis on the condition that a user is aware of differences between the two types of data and is able to apply relevant methodologies to calculate migration rates and probabilities.

Two other questions frequently asked during the census – about place of birth and about previous place of residence – give inferior quality information on migration as they do not allow for the capture of mobility over a specific period of time.

1.6. The theoretical framework: issues on the comparability of the measurement of mobility

In practice, a strict comparability of data on migration in various countries is very difficult if not impossible to achieve. There are four main obstacles;

- differences in definitions of migration (Poulain 1994)
- differences in the sizes of spatial units for which data are collected (Courgeau 1973a)
- differences in time periods over which data are being collected (Rees 1977; Kitsul and Philipov 1981)
- differences in the type of data being collected (Courgeau 1973b; Rees 1977)

1.6.1. Differences in definitions of migration

Differences in definitions of migration and a migrant used in various countries concern mainly the concept of residence, the minimal period of absence, the minimal distance of a move (Poulain 1994) and on an operational level, the mode of collecting and processing the data. Research by Kupiszewski (1988) has shown that there are differences in definitions of migration which contribute most to the explanation of the differences in the results of multiregional population projections in which two different types of migration

data have been used. So far an international harmonisation of the definitions of internal migration and internal migrant is a distant dream of demographers and statisticians. All comparisons will suffer considerably from the lack of agreement on these crucial issues.

1.6.2. Differences in the sizes of spatial units for which data are collected

Usually a definition of migration adopted by statistical offices implies that migration is being counted only when a migrant crosses a boundary of a spatial (in most cases administrative) unit. The effect of the size of spatial units on the migration count have been known for a long time. A good example covering the extreme situations is to consider a system of one spatial unit equal to the whole country and another system where a place of residence of each individual or each household will constitute a spatial unit. In the former case there will be no internal migrations at all as all migrations will be contained within the boundaries of a country. In the latter case each single move will be counted presenting an ideal situation of full information on mobility. Neither situation happens in practice. In most cases migration count is available for a range of units from large (such as *Länder* in Germany or *Régions* in France) to small, such as municipalities (the Netherlands) or communes (Austria). Census tabulations are sometimes available for even smaller units, such as wards in England and Wales, or postcode sectors as in Scotland.

As Courgeau (1973a) has shown, it is possible to compare the mobility measured for spatial units of different sizes if the migration count is known for at least two different spatial levels. Courgeau plotted migration intensities against a logarithm of the numbers of regions and fitted a line which allowed for estimation of the number of transboundary migrations as a function of the number of regions. The number of regions is not the only possible measure of the spatial scale. Population density or average area of regions are the most obvious but not exclusive alternatives. Fitting an appropriate regression line and considering its slope, we may obtain a comparable measure of migration independent of the size of regions used.

1.6.3. Differences in time periods over which data are being collected

Provided that the level of migration is stable over the period of measurement, its length does not matter when movement data are being used. It is advisable to use at least annual data in order to avoid seasonal fluctuations. For transition data, the duration of the period of measurement is of crucial importance. This fact has been noted in Rees's article (1977) and some effort has been made to estimate the effect of the length of the measurement period on migration intensities. Rees (1977, p. 248) calculated that in the United Kingdom five-years migration rates were between 2.01 and 3.98 of corresponding one-year migration rates, depending on the region for which calculations have been made. Therefore, five-year rates differ significantly from five times the one-year rate. Other authors have different results for their countries, which suggests that it may be impossible to offer one universal multiplier for all countries.

1.6.4. Differences in the type of data being collected

Different types of migration data have been discussed in Section 1.4. This section shows that, given the problems described above, we are able to compare processes and trends in

internal migration observed in various countries, but so far strict numerical comparison is difficult.

2. Data Availability and Comparability in Council of Europe Member States

2.1. The questionnaire on internal migration

To fulfil the second aim of the article (see Section 1.1) a questionnaire was prepared and sent to the Central Statistical Offices of each of the Council of Europe states. The structure of the questionnaire was devised from theoretical considerations outlined above. The questionnaire asked for information about the data collected within each country using one of the three principal instruments, namely, Registers, Censuses and Surveys. Information was collected on the availability of data necessary to construct the migration cube or one at its faces at various spatial scales. Information was also collected on sex-specificity and type of data. The questionnaire consisted of a set of ten tables, which contact persons at the Statistical Offices were asked to fill in where appropriate. The Central Statistical Offices provided rapid and helpful returns, for which we are very grateful. A first draft of the report was sent to the national offices of all 28 member states, and numerous comments were received which have been incorporated in this article. This procedure was repeated and in this version comments have been included that were received as a result of circulation of the second draft.

We now describe the results of the 28 country surveys on the availability of data on internal migration in general terms in the next section, while highlighting features of individual country data in Section 3.

The tables summarising the returns from the questionnaires have consolidated notes at the end of the set of tables. The tables have some general features which are described initially, before a more detailed account of the findings of each table is given. The rows of the table refer, in blocks, to the countries surveyed. The columns refer to features of the data potentially available. In Table 2 (see Appendix) only those countries are listed which provide migration data from registers, while in Table 3 only those countries with censuses or surveys providing migration data are listed. Table 4 summarises the information about the spatial scale at which migration data are reported.

The questionnaire included tables requesting information on net internal migration from population registers and on components of population change (fertility and mortality), to allow for the case where no information was available from any other source on internal migration. Most countries reporting availability of internal migration from Registers (or near equivalents) are able to make similar information available for populations, population change and the vital components, with the exception of net international migration.

All countries are able to provide population counts or estimates by age and sex for those spatial units for which migration data are available.

Table 1 summarises the sources of migration data and provides a complete list of countries. The majority, some fourteen, use registers as their only source of information, while four mainly use periodic censuses. Six countries, Hungary, Romania, Slovenia, Spain, Switzerland and the United Kingdom, have access to both registers and the census

as sources. Both the Czech and Slovak Republics use a migration survey for inter-area migrations. The survey is comprehensive but not linked to a population register. Ireland and Portugal rely on the Labour Force Survey (a common survey across European Union countries) for migration information. Portugal also uses Census data. There is a question on migration in the latest Eire census (1991) and migration tabulations have been produced.

There is a clear implication of this concentration on the register as a source: a comparative study of the socio-economic characteristics of migrants is not possible because only censuses, in general, provide the information on such migrant attributes. There are countries which use unique identification numbers for every individual living in the country which can be used to match information in different registers to obtain socio-economic information for internal migrants. This is possible, for example, in the Nordic countries. However, it will be some time before other registration systems provide such sophisticated data linkages. The alternative might be to use a common survey such as the Labour Force Survey (LFS) which enables migration status to be cross-tabulated against other characteristics, but the LFS is only common to European Union countries. The sample nature of such surveys means that the spatial detail is coarse and the confidence band around any statistic for a subnational area is rather wide. The only feasible comparative study is one that is restricted to the demographic attributes of age and sex, and which deals with the socio-economic linkages at a macro rather than micro scale.

