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Conclusion

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16.1 Early concerns

In Europe, international migration and asylum-seeking are high on the political agenda. The debates are often heated but the empirical evidence is weak. The European Commission has increasingly realised the need for better information on international migration for purposes of demographic forecasting and migration policy-making.

In 1992, the Maastricht Treaty established the European Union (EU) and, in the same year, the agreement was signed creating the European Economic Area (EEA). The EEA comprises the EU and countries of the European Free Trade Association (EFTA) (except Switzerland). In anticipation of these historic developments, Eurostat organised the international conference *Europe at the Dawn of the 21st Century* in November 1991. For this conference, a team from Eurostat, under the supervision of Harri Cruijsen, cooperated with the Population Research Centre of the University of Groningen in the Netherlands to prepare two long-term demographic scenarios for the European Community (EC), which at that time consisted of 12 countries. It was the first set of demographic scenarios ever prepared by Eurostat. In order to assess the impact of migration, the original intention was to consider, for every country of Europe, migration flows by age, sex and country of destination.

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A multiregional model was to be applied to determine the demographic effects of international migration. However, destination-specific migration rates could not reliably be estimated because of missing and inconsistent data problems. Therefore, it was decided to use net migration. It was a first manifestation of the consequences of the inadequacy of migration flow statistics. The long-term scenarios are included in the background documents of the conference (Eurostat 1991). In 1992, Eurostat decided to extend the study to the countries of the EFTA, several of which were expected to join the European Union (Eurostat 1993; Extercate 1993). At the request of the Directorate-General for Economic and Financial Affairs of the European Commission, the projections were updated in 1995 for pension expenditure projections, using the same methodology (Eding *et al.* 1996; Franco and Munzi 1996). Although migration was an issue, the data were inadequate for accurately quantifying international migration flows in Europe for projection purposes. Today, in 2007, the data situation has not changed much. The most recent long-term population projections prepared by Eurostat (EUROPOP 2004) continue to rely on net migrations (Eurostat 2006). Robert Schuman's vision that 'Europe will not be built at a stroke, nor constructed in accordance with some overall plan; it will be built on concrete achievement' certainly applies to international migration statistics.

The inadequacy of migration statistics is not due to a lack of interest. The measurement of international migration flows in Europe has a long history. For decades the Conference of European Statisticians (CES), a subsidiary body of the United Nations Economic Commission for Europe (UNECE) and the United Nations Statistical Commission had worked towards the improvement and comparability of international migration statistics. As early as 1971, the United Nations *European Seminar on Demographic Statistics*, convened in Ankara and Istanbul, identified serious shortcomings in the statistics of immigration and emigration in that they differed considerably in scope, coverage, definitions, classifications and content. The seminar participants concluded that the improvement and harmonisation of statistics on international migration was an urgent task and recommended that the CES include these activities in its programme of work. It was suggested that the work include tabulations on flows and stocks of migrants.

The CES was also requested to organise an exchange of statistics on international migration among UNECE countries. In 1975, flow data were collected pertaining to the year 1972. The 1972 matrix highlighted the serious lack of comparability in the statistics on international migration flows and demonstrated that in many cases the figures for a particular flow reported by the country of immigration were substantially higher than the figures for the same flow reported by the country of emigration. The total reported number of immigrants was 57 % greater than that of emigrants. The 1972 matrix was published in the *United Nations, Demographic Yearbook 1977* (United Nations 1978). In 1978, the UNECE Secretariat collected statistics for the years 1973–1975 and requested countries to provide data compiled not only on the basis of existing national practices but also adjusted, where necessary, to correspond as far as possible with the definitions of long-term immigrants and emigrants recommended by the United Nations in 1976. In 1979, the UNECE Secretariat started producing migration matrices on a regular basis. The matrices are

double entry matrices that show immigration statistics by country of last residence and emigration statistics by country of intended destination. Two double entry matrices were produced, one showing data based on national practices and the other showing data adjusted to correspond as far as possible with the United Nations recommended definition of long-term immigrant and emigrant. Although the data were collected on a regular basis, they were not published regularly. The second international migration matrix published in the *United Nations, Demographic Yearbook* was in 1989. Owing to the lack of resources, the data were not published subsequently (Herm 2006:91). The CES discontinued the collection of the double entry matrix in the mid-1990s.