2.2. Register data: the full array of migration flows

It is clear from Table 2 that there is a wealth of migration flow (interaction) data available across Europe, which has been hardly touched in academic or governmental research. In most of the countries flow matrices are available down to the district scale (see the Spatial units column). By district we mean the unit of local government which provides a wide range of services for its inhabitants. Data are available for ten or more so years in many countries. The time series are rather short for countries created or united after the fall of the Iron Curtain (Estonia, Germany, Latvia, Lithuania), though data for earlier years may be available. In Estonia the migration event data are preserved in the State Statistical Office from 1986, but await processing at regional level.

The existence of flow matrices at a quite fine spatial resolution means that in a comparative study use of a coarser, but more comparable network of areas, is very easy in these countries. The finer scale matrix can be aggregated. It also means that migration intensities (occurrence-exposure rates) can be measured at a variety of spatial scales and related to the number of areal units and their population size; a replication of the work of Courgeau (1973a) on overcoming the distorting effect of space on migration measures would be possible, for example.

In some countries, migration flow matrices are available by quarter or month, but in most only annual data are available. Annual data have the advantage of avoiding the seasonal fluctuations characteristic of migration. The existence of some long time runs suggests that an analysis of the stability of interaction patterns would be possible.

The picture in terms of the availability of age and sex breakdowns of migrant flows is mixed. The larger the spatial scale, the higher the probability that some age classification would be available, but for finer spatial scales such breakdowns probably result in too sparse arrays.

The data sets involved for full flow arrays are quite large and there are rather few matrix datasets on the shelf (already created). So any comparative work involving examination of the interaction of origin, destination, age and sex in influencing migration over time would have to be confined to those countries where the data are known to be in good shape. For example, data from Italy, the Netherlands and the United Kingdom were used in a Migration Scenarios project for Eurostat and the European Commission (van Imhoff et al. 1997; Rees 1995).

2.3. Register data: in- and out-migration tables

Information on total in-migration to and information on total out-migration from areas have been combined because they are identical. The time series for which data are available are longer and a sex and five-year classification is provided for virtually all except the smallest regions (such as Swedish parishes) or the shortest time periods (e.g., monthly in Lithuania).

Frequently, single year of age data have been generated or could be provided down to quite small spatial units (e.g., municipalities in Norway or Iceland). Even where the data are based on a health service register rather than a population register as in the United Kingdom, migration tables by single year of age can be generated. Single year of age data are clearly important in both preparing population accounts for annual periods or in carrying out population projections where it is important that age interval and time interval match. So here we have a data set that is quite comparable and widely available. However, there are likely to be substantial costs in obtaining machine readable versions of the migration statistics for analysis. Even when costs can be reduced by using the published version of the statistics, there are likely to be substantial data re-entry costs (for keying the numbers into computer readable files). However, in future more data on migration will be available on-line (e.g., see http://www.statistics.gov.uk/statbase/mainmenu.asp or http://www.cbs.nl/nl/statline/).

2.4. Other data from population registers

In the questionnaire we included tables requesting information on the total number of migrations, on net internal migration and on population change and its fertility, mortality and net international migration components. Most respondents rightly pointed out that this information, though readily available, was not needed. The migration total figures for the country could be obtained by summing the appropriate counts of migration for subnational areas. Net internal migration could be obtained by differencing in- and out-migration totals.

2.5. Census data: tables available

In Table 3 the results of questions about the dates of the two most recent censuses and about the data available on internal migration from the census is presented in a similar form to that requested for the Register data.

Twelve countries out of 28 make use of censuses to provide information about internal migration. These are Austria, France, Greece, Hungary, Ireland, Portugal, The Slovak Republic, Slovenia, Spain, Switzerland, Turkey, and the United Kingdom. For four of these, Austria, France, Greece and Turkey, this is the only or main source, while Hungary, Slovenia, Spain, Switzerland and the United Kingdom derive internal migration from both registers and censuses. Ireland has in the past produced migration tables from the census but currently relies on the Labour Force Survey. Portugal derives migration data from Censuses and Labour Force Surveys.

Table 3 makes clear one advantage of a census for measuring migration: migration into and out of very small geographical units can be tabulated. For example, in the United Kingdom a flow matrix for wards (England and Wales) and postal sectors (Scotland) is produced. There are 10,933 of these spatial units, while migration information is available in Spain for 31,881 *sección* areas. Detailed mapping of information at this scale can be very revealing for the pattern of population movement. The sections of the map of European population change published in European Commission (1994b, Map 6, pp. 32–33) at very fine geographical scales (NUTS-5 in Belgium, France, Italy, Spain for example) are far more revealing of the processes of population redistribution than those parts where only NUTS-3 information was available (e.g. in Germany, United Kingdom, Netherlands).

We did not structure our census questionnaire tables in quite as detailed a way as those for migration. However, it is probable that for the finely disaggregated flow matrices a single-year age disaggregation is not available though a five-year one is. Extensive tables of in-migration and out-migration are available for a variety of spatial scales so that the relationship between migration and spatial scale can be studied in detail. There are also likely to be many tables providing other cross-tabulations of migrants, by marital status, ethnicity, nationality, economic position, occupation, household composition and so on. Wide use of such tables has been made by researchers in both France and the United Kingdom, for example.

The one major incomparability between the data sets is the difference between their time spans of observation (the time intervals in the migration question in the census). Austria, Switzerland and Turkey ask five-year questions, in the latter case linking back to the immediately previous census. Ireland and the United Kingdom ask one-year questions and so provide migration information for only part of the intercensal time interval (1981–1991). Portugal asks both one and five-years questions. Hungary asks a ten-year question, again to link two successive censuses together. Spain asks one, five and ten-year questions providing a comprehensive picture of migration over different time intervals during the intercensal decade. France asks a question designed to link back to the previous census year but, because the census is taken at irregular intervals, eccentric time spans result, which makes use of census migration data in projection models difficult but possible (Courgeau 1973b; Ledent with Courgeau 1982). Slovenia asks a question on the time of the last migration.

2.6. Survey data: tables available

The questionnaire asked member state respondents for details of any surveys regularly

used to provide official migration statistics. Although several were mentioned, the only country that relies on such a survey is Ireland. Tabulations from the Labour Force Survey at planning region scale are used to provide annual statistics on migration. Although the Labour Force Survey is undertaken in all European Union member states, not much reliance is placed on it for migration information. The principal reasons are the small sample sizes at region scale and some unreliability in the sampling schemes when used with a minority but geographically concentrated population such as that of migrants. There is also the problem that it is a household survey and thus misses institutional populations which are very important contributors to migration. Armed forces personnel and students living in institutional accommodation are among the most mobile subgroups in the population.

2.7. On the shelf or in principle?

When carrying any research project involving official statistics it makes an enormous difference whether the tables required have already been produced or whether they have to be generated from the original records. Tables ''on the shelf'' in the form of publications or computer files/databases can simply be copied to be made available. Where the tables have to be generated from the original records, the degree of difficulty depends on whether the data have been entered into a database accessible by a package of some kind or whether a special purpose computer program has to be written. Hence, a phrase used frequently in the responses was that data were *in principle* available. But the exact meaning of this would need to be explored with the central statistical office concerned, once the research goals had been defined.

3. Special Features of Migration Statistics on a Country by Country Basis

In this section we describe some of the special characteristics of the information available.

3.1. European countries in transition

The common feature of all the statistical systems of Central, East and South-East European states is that they have grown from a tradition of totalitarian communist regimes. These regimes had well-developed systems of population registers which in the past served not only statistical purposes but also were used to control, trace and supervise each member of society. Strict laws regulated registration procedures and were easily enforceable in highly bureaucratic societies. This resulted in relatively good quality registers up to the end of the 1980s.

The demise of communism and changes consequent to the bloodless revolution of 1989 have had their effect on statistical systems of the countries concerned. A general loosening of legal standards has made registers less reliable. The situation was made even worse as many countries decided to reform their registration and/or statistical legislation and some countries, which regained independence after the fall of communism, had to create their statistical systems virtually from the scratch.

In the following section some features of migration data of countries of the region will be discussed. Based on its political past the region will be divided into two subregions:

the Baltic states which inherited the statistical system of the former Soviet Union, and the remaining countries which did not have these unified roots.

3.1.1. Baltic States

Census data. It is appropriate to discuss the availability of the census data jointly for all Baltic states as the two most recent censuses in these countries were conducted as Censuses of Population of the USSR. During the last census (12.1.1989) a question was asked about place of migration and a question about the date of move from the previous place of permanent residence to the place of enumeration together with the question about the character (urban or rural) of the previous place of residence.

The tabulations produced are by total/rural/urban population, but since questionnaire by questionnaire data are available it is in theory possible to obtain data based on urban/rural districts for each country. Estonia will publish some tabulation of answers to the place of birth question early in 1996.

The use of the data from the 1989 census in the former USSR does not seem to be very promising. Ordering of special tabulations, even if possible in theory, may be difficult in practice due to the lack of resources in the countries concerned (a remark to that effect was made in the Estonian questionnaire).

Registration data. Among the Baltic States, Lithuania offers the most detailed statistical data: full annual matrices of migration flows are available from population registers for the last ten years (1985–1994). The data from the last two years are disaggregated by sex and age structure (5 years groups). Spatial divisions cover 44 administrative regions and 111 towns and urban settlements.

Estonia offers a full matrix of flows between counties (15 units) for 1993, whereas tables of departures/arrivals are available for 1992 and 1993 with age (5 years groups) and sex structures for urban/rural districts (255 units altogether).

Latvia has assembled tables of departures/arrivals for 1991–1994 with sex structures and age structure (three coarse age groups for 1991–1993 and one-year age groups for 1994). The data are available for 102 units. Matching data, in terms of disaggregation, are available on fertility, mortality and international migration.

None of the countries concerned mentioned availability of any data from the Soviet period. Without such data a study of the change of migration pattern over the last decade in these countries will be difficult. Should a need arise for data covering longer periods of time, an enquiry should be made in Russian Statistical Office in Moscow which has inherited the statistical information base of the former Soviet Union.

Another specific feature of data from the Baltic states is that they are available for extremely fine spatial divisions: Lithuania operates a system of 155 regions, Estonia uses a two-tier system with 15 units on the higher and 255 units on the lower level of hierarchy, and Latvia uses a system with 102 units. Given the size of populations in these countries, populations of ''regions'' will be very small indeed. In the case of Lithuania (3.7 million inhabitants in 1994) the average population of a spatial unit will be 24,000. As a result, matrices of flows (where available) will be very sparse and the whole spatial system may require to be redefined with small spatial units being aggregated to larger units that are more manageable and robust from a statistical point of view.

3.1.2. The Czech and Slovak Republics

As in the case of the Baltic States, the Czech and Slovak Republics were covered by the Censuses of Population and Housing of the then Czechoslovak Socialist Republic (as it was called in 1980). The only ''migration'' question asked during the last census of 3.3.1991 was about permanent residence of the enumerated person's mother at the time of the birth of enumerated person. In the Slovak Republic a published tabulation informs about the place of birth (by district of former Czechoslovakia) of inhabitants of Slovak Republic. That means that the information on the destination of migrants is very limited (whole state with no spatial disaggregation). The data are available by sex and coarse age groups. The Czech Republic has not reported what is the availability of the tabulations of the data from the Census, but presumably it is similar to that in Slovak Republic. The Czech Republic offers to prepare special tabulations based on Census data if required.

The Czech Republic runs a population register from which full flow matrices of migration by sex between districts (75 units) are available. It is possible to aggregate these data to regional level (8 units).

The Slovak Republic does not maintain a full population register. Data on migration are available from annual monitoring of migration carried out by the Statistical Office of the Slovak Republic. Tabulations of tables of departures and arrivals go back as far as 1950 on two levels: by counties (1950–1991) and districts (1968–1994). Sex and age structures (five-year groups) are available.

3.1.3. Hungary

Hungary operates a population register from which tables of arrivals and departures can be obtained dating back as far as 1980. For Budapest and 19 Counties, age (one-year groups) and sex structure is available. The age structure is not available for towns/villages (3,113 units). The census in Hungary was carried out on 1.1.1990 and all migration questions were asked of 20% of the population. However, these data were not processed. No off-the-shelf tables are available, but it is possible to order tabulations. The analysis of migration should be conducted for counties and the capital city of Budapest. The results of the census are available on a CD-ROM.

3.1.4. Poland

Poland operates a register of population from which a full array of flows between 49 regions divided by type of community (rural/urban), by sex and by age (very coarse age groups) may be obtained. The data are available for the period from 1985 until 1994. For finer spatial resolution (towns and communities – 3,028 units), tables of departures and arrivals are available. The 1988 population census included a question on the previous place of residence and the duration of residence in the place of enumeration and the tabulations are available on regional level. The division of the country by regions provides sufficient detail for the study of migration.