Eurostat's interest in comparable migration statistics increased with the accession of Spain and Portugal in 1986. The need to coordinate migration statistics in Europe became apparent. In 1989, Eurostat took the initiative to conduct a study on the harmonisation of international migration statistics in the 12 countries of the EC. Poulain and colleagues at the Université Catholique de Louvain (UCL) in Belgium carried out the study and found the double entry matrices useful tools for assessing the comparability of migration statistics (Poulain *et al.* 1990). The study was extended to EFTA countries in 1991 (Poulain and Gisser 1992) and later on to Central European and Baltic countries (Poulain 1997). Additional investigations were carried out to improve international migration data in the EU, using all information included in the double entry matrices with the aim to propose reliable estimation for all cells of the complete intra-EU migration matrix (Poulain 1993, 1999). Moreover, during the first half of the 1990s, Eurostat and UNECE began cooperating on the development of a joint programme of data collection on international migration statistics for EU and EFTA countries. Later, other international organisations joined in a concerted data collection effort (for an overview, see Herm 2006).

16.2 More recent concerns

The production of statistics on international migration entered a new stage with the massive expansion of the scope of EU migration policy.[1] The Treaty of Maastricht, which was signed in 1992 and entered into force in November 1993, made immigration an issue of common interest for the EU. An EU migration policy needs data to effectively plan, evaluate and monitor policies. The European Commission has increasingly realised the need for better information on migration. In 1994, the Commission issued a Communication on Immigration and Asylum Policies stressing that the management of immigration was one of three essential elements of a comprehensive and effective immigration policy. It also stressed the need for accurate information and suggested the establishment of a European Migration Observatory (Kraler *et al.* 2006:46).

[1] This section is based on Kraler *et al.* (2006). The authors provide a comprehensive overview of the evolution of the EU migration policy and the implications for data collections.

According to the Amsterdam Treaty, adopted in 1997, the European Community is responsible for laying down uniform procedures for the management of international migration and for the production of community statistics.[2] The latter is specified in the Council Regulation (EC) 322/97 of 17 February 1997 on community statistics.[3] The role of Eurostat is laid down in European Commission Decision 97/281/EC of 21 April 1997. The Tampere European Council of 1999 and the Seville European Council of 2002 reiterated the need to develop a common EU policy on migration and asylum and a common approach to the management of migration flows *at all their stages*. Several measures have been introduced since the Treaty of Amsterdam that aimed to remove the deficiencies in migration data. They include the establishment of a European Migration Network (EMN), the establishment of funding lines within the framework programmes of the Director-General for Research and numerous research projects on migration policies by the Director-General for Justice and Home Affairs. The EMN was set up in 2002 as a pilot project to offer a single reference point for the coordination of the huge amount of information on migration issues being produced throughout the EU. The EMN is a virtual information exchange network on migration and asylum in Europe and provides for the networking of national focal points for exchanging and following up information relating to the political, economic, demographic and social dimensions of migratory phenomena (see http://www.european-migration-network.org/).[4]

In 2003, the European Council of Thessaloniki again ascribed top political priority to migration. The Council concluded that more effective mechanisms were needed for the collection and analysis of EU-wide information on migration and asylum. The Commission issued a Communication detailing an Action Plan for the collection and analysis of Community statistics in the field of migration. The Action Plan is implemented in part by Eurostat, and also included actions leading to the adoption of Community legislation on migration statistics. The Action Plan and the envisaged legislation are geared towards achieving comparable migration data at the European level. Harmonised and comparable Community statistics on migration and asylum are essential for the development and monitoring of Community legislation and policies relating to immigration and asylum, and to the free movement of persons. Member States differ greatly in terms of how migrants are defined, the sources of migration data, and how migration statistics are produced. The European Parliament in its resolution of 6 November 2003 concluded that further progress towards improving migration statistics would require legislation.

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[2] The Amsterdam Treaty laid down the production of community statistics in paragraph 285 and specified it in the Council Regulation (EC) 322/97 of 17 February 1997 on community statistics. The role of Eurostat as community institution involved in the production of community statistics is laid down in European Commission Decision 97/281/EC of 21 April 1997. Paragraph 285 EC (Article 312a) of the Amsterdam Treaty states that the production of community statistics is made on the basis of impartiality, reliability, objectivity, scientific independence, cost effectiveness and statistical confidentiality: it may not pose an excessive burden on the economic actors. See http://www.europarl.europa.eu/topics/treaty/pdf/amst-en.pdf

[3] For the text of the Council Regulation (EC) 322/97 of 17 February 1997 see http://europa.eu.int/smartapi/cgi/sga_doc?smartapi!celexapi!prod!CELEXnumdoc& lg=EN&numdoc=31997R0322&model=guichett

[4] A public debate on the future role of the EMN was launched by a green paper issued in November 2005 (http://eur-lex.europa.eu/LexUriServ/site/en/com/2005/com2005_0606en01.pdf).