3.1.5. Romania

Romania operates a register of population on a county level (40 units). A full flow array is available with sex and age (five-year age groups) structures. Data from the census held on

7.1.1992 are very detailed. Questions asked referred to the place of birth, previous address and the date of move to the address of enumeration and are tabulated both by county and by towns/communes (2,948 units) by sex and age (five-year groups). The county division is a sensible spatial level for study of internal migration in Romania.

3.1.6. Slovenia

Slovenia runs a population register from which a full array of migration flows may be obtained for regions (12 units), communities (62 units) or settlements (5,945 units). Data are available from 1982 and are disaggregated by sex and one-year age groups. The last census in Slovenia was held on 31.3.1991. Questions asked referred to the place of birth, previous address and the date of move to the address of enumeration and are tabulated for regions, communities and settlements by sex and single-year age groups. Slovenia offers probably the most detailed migration statistics among the post-communist countries. The extent and the detail of data available makes it very tempting to select Slovenia as one of the countries for further studies. The regional level will be sufficient, given the size of the country.

3.2. Members of European Union

The quantity and quality of the migration data within European Union varies enormously. On one hand there are Nordic countries with detailed and excellent registration systems, allowing for tracing all migrations of a single individual. On the other hand there are countries like Greece, which have very vague information on current demographic processes updated only through censuses.

3.2.1. Austria

Austria does not have a register of population migration up to 1995, but has introduced one starting from 1996. As a result the only migration data available comes from censuses. It asks a question about the place of residence five years prior to a census and the disaggregation of the tabulations is remarkably fine.

3.2.2. Belgium

Belgium runs a population register and is able to provide inter-commune matrices of flows disaggregated by age and sex. Reorganisation of the statistical system in 1981 resulted in some changes and a discontinuity in the time series of data. Some data are available from communes only, which make it impractical if not impossible to collect. As a result, effectively available data are not as promising as they look at face value.

3.2.3. Denmark

Denmark maintains a population register and is capable of producing long (since 1973) time series of migration. Special tabulations can be prepared providing data for any spatial division, age groups and period of time.

3.2.4. Finland

Finland runs an excellent population register and is able to provide full flow tables over a

range of years. The data are age and sex specific. There are no data maintained by Statistics Finland from population censuses.

3.2.5. France

In France information on migration comes from population censuses which are conducted more frequently than every 10 years. The last three censuses were taken at the interval of eight and seven years, which forced the demographers to work out a methodology to recalculate seven- or eight-year migration data to more conventional five-year data (Courgeau 1973b; Ledent and Courgeau 1982). It should be noted that French demographers from INED have developed highly advanced techniques of processing and analysing census data (Baccaïni 1993; Baccaïni, Courgeau, and Desplanques 1993).

3.2.6. Germany

Migration registration data exists from 1991 onwards by *Kreis*. This is due to the unification of Germany which has resulted in the reshaping of its statistical system in 1990. Census data do not in fact exist as a question asked during the last Census in 1970 aimed at assessing the effect of World War II on population redistribution in Germany. Although important at the time, this is now of little relevance to current processes. Much data are available only from regional (*Länder*) governments and therefore difficult to collect.

3.2.7. Greece

There is no migration registration in Greece and all data come from population censuses held every decade. A question asked is about place of residence five years prior to the census. Obtaining data disaggregated by age requires special recalculation and is extremely expensive. Greece is the only country in our review which did not report holding information on the stocks of population.

3.2.8. Ireland

Ireland has no migration registration and all migration data are collected from quite frequent censuses (last three were conducted at intervals of five years in 1986, 1991, and 1996). The question asked is about a usual residence one year prior to the census. Apart from this, Labour Force Surveys are run annually every April and their results (the same question as during censuses) published. The sample is too small to obtain reliable results for a full flow matrix for small units.

3.2.9. Italy

Italy runs a population register (registration/deregistration) for 8,100 municipalities. Data are available by single age groups and sex and can be easily aggregated to provincial (NUTS-3) and regional (NUTS-2) levels.

3.2.10. The Netherlands

In the Netherlands registration data are available down to the municipality level (633 units). Age details depend on the spatial scale of the flow matrix. The data are available over the last decade.

3.2.11. Portugal

Portugal collects the data on migration from decennial censuses and from annual Labour Force Surveys from which tabulations for NUTS-2 level (seven units) migration flows are available. The size of the sample is between 20,000 and 33,000 households. Migration data from the census in 1991 have been collected based on two questions about the place of residence at the end of 1985 and 1989.

3.2.12. Spain

Spain collects data both from migration registers at the municipal level and from decennial censuses. During the last census a ten-years question on previous place of residence has been asked and results are available on a CD-ROM.

3.2.13. Sweden

Sweden has published full matrices of migration (without age/sex details) since 1972. As in other Nordic countries, it runs a detailed population register which allows a variety of tabulations.

3.2.14. United Kingdom

The UK collects migration information for subnational areas from the decennial census and from an administrative register (the National Health Service Register). The register information has been provided annually and quarterly since 1975 for 95 health administration areas. Published data from the 1991 Census of Population provides a full origin-destination-age-sex array for nearly 11,000 units (either electoral wards in England and Wales or postal sectors in Scotland). Software has been developed to enable researchers to extract subsets from this very large array. The Census migration data has been purchased by the Economic and Social Research Council and made available for academic research (Rees and Duke-Williams 1995 gives more details).

3.3. Other countries

The common feature of these countries is that they share neither common history, as post-communist countries do, nor a common economic and political organisation as EU members do.

3.3.1. Iceland

Iceland runs a population register from which full flow matrices on region (9 units) and municipality (169 units in 1995) levels are available. They are disaggregated by age (single year groups) and sex. The data are available over the period 1986–1994. The data over the period 1961–1985 are also available, but in 1986 the registration system was changed radically. There are no migration data from population censuses in this country.

3.3.2. Norway

Norway has individual migration records since 1967. They provide information on flows

between municipalities and include information on age and sex of migrant. This is the best possible source of data on migration as it allows for longitudinal analysis of migration histories (see for example Baccaïni and Courgeau 1995).

3.3.3. Switzerland

Since 1981 Switzerland has published tables of departures and arrivals from/to communes and cantons (respectively 2,911 and 26 units) disaggregated by sex. Arrivals/departures to/from cantons are disaggregated by age as well. The last census was held on 4.12.1990. Questions about place of birth, previous address and place of residence five years prior to the census were asked. The latter question was tabulated by communes, sex and single-year age groups. The cantonal level seems to be satisfactory for the study of migration.

3.3.4. Turkey

Turkey does not run population registers. Migration data are available from censuses of which the most recent took place on 21.10.1990. The question asked was about place of permanent residence at the time of the previous census (20.10.1985) and was tabulated by sex and five-year age groups.