The proposed legislation was prepared jointly by Eurostat and the Directorate-General for Justice, Freedom and Security and involved almost two years of technical consultation (Thorogood 2006). On 14 September 2005, the European Commission adopted the proposal for the 'Regulation of the European Parliament and the Council on Community statistics on migration and international protection'.[5] The objective of the proposed Regulation is to establish a common framework for the collection of Community statistics on international migration and asylum. The systematic production of harmonised Community statistics on international migration and asylum cannot be sufficiently achieved by the Member States acting individually. Therefore, in accordance with the principle of subsidiarity, as set out in Article 5 of the EC Treaty, the Community should take charge. The proposal states that the statistics to be collected under the proposed legislation will, as far as possible, be in accordance with the United Nations recommendations on statistics of international migration. The following statistics will be covered by the Regulation: international migration, usually resident population, acquisition of citizenship, international protection (including asylum), residence permits, returns and prevention of illegal entry and stay (apprehensions and refusals at the border). The proposal obliges Member States to make the best use of available data and to produce statistics that are comparable across Europe. Member States are not required to introduce completely new data sources or change the administrative system for immigration and asylum, as they are considered to be competent in the organisation and operation of their national statistical systems. In accordance with the principle of proportionality, the Regulation confines itself to the minimum required to achieve the objective of harmonised Community statistics on migration and asylum, and does not go beyond what is necessary for that purpose. The proposal relates to the data to be supplied to the Commission (Eurostat). It does not legislate for a specific data source to be used in every Member State. The Member States will, though, have to explain the choice of data source and explain the anticipated effects of data source on the degree of compliance with the harmonised definitions. That requires the supply of detailed metadata that explain the data sources used to allow an assessment of the probable effects of these data sources on the degree to which the statistics comply with the harmonised definitions.

Since the proposal was adopted by the Commission and forwarded to the Parliament and the Council, a number of amendments were added by Committees and Working Parties. On 15 February 2007, the Council approved the final compromise text with a view to a first reading agreement with the European Parliament.[6] This

[5] Document COM (2005) 375 final. This paragraph is based on the Explanatory Memorandum accompanying the proposal. The document is available at http://eur-lex.europa.eu/LexUriServ/site/en/com/2005/com2005_0375en01.pdf

[6] For a list of documents in the area of developing a common European immigration policy, including proposed legislation and follow-up, see http://ec.europa.eu/justice_home/doc_centre/immigration/doc_immigration_intro_en.htm The 2007 document is available at the Public Register of Council Documents at http://register.consilium.europa.eu/pdf/en/07/st06/st06351.en07.pdf (Document of the Council of the European Union number 6351/07, date 15 February 2007). See the same document but with text marked: Document number 6351/1/07 date 27 February 2007. Earlier versions of the document may be obtained by searching the Public Register of Council Documents: http://register.consilium.europa.eu/ and search in the register.

proposal included one important element not contained in the 2005 version. Article 9 of the proposed Regulation states that 'As part of the statistics process, scientifically based and well documented statistical estimation methods may be used.' It also states that 'Member States shall report to the Commission (Eurostat) on the data sources used, the reasons for the selection of these sources and the effects of the selected data sources on the quality of the statistics, and on the estimation methods used, and shall keep the Commission (Eurostat) informed of changes thereto.' These statements were absent from the 2005 proposal and have been added later. The new legislation on international migration statistics was adopted by the European Parliament on 14 March 2007, and by the Council of the EU on 12 June 2007. It was published in the *Official Journal* of the European Union on 31 July 2007 as Regulation (EC) no. 862/2007 of the European Parliament and of the Council of 11 July 2007 on Community statistics on migration and international protection and repealing Council Regulation (EEC) no. 311/76 on The compilation of statistics on foreign workers (Legislation L199). For the text of the legislation, the reader is referred to the *Official Journal*.[7]

The call for harmonised and comparable Community statistics on migration and asylum did not go unnoticed in the European research area. The European Commission included international migration statistics as a priority in the 6th Framework Programme of Research (2004–2006). The research involved a description of national systems of data collection, a study of similarities and differences between Member States, and an assessment of activities and measures undertaken by organisations at national and supranational levels to overcome the problems of availability, reliability and comparability of migration data. The THESIM (Towards Harmonised European Statistics on International Migration) project that resulted was the most exhaustive and complete exercise of its kind undertaken to date. The book that was produced and edited by Poulain, Perrin and Singleton (2006) is a unique resource on migration statistics in the European Union.

As documented by the THESIM project, the reasons for the inadequacies of international migration statistics, identified by the CES, continue to exist today. They include the lack of standardisation in (1) national definitions of immigrants and emigrants, (2) the coverage of the statistics, (3) the minimum duration of presence in (or absence from) the country to qualify as an immigrant (or emigrant) and (4) the manner of classifying the migrants by past or future country of residence (Kelly 1987:1034). The CES did not recommend that countries abandon their current practices but encouraged countries to adopt a pragmatic, step-by-step, long-term approach. They should initiate bilateral studies and other types of cooperation between countries to improve the statistics, and they should use supplementary data sources to adjust data compiled for national purposes and to engage in bilateral studies to improve their migration statistics. That approach is also manifest in migration data collection strategies adopted today.

[7] At http://eur-lex.europa.eu/LexUriServ/site/en/oj/2007/l_199/l_19920070731en00230029.pdf

During the same month that the European Commission adopted the proposal for a regulation of international migration statistics, the research community organised a workshop on the estimation of international migration in Europe (28–30 September 2005). It was a coincidence but the timing could not have been better. In that workshop, the state of the art was reviewed and new innovative methods for estimating international migration were presented. The meeting was organised as one of the activities of the Research Training Network (RTN) 'Demographic Sustainability and European Integration'. The RTN was coordinated by the Max Planck Institute for Demographic Research in Rostock and the workshop was organised by the Southampton Statistical Sciences Institute (S3RI) of the University of Southampton and the Netherlands Interdisciplinary Demographic Institute (NIDI). The organisers started from the observation that, although the consequences of migration flows are paramount in the public debate, figures on the level and direction of international migration are defective, incomplete or missing entirely. The data that do exist are often not comparable because of differences in definitions and measurement. As a consequence, the debate cannot be fuelled by empirical evidence and trustworthy inferences from facts and evidence-based opinions. Statistical techniques that have been developed for the estimation of migration flows within countries provide adequate starting points for the development of methods for estimating migration flows between countries. This book is an outcome of the S3RI–NIDI workshop.

16.3 This book's contributions

The aim of this book is to present strategies and methods for obtaining estimates of migration flows between countries of Europe that pass the test of scientific rigour. The strategy has three main components. The first is to *use statistical models* of migration to predict migration flows from available (defective) data. The second is to *distinguish data types* and to develop models that can describe data of different types and convert migration data of one type into data of another type. The third component is to combine *data from different sources* and to augment that information by empirically established regularities and expert opinions. The models are therefore generic instruments to harmonise existing data and to estimate missing data by combining data from different sources. Improved current estimates of migration flows provide a foundation for improved migration forecasts. A number of methods that produce forecasts when data are deficient are presented.

The main contribution of this book is the solution to the problem of estimating migration flows from data of different types that are often incomplete and defective. The solution consists of modelling the migration process and using available data to obtain the parameters of the model of migration. The strategy gives priority to the *migration process* rather than to the *migration data*. The migration process that produces the flows is not fully observed. Hence observations provide incomplete information on the process and the information may be of different types. In addition, the data may not be reliable or accurate. Different observation types or data types represent different measurements of the migration process. Issues dealing with data are linked directly to observational deficiencies and they are linked to models

of migration. By modelling the migration process rather than the migration data, and by estimating the parameters of the model from the data augmented by expert opinions and other qualitative information, migration flows can be determined that meet particular requirements, e.g. the requirements of the Regulation of the European Parliament and the Council on Community statistics on migration and international protection. The modelling approach presented in this book can be used for the harmonisation of international migration data, i.e. for adjusting data based on national definitions of migration. It can also be used for the estimation of migration flows from defective and incomplete data, i.e. by combining data from different sources, and the forecasting of international migration in the presence of data deficiencies. The approach includes both frequentists and Bayesian models that infer or predict migration flows from available data and other valid but qualitative information. The Bayesian approach is a natural way to combine multiple data sources and prior information on the structure of migration flows and characteristics of migrants (e.g. age structure). This book is the first to systematically include Bayesian estimation techniques to estimate migration flows.

This is also the first volume that draws together modern statistical approaches to incomplete data and migration modelling. The approaches are inspired by models that have been developed over the years for internal migration, where the data problems may be less severe, but the problems of estimation are very similar. Part I of the book covers migration data and issues. The contributors show that the many inconsistencies in migration flow data are caused by differences in concepts, measurements and the processing of migration data.