4. Conclusions

To summarise, it is clear that there is considerable interest in the comparative study of internal migration in European states and that there are a great many potential collaborators available both in the specialist research and university sector. Internal migration has been studied as a spatial interaction process, a contributor to the population redistribution process and in terms of its demographic characteristics. However, we have no clear idea about the comparative levels in the 1990s of migration in different countries and of the comparative speeds at which populations are redistributing themselves, although there is quite a lot of knowledge about the directions of redistribution. In the fields of fertility and mortality we have robust measures for comparing the vital states of different national and regional populations. We have lots of similar indicators translated into the matrix space of interregional migration, but we are still remarkably uncertain about the comparability of one national measurement with another because of the dependence of migration on its spatial context. The survey of available data sources has indicated that there is a wealth of information on internal migration held by Central Statistical Offices all over Europe. Of the 28 countries surveyed, half produced migration data mainly from Registers, while four countries relied principally on the Census as a source for internal migration information. Six countries reported that internal migration could be derived from both Registers and Censuses. Two countries depended on a comprehensive survey of migration, while another two used a mixture of Census information and sample survey. It is now possible to carry out analysis at a wide variety of spatial scales and so move forward to a spatial spectrum of measures of migration intensity which can provide much better comparisons between countries.

Appendix

Table 1. The principal sources of migration data in Council of Europe members[a]

Register Mainly	Census Mainly	Register and Census	Migration Survey[b]	Census and Survey
	1. Austria			
2. Belgium				
3. Bulgaria				
			4. Czech Republic[b]	
5. Denmark				
6. Estonia				
7. Finland				
	8. France			
9. Germany				
	10. Greece			
		11. Hungary		
12. Iceland				
				13. Ireland
14. Italy				
15. Latvia				
16. Lithuania				
17. Netherlands				
18. Norway				
19. Poland				
				20. Portugal
		21. Romania		
			22. Slovak Republic[b]	
		23. Slovenia		
		24. Spain		
25. Sweden				
		26. Switzerland		
	27. Turkey			
		28. United Kingdom		
14 countries	4 countries	6 countries	2 countries	2 countries

a. The table indicates the main sources of information used to study internal migration in the countries listed. Many countries may have additional data sources (e.g., one-off or annual surveys which are not listed, such as the Labour Force Survey in EU members). Such additional sources are not taken into account unless they are the principal sources for internal migration information (as in Ireland).

b. By Migration Survey in the Czech and Slovak Republics is meant a comprehensive set of survey questionnaire returns for migrants moving between municipalities/communes or between municipalities and foreign countries. In effect, the survey is a register of inter-area migrations without linkage to a population register.

Table 2. Data on internal migration from population registers: full flow matrix and departures (total in-migration) and arrivals (total out-migration)

Country		Contents of matrix	Spatial units	Time units	Time span	Sex	Age Groupings		
							1 year	5 year	Other
2	Belgium	All matrices	*Province*	Annual	1961–80, 1981–	Yes	Yes[a]	Yes[a]	Sum
			Arrondissement	Annual	1961–80, 1981–	Yes	Yes[a]	Yes[a]	Sum
			Commune	Annual	1961–88, 1989–	Yes	Yes[a]	Yes[a]	Sum
3	Bulgaria	Full flow array	Regions	Annual	1988–94	Yes	No	No	No
			Towns	Annual	1988–94	Yes	No	No	No
		Origin/ destination matrices	Regions	Annual	1978–94	Yes	No	No	No
4	Czech Republic	All matrices	Republic	Annual, Quarterly	?	Yes	Yes	Sum	Sum
			District	Annual, Quarterly	?	Yes	No	No	No
5	Denmark	Full flow array	County	Annual	1973–	Yes	No	Yes	Sum
			Municipality		1973–	Yes	Yes	Sum	Sum
		Origin/ destination matrices	Country	Annual	1973–	Yes		Yes	Sum
			County	Annual	1973–	Yes	No	Yes	Sum
			Municipality	Annual	1973–	Yes	Yes	Sum	Sum
6	Estonia[b]	Full flow array	County	Annual	1993	No	No	No	No
		Origin/ destination matrices	County	Monthly	1995[a]	No	No	No	No
			Towns and rural districts	Annual	1992–1993	Yes	No	Yes[b]	No
7	Finland	All matrices	Municipality[a]	Annual	?	Yes	No	Yes	Sum

Table 2. Continued

Country	Contents of matrix	Spatial units	Time units	Time span	Sex	Age Groupings		
						1 year	5 year	Other
9 Germany	Full flow array	Federal Republic	Annual	1991–	No	Yes	Sum	Sum
		Land	Annual	1991–	No	Yes	Sum	Sum
		Kreis	Annual	1991–	Yes	No	No	Yes[a]
		Kreis	Quarterly	1991–	Yes	No	No	No
	Origin/ destination matrices	*Kreis*	Annual	1991–	Yes	No	No	Yes[a]
		Kreis	Quarterly	1991–	Yes	No	No	No
		Land	Annual	1991–	Yes	Yes	Sum	Sum
		Land	Quarterly	1991–	Yes	No	No	No
		Federal Republic	Annual	1991–	No	Yes	Sum	Sum
11 Hungary	Full flow array	Municipality	Annual	1980–94	Yes	Yes (County)	Sum	Sum
	Origin/ destination matrices	Capital	Annual	1980–94	Yes	Yes	Sum	Sum
		Counties	Annual	1980–94	Yes	Yes	Sum	Sum
		Towns	Annual	1980–94	Yes	No	No	No
		Villages	Annual	1980–94	Yes	No	No	No
12 Iceland	All matrices	Region	Monthly	1986–[a]	Yes	Yes	Yes	Sum
		Municipality	Monthly	1986–[a]	Yes	Yes	Yes	Sum
14 Italy	Full flow array	Region	Annual	1969–92	No	No	No	No
		Province	Annual	1969–92	No	No	No	No
		Municipality[a]	Annual	1969–92	No	No	No	No
	Origin/ destination matrices	Region	Annual	1969–92	No	No	Yes	Sum
		Province	Annual	1969–92	No	No	Yes	Sum
		Municipality	Annual	1969–92	No	No	Yes	Sum