To tackle the differences and to build a foundation for the harmonisation of migration statistics, one must look beyond the data or observations to intrinsic characteristics of any migration. A migration is an event and the event occurs in time and space. The event is a change in the place of usual residence (address). Many conceptual issues relate to the concepts of address and change. Some people have multiple residences. The UN recommendations and Eurostat are clear. They define the place of usual residence as the place where the person spends most daily rest periods. National statistical offices do not have the common view on what is a place of residence and who is an international migrant. For instance, in some countries of Central Europe, persons may keep a permanent place of residence in these countries while living abroad for many years. The concept of country of usual residence is at the core of the problem of the definition of international migration. A necessary condition for a harmonisation of migration data is a thorough documentation of the conceptualisation of the event of migration and the measurement of migration.

Migration leads to changes in the composition of the population and data on migration should be consistent with data on changes in the composition of the population. Censuses are the main source of the size and characteristics of the population, including the country of birth and the nationality. So, detailed census data on migrant stocks may provide useful benchmarks for the validation of migration data.

Part II of the book discusses models that capture the spatial and age patterns of migration. Spatial patterns are described by spatial interaction models, while age patterns are described by model migration schedules. The models are applied in

Part III to obtain current estimates of international migration flows in Europe and to estimate the impact of various asylum-seeker policies on other potential receiving countries. Finally, Part IV covers the forecasting of immigration and emigration, and Part V, the projection and forecasting of populations.

This book demonstrates that modern statistical techniques have considerable potential for estimating international migration flows and that the research is cutting-edge. It also demonstrates that, in order to be effective, new research should emphasise data types and link country-specific data sources and methods of data collection to the data types. Migration data are manifestations of migration processes and different data types represent different process measures. For instance, the process of international migration in the United Kingdom is not much different from that in France or Germany, but the ways the process is measured are very different. By modelling the process and approaching data as manifestations of the process, a variety of data sources and data types can be dealt with in a consistent fashion. When process models can be improved upon by adding new information that becomes available, a methodology emerges that responds to the challenge of producing a system of timely, reliable and valid migration data for Europe.

The THESIM project resulted in a comprehensive picture of available statistical data sources on international migration in the European Union, and the S3RI–NIDI workshop demonstrated the feasibility of using models for estimating international migration flows and to produce harmonised and comparable migration data. In May 2006 the European Commission (Eurostat) issued an invitation to tender for the development of models of statistical data on migration and migrant populations. The aim of the tender was to improve the completeness and the degree of harmonisation of international migration statistics in Europe. The funding is to be used to develop sound statistical tools for estimating migrant populations and international migration flows, disaggregated by sex and age, and to assist national statistical institutes (NSIs) in Member States in meeting the obligations of the forthcoming European legislation on migration statistics. A consortium of four research centres in Europe are currently working together on the project 'Modelling of statistical data on migration and migrant populations' (MIMOSA). They include the Netherlands Interdisciplinary Demographic Institute, The Hague (NIDI) (coordinator), the Central European Forum for Migration and Population Research, Warsaw (CEFMR), the Southampton Statistical Sciences Research Institute (S3RI), and the Université Catholique de Louvain (UCL). Statistical models will be developed and applied to estimate migration flows between 31 countries of Europe using data on immigration and emigration. In addition, NSIs will be given advice and assistance on applying statistical techniques to estimate migration flow data that are comparable across Europe. The project started in December 2006.

The comprehensive review of statistical data sources on international migration in Europe produced by the THESIM project (Poulain *et al.* 2006), the conceptual and measurement issues discussed in Chapters 2–5, and the statistical models and applications presented in Chapters 6–10 are the point of departure for the modelling of recent migration and migrant populations in the new research tender initiated by the European Commission (Eurostat). The researchers in the THESIM project, in the

MIMOSA project, and those who contributed to this book are working towards a common goal: a European migration information system that comprises harmonised and comparable data on international migration and asylum. The European Parliament, by adopting legislation that accommodates the use of statistical estimation methods in the production of Community statistics on international migration and asylum, established a common framework for the European statistical system that includes scientifically based estimates in addition to direct measurements. Much has been accomplished in the years since 1971, when the Conference of European Statisticians raised the issue of comparability of international migration statistics. However, the issue has yet to be resolved. The legal basis that now exists for Community statistics to allow estimates is expected to stimulate research and development leading to harmonised and comparable international migration statistics in Europe. The migration information system that results will represent a scientific basis for the public debate on migration and for migration policies.

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