Table 2. Continued

Country	Contents of matrix	Spatial units	Time units	Time span	Sex	Age Groupings		
						1 year	5 year	Other
15 Latvia	Full flow array	Country	Annual	1994	Yes	Yes	Sum	Sum
		Districts[a]	Annual	1994	Yes	Yes	Sum	Sum
	Origin/ destination matrices	Districts[a]	Annual	1991–1993	Yes	No	No	Yes[b]
		Districts[a]	Annual	1994	Yes	Yes	Yes	Yes
16 Lithuania	Full flow array	Regions	Annual	1993–94	Yes	Yes	Yes	Sum
		Towns & town type settlements	Annual	1993–94	Yes	Yes	Yes	Sum
	Origin/ destination matrices	Regions	Annual	1993–94	Yes	Yes	Yes	Sum
		Towns	Annual	1993–94	Yes	Yes	Yes	Sum
17 Netherlands	All matrices	Netherlands	Annual, Monthly	1983–1993	Yes	Yes	Yes	Sum
		NUTS-2	Annual	1983–1993	Yes	Yes	Yes	Sum
		NUTS-3	Annual	1983–1993	Yes	Yes	Yes	Sum
		Municipality	Annual	1983–1993	Yes	Yes[a]	Yes[a]	Sum
18 Norway	All matrices	Country	Annual	1967–94	Yes	Yes	Sum	Sum
		County	Annual	1967–94	Yes	Yes	Sum	Sum
		Municipality	Annual	1967–94	Yes	Yes	Sum	Sum
19 Poland	Full flow array	*Voivodships*	Annual	1985–94	Yes	No	No	Yes[a]
	Origin/ destination matrices	*Voivodships*	Annual	1985–94	Yes	Yes	Sum	Sum
		Voivodships	Annual	1985–94	Yes	No	No	Yes[b]
		Towns and communities	Annual	1985–94	Yes	No	No	No

Table 2. Continued

Country	Contents of matrix	Spatial units	Time units	Time span	Sex	Age Groupings		
						1 year	5 year	Other
21 Romania	All matrices	County	Annual	1984–1994	Yes	No	Yes	Yes
23 Slovenia	All matrices	Country	Annual	1982–1994	Yes	Yes	Yes	Yes[a]
		Region	Annual	1982–1994	Yes	Yes	Yes	Yes[a]
		Community	Annual	1982–1994	Yes	Yes	Yes	Yes[a]
		Settlement	Annual	1982–1994	Yes	Yes	Yes	Yes[a]
24 Spain	All matrices	*Provincia*	Annual	1961–1987	Yes	No	Yes	No
		Municipio	Monthly	1988–1994	Yes	No	Yes	No
25 Sweden	Full flow array	County	Annual	1972–1994	No, Yes[a]	No, Yes[a]	No, Yes[a]	
		Commune	Annual	1972–1994	No, Yes[a]	No, Yes[a]	No, Yes[a]	
	Origin/ destination matrices	Commune	Annual	1972–1994	Yes	No	Yes	Sum
		Commune	Quarterly	1980–1994	Yes	No	Yes	Sum
		Parish	Annual	1980–1994	No	No	No	No
26 Switzerland	Origin/ destination matrices	Cantons	Annual	1981–	Yes	Yes	Sum	Sum
		Communes	Annual	1981–	Yes	No	No	No
28 United Kingdom	Full flow array	Region (NUTS-1)	Annual	1975–83, 1983–94[a]	Yes	Yes	Yes	Yes
		Region (NUTS-1)	Quarterly	1975–83, 1983–94	Yes	No	No	No
		County/Scottish region (NUTS-2)	Annual	1975–83, 1983–94[a]	Yes	Yes	Yes	Yes
		County/Scottish region (NUTS-2)	Quarterly	1975–83, 1983–94	Yes	No	No	No
		FHSA/AHB	Annual	1975–83, 1983–94[a]	Yes	Yes	Yes	Yes

Table 2. Continued

Country	Contents of matrix	Spatial units	Time units	Time span	Sex	Age Groupings		
						1 year	5 year	Other
28 United Kingdom (*continued*)	Full flow array	FHSA/AHB	Quarterly	1975–83, 1983–94[a]	Yes	No	No	No
	Origin/ destination matrices	Region (NUTS-1)	Annual, Quarterly	1975–1983[a]	Yes	Yes	Yes	Sum
		Region (NUTS-1)	Annual, Quarterly	1983–1994[a]	Yes	Yes	Yes	Yes
		County/Scottish Region (NUTS-3)	Annual, Quarterly	1975–1983[a]	Yes	Yes	Yes	Sum
		County/Scottish Region (NUTS-3)	Annual, Quarterly	1983–1994[a]	Yes	Yes	Yes	Yes
		FHSA/AHB	Annual, Quarterly	1975–1983[a]	Yes	Yes	Yes	Sum
		FHSA/AHB	Annual, Quarterly	1983–1994[a]	Yes	Yes	Yes	Yes

Table 3. List of censuses and surveys and census data on internal migrants

	Country	Spatial units	Times of Censuses and Surveys	Time spans	Sex	Age Groupings		
						1 year	5 year	Other
1	Austria	*Bundesländer*	Censuses	1976–81 & 1986–91	Yes	Yes	No	Sum
		Districts	12.5.81 & 15.5.91	(5 years)	Yes	Yes	Yes	Sum
		Communes			Yes	Yes	Yes	Sum
3	Bulgaria	Municipality	Census 4.12.1992	Previous residence 1.1.1986–4.12.92	Yes	No	Yes	No
8	France[a,c]	*Régions*	Censuses	1.1.75–4.3.82 & 1.1.82–5.3.90	Yes	Yes[b]	Yes[b]	Yes[b]
		Départements	4.3.82 & 5.3.90	(7 years 3 months, 8 years 4 months)	Yes			
		Communes			Yes			
10	Greece	Municipalities/ Communities	Censuses	17.3.90–17.3.91 & Dec. 85–17.3.91	Yes	Yes	Yes	Yes
			5.4.81 & 17.3.91	Dec. 75–5.4.81	Yes	Yes	Yes	Yes
11	Hungary[a,b]	Capital Counties Towns Villages Enumeration districts	Censuses 1.1.80 & 1.1.90	1.1.80–1.1.90 (10 years)				
13	Ireland[a,b]	Planning regions Counties District Electoral Divisions and Wards	Censuses 13.4.86 & 21.4.91	21.4.90–21.4.91 (1 year)	Yes	Yes	Sum	Sum
		Planning Regions	Labour Force Survey, Annual	Residence 1 year ago	Yes	Yes	Yes	Yes

Table 3. Continued

	Country	Spatial units	Times and Censuses and Surveys	Time spans	Sex	Age Groupings		
						1 year	5 year	Other
20	Portugal	NUTS-1 NUTS-2 NUTS-3 *Concelho* *Freguesia* *Lugar* *Secção* *Sub Secção*	Censuses 16.3.81 & 15.4.91	31.12.73–16.3.81 31.12.79–16.3.81 31.12.85–15.4.91 31.12.89–15.4.91 (1+ year)	Yes	No	No	Yes
		NUTS-2 regions (7)	Labour Force Survey, Annual	1984–1991, 1992–1994[a] (1 year)	Yes	Yes	Yes	Sum
		Country	Inquerito aos Movimentos Migratorios de Saida[b]	1993–1994, Annual	Yes	No	No	Yes[c]
		NUTS-1			Yes	No	No	No
		NUTS-2			Yes	No	No	No
22	Slovak Republic	Regions	Migration Survey	Annual, 1950–	Yes	No	Yes	Sum
		Districts	Migration Survey	Annual, 1950–	Yes	No	Yes	Sum
		Municipalities	Migration Survey	Annual, 1950–	Yes	No	Yes	Sum
23	Slovenia	Country Communities Settlements Enumeration districts	Censuses 31.3.1981 31.3.1991	31.3.81–31.3.91	Yes	Yes	Yes	Yes[a]

Table 3. Continued

	Country	Spatial units	Times of Censuses and Surveys	Time spans	Sex	Age Groupings		
						1 year	5 year	Other
24	Spain[a]	*Nacional*	1.3.81 & 1.3.91	1.3.81–1.3.91	Yes	Yes	Yes	Sum
		Comunidad Autonoma		(10 years)	Yes	Yes	Yes	Sum
		Provincia		1.7.86–1.3.91	Yes	Yes	Yes	Sum
		Municipio		(5 years)	Yes	Yes[b]	Yes[b]	Sum
		Distrito		1.3.90–1.3.91	Yes	Yes[b]	Yes[b]	Sum
		Sección		(1 year)	Yes	No	No	
			Encuesta Sociodemografica, last Quarter 1991					
26	Switzerland	*Cantons*	2.12.1980 & 4.12.1990	1975–80 & 1985–90	Yes	Yes	Sum	Sum
		Communes		(5 years)	Yes	Yes	Sum	Sum
27	Turkey	Province	20.10.85 & 20.10.90	20.10.85–21.10.90 (5 years)	Yes	No	Yes	Sum
		District			Yes	No	Yes	Sum
28	United Kingdom[b]	Region (NUTS-1)	5.4.81 & 21.4.91	21.4.90–21.4.91	Yes	No	Yes	Sum
		County/Scottish Region (NUTS-2)		(1 year)	Yes	No	Yes	Sum
		District			Yes	No	Yes	Sum
		Ward/Pseudo Postcode Sector			Yes	No	No	Yes

Notes: This table reports only on those countries with recent retrospective questions on migration in their Censuses.
We have not included countries which simply ask a place of birth question.

Table 4. Spatial and administrative units used

	Country	Data Source	Large NUTS-1[4]	Medium-large NUTS-2[4]	Medium NUTS-3[4]	Medium-small NUTS-4[4]	Small NUTS-5[4]
1	Austria	Census		*Bundesländer* 9		*Politische Bezirke* (Districts) 99	*Communes* 2,333
2	Belgium	Register		Province 9	*Arrondissement* 43	*Commune*	
3	Bulgaria	Register			Regions 9	Towns 238	
4	Czech Republic	Register		Region 8	District 75	Community 6,097	Basic settlement unit 21,991
5	Denmark	Register		Regions 3	*Amter*/Counties 15	Municipality 275	
6	Estonia	Register			County 15	Towns & rural districts 57 + 198	
7	Finland	Register	Mainland, Islands 2	Regions 6	Counties 19	Municipality 455	
8	France	Census	ZEATs	*Régions* 22 + 4 (DOM)	*Départements* 96 + 4 (DOM)	*Communes* 36,573	
9	Germany[b]	Register	*Bundesländer* 16	*Regierungsbezirke* 29	*Kreise* 444		

Table 4. Continued

	Country	Data Source	Large NUTS-1[4]	Medium-large NUTS-2[4]	Medium NUTS-3[4]	Medium-small NUTS-4[4]	Small NUTS-5[4]
10	Greece	Census	Geographical regions 4	Development regions 13	Departments 51	Communes or municipalities 361; 5,560	
11	Hungary	Register			Counties 19		Towns, Villages 193; 2,920
12	Iceland	Register			Regions 9	Municipalities 223 (1986) 169 (1995)	
13	Ireland	Census			Planning regions 9	Counties 26	DEDs/Wards 3,440
14	Italy			Regions 20	Provinces 95	Municipalities 8,100	
15	Latvia	Register			Towns, Districts 76, 26		
16	Lithuania	Register				Administrative Regions[a] 144	
17	Netherlands	Register		Provinces 12	*COROP* regions 40	Municipalities 633	
18	Norway	Register			County 19	Municipalities 435	
19	Poland	Register			*Wojewodztwa* 49		Towns, Communities 860; 1,623

Table 4. Continued

	Country	Data Source	Large NUTS-1[4]	Medium-large NUTS-2[4]	Medium NUTS-3[4]	Medium-small NUTS-4[4]	Small NUTS-5[4]
20	Portugal	Register	NUTS-1	NUTS-2	NUTS-3, *Districto*	*Concelho*	*Lugar, Secçao, Sub Secçao*
		Census	3	7	30, 29	305	27,998; 106,995
21	Romania	Register			County, Bucharest		Towns, Communes
					40		262; 2,686
22	Slovak Republic	Survey		Region	District	Municipalities (*základná uzemná jednotka, ZÚJ*)	Basic settlement unit (*základná sídelná jednotka, ZSJ*)
				4	38	2,858	7,413
23	Slovenia	Register			Regions	Communities	Settlements, Emumeration districts
		Census			12	62	5,945; 13,000
24	Spain	Register	*Agrupacion de Communidad Autonoma*	*Communidad Autonoma*	*Provincia*		*Municipio*, *Distrito*, *Seccion*
		Census	7	17	52		8,077; 10,545; 31,881
25	Sweden	Register		NUTS-2	County	Commune	Parish
				8	24	288	2,600
26	Switzerland	Register			Cantons	Communes	
		Census			26	2,911	
27	Turkey	Census			Province	District	
					73		

Table 4. Continued

	Country	Data Source	Large NUTS-1[4]	Medium-large NUTS-2[4]	Medium NUTS-3[4]	Medium-small NUTS-4[4]	Small NUTS-5[4]
28	United Kingdom	Register	England & Wales regions, Scotland, Northern Ireland	NUTS-2	NUTS-3, Scottish regions, Northern Ireland	FHAs, AHBs Northern Ireland	
			11	35	66	125	
		Census	Regions in England & Wales, Scotland	NUTS-2 except Northern Ireland	Counties in England & Wales/ Scottish regions	Districts in Great Britain	Wards in England & Wales, Postcode Sectors in Scotland
			10	34	65	459	9,930; 1,003 = 10,933

Notes to the Tables 2–4

General notes on table entries

1. *Status of entry*: All entries are from Official Returns.
2. *Spatial units*: NA = information Not Available.
3. *Age*: Sum = aggregations can be made.
4. *Spatial scale*: The columns labelled ''NUTS-1'', ''NUTS-2'' etc. are indicative only. The NUTS classification of EUROSTAT only applies to European Union member states. At the smallest scale, the number of units varies over time. Table 4 reports the number for the latest year.
5. *Time span*: The years for which migration data were available as reported in the Survey of Central Statistical Offices in 1995. In virtually all cases, the data series will have continued to the present.

Country notes

1. *Austria*

a. From 1996 migration data have been generated from a new population register.

2. *Belgium*

a. From 1988 information on migration available by age can theoretically be generated, but it is not published as tables. Before 1988, the data could be provided from the National Register but full tables are available from the Communes.

6. *Estonia*

a. The entry for Counties refers to monthly data available from 1995, but only as totals. The data for towns and rural areas can be aggregated to Counties.

b. The State Statistical Office of Estonia holds information on every migration event from 1986 and so, in principle, any kind of table involving origin, destination, age and sex could be produced.

7. *Finland*

a. Flow matrices for other regions may be obtained by aggregation. e.g., NUTS-1 = 2 units – Mainland, Islands; NUTS-2 = 6 county combinations; NUTS-3 = 19 counties.

8. *France*

a. For examples of analyses that have been carried out using the 1990 census data on migrants see Baccaïni, Courgeau, Desplanques (1993) and Baccaïni (1993).

b. In principle, any kind of tabulation can be prepared by spatial unit and age, and other census characteristics, subject to 'diffusion restriction' (disclosure control). The rules governing publication of data are defined by CNIL – Commission Nationale Informatique et Libertés.

c. A new census was administered in 1999. It is expected that migration data will become available in 2001.

9. *Germany*

a. Age bands for Kreis-level migration: 0–17, 18–24, 25–29, 30–49, 50–64, 65+.

b. Regions as of 31.12.1994.

11. *Hungary*
    a. The 1990 Census migrant data are based on a 20% sample, which have yet to be processed.
    b. The Hungarian CSO have produced a Compact Disc that holds all the records (anonymised) from the 1990 Census together with tabulation and mapping software. In principle, this means that any kind of table of migrants can be produced from enumeration districts upwards.

12. *Iceland*
    a. Migration data from the Register are available from 1960 but the system was changed radically from 1986.

13. *Ireland*
    a. Use is also made of the annual Labour Force Survey (LFS) held in April each year. A question on usual residence the previous April is asked and tabulations can be made for Planning Regions.
    b. Gross flows (inward and outward) are published from the Labour Force Survey each year and are published as part of the Census tabulation. There are also some tables giving details of place of birth.
    c. Special tabulations can be derived from the 1991 Census but the resources required will need to be charged for.

14. *Italy*
    a. The table reports on the standard tabulations. It is theoretically possible to produce from the individual records more detailed tables (e.g., a flow matrix for municipalities). This would involve a lot of programming effort. It is also possible to produce flow data by 1-year age groups: such data for 20×20 regions (NUTS-2) have been analysed at the Netherlands Interdisciplinary Demographic Institute in a project to develop Migration Scenarios for European regions for the Eurostat/European Commission (Van Imhoff et al. 1997).
    b. There is a retrospective question in the Italian Census on migration (residence five years before) but no tabulations are produced at the moment. In principle, migration tabulations could be generated for territorial scales down to *sezione*, which contain 150 individuals on average.

15. *Latvia*
    a. The districts are classified into the capital (Riga), the republican cities, towns and rural districts.
    b. Three main age groups: under working age, of working age, over working age.

16. *Lithuania*
    a. The administrative regions are classified into towns (82) and urban settlements (18) and rural areas (44).

17. *Netherlands*
    a. For reasons of data protection, the published figures are rounded off.
    b. Just a part of the available data has been published.

19. *Poland*
    a. Working ages.
    b. Age groups: 0–4, 5–14, 15–29, 30–59, 60+.

20. *Portugal*
    a. In the 1984–1991 LFS, regions of former residence tabulated are NUTS-2 regions for Portugal and country of residence for other countries. In the 1992–94 LFS, regions of former residence tabulated are NUTS-2 regions for the European Union and country of residence for other countries.
    b. This is a survey of emigration from Portugal.
    c. The age groups tabulated are 0–14, 15–39 and 40+.

22. *Slovak Republic*
    a. Data on internal migration in the Slovak Republic are collected through the statistical migration survey. This survey covers all persons who migrate during a year between municipalities or between a municipality and a foreign country. The questionnaire is completed when the migrant leaves the origin municipality. The information requested on the survey form includes birth date, date of migration, sex, family status, citizenship, educational qualification, nationality, reason for migration, places of former and new residence. The details of what kinds of flows are available at what spatial scale differ according to the period. From 1993 the data are available for internal and external arrivals and departures but for earlier years this breakdown is only available for district towns and towns with 10,000 or more inhabitants.

23. *Slovenia*
    a. Special tables can be prepared.

24. *Spain*
    a. The CD-ROM contains standard tables from the Census. There is also a microdata sample available at the provincial level, for provinces and municipalities with at least 20,000 inhabitants.
    b. Special tabulations can be prepared but the type of data that can be released is governed by the rules laid down by the Committee for Data Protection of the Higher Council of Statistics.

25. *Sweden*
    a. The Register data are available from 1968 as individual records so that a full flow matrix can be produced by single or five-year ages and sex if required.

28. *United Kingdom*
    a. Published internal migration figures are available from *Key Population and Vital Statistics (series VS)*, and *Social Trends*, both HMSO publications. Customised tables on inter-area flows are available on request from OPCS for data for 1975–94.
    b. From the 1981 and 1991 Censuses, OPCS and GRO(S) have developed a variety of migration tabulations:

(1) national tables giving single-year age detail for Great Britain and a large age-sex disaggregated migration array for regions and metro counties/major cities (35 units, but not NUTS-2);

(2) detailed regional migration tables giving migration tables for counties/Scottish regions (NUTS-3) and districts;
(3) migration tables for all areas down to wards in the Local Base Statistics (LBS) and to enumeration districts in the Small Area Statistics (these data only record inward migration);
(4) the Special Migration Statistics which gives matrices for all GB districts (459 areas in 1991) by sex and five year age group and for all wards (England and Wales) and pseudo-postal sectors (Scotland) by 5 broad age groups (there are also a set of socio-economic tables associated with SMS inter-district flows).
(5) a Sample of Anonymised Records or SAR (2% Individual Sample), which provides flow matrices with county origins and district based areas (278 areas with at least 120,000 inhabitants) as destinations which can be cross-tabulated against any census characteristic.

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