



Project 2006/S 100-106607/EN, LOT 2

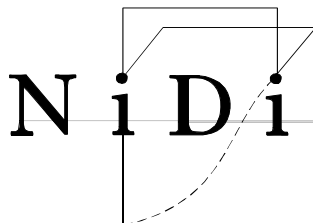
**Modelling of statistical data
on migration and migrant populations**

MIMOSA

**An iterative procedure to revise available data
in the double-entry migration matrix for
2002, 2003 and 2004**

Discussion paper

Version
29 March 2007



Prepared by
Rob van der Erf and Nicole van der Gaag
Netherlands Interdisciplinary Demographic Institute (NIDI)
The Hague, The Netherlands

TABLE OF CONTENTS

LIST OF TABLES AND FIGURES	4
ABSTRACT	5
INTRODUCTION	5
ORIGINAL DOUBLE-ENTRY MIGRATION MATRIX FOR 2004	5
REVISION OF THE DOUBLE-ENTRY MIGRATION MATRIX FOR 2004	6
Step 1: Create a standard.....	6
Step 2: Revise remaining flows	7
RESULTS FOR 2004	9
COMPARISON OF THE RESULTS FOR 2002, 2003 AND 2004.....	10
CONCLUSION.....	12

LIST OF FIGURES AND TABLES

Figure 1. Valuation scores for selected migration flows, 2004	8
Figure 2. Difference between revised and original net migration for selected European countries	11
Table 1. Original double-entry migration matrix for selected European countries, 2004	13
Table 2. Revised migration matrix for selected European countries, 2004	14
Table 3. Absolute difference between the revised and original double-entry migration matrix for selected European countries, 2004	15
Table 4. Relative difference between the revised and original double-entry migration matrix for selected European countries, 2004	16
Table 5. Revised and original total migration flows for selected European countries, 2004	17
Table 6. Original double-entry migration matrix for selected European countries, 2003	18
Table 7. Revised migration matrix for selected European countries, 2003	19
Table 8. Absolute difference between the revised and original double-entry migration matrix for selected European countries, 2003	20
Table 9. Relative difference between the revised and original double-entry migration matrix for selected European countries, 2003	21
Table 10. Revised and original total migration flows for selected European countries, 2003	22
Table 11. Original double-entry migration matrix for selected European countries, 2002	23
Table 12. Revised migration matrix for selected European countries, 2002	24
Table 13. Absolute difference between the revised and original double-entry migration matrix for selected European countries, 2002	25
Table 14. Relative difference between the revised and original double-entry migration matrix for selected European countries, 2002	26
Table 15. Revised and original total migration flows for selected European countries, 2002	27
Table 16. Correction factors for the standard migration flows, 2002-2004	28
Table 17. Correction factors and valuation scores for the remaining migration flows, 2002-2004	29
Table 18. Revised and original total migration flows for selected European countries, 2002-2004	30

Abstract

This paper describes a procedure to revise existing immigration and emigration data in order to obtain a consistent double-entry matrix. The iterative technique uses data of countries with more reliable data to revise data of countries with less reliable data. On the basis of the assessment of the reliability of available migration flows, the sequence of the revision has been determined for up to 18 EU countries for the years 2002, 2003 and 2004. Besides, expert knowledge has been used leading to some specific adjustments. This paper concludes that sometimes dramatic revisions are needed to come to consistent migration figures in receiving and sending countries according to harmonised definitions on migration. Moreover, the harmonisation of definitions on migrants might have serious consequences for the annual determination of the population size in several European countries.

Introduction

Because data on international migration are often inadequate or missing it is necessary to develop methods or models to revise existing data and to estimate missing data. According to Raymer (2006) so far several related techniques or models have been applied successfully for the revision or estimation of place-to-place migration flows. He distinguishes iterative proportional fitting techniques, gravity models, spatial interaction models and log-linear models. Willekens (2005) notes that, irrespective of the technique or model, judgments may be used effectively to improve the results. This paper combines an iterative proportional fitting technique with judgments in order to revise existing international migration data for the years 2002-2004. At first sight, the technique resembles the one used by Poulain (1999). However, there are important differences. The main difference is that contrary to Poulain the country-specific correction factors for immigration and emigration are not independent from the sending or receiving country. It will be interesting to compare the results of this study with those obtained by the application of more advanced models. The method will be discussed in detail for the 2004 double-entry migration matrix. The results will be compared with those obtained for 2002 and 2003. The estimation of missing data is beyond the scope of this paper.

Original double-entry migration matrix for 2004

On the basis of Eurostat's database NewCronos 17 countries have been selected: Czech Republic (cz), Denmark (dk), Germany (de), Spain (es), Cyprus (cy), Latvia (lv), Lithuania (lt), Luxembourg (lu), Netherlands (nl), Austria (at), Poland (pl), Slovenia (si), Slovakia (sk), Finland (fi), Sweden (se), United Kingdom (uk) and Norway (no). For 2004, all those countries provide an overview of migration by country of origin (immigration) and destination (emigration). These data are presented in table 1 by means of a double-entry matrix. This table shows the differences between the reporting sending countries (rows) and reporting receiving countries (columns). In several cases these differences appear to be huge. Germany, for example, reports 139 thousand migrants from Poland, while Poland reports less than 13 thousand migrants to Germany. Other striking examples are migrants from the Czech Republic to Slovakia, migrants from the UK to Denmark, migrants from Spain to Germany, etc. Furthermore, it is noticeable that for some countries the proportion unknown is sizeable, e.g. 86 per cent for the immigration in Slovenia, 74 per cent for the immigration in Luxembourg and 73 per cent for the emigration from Slovenia.

Revision of the double-entry migration matrix for 2004

Step 1: Create a standard

The first step in the process to revise the migration matrix in order to obtain consistent data is to determine data that are believed to be reliable, in the sense of complete and (more or less) in line with the recommended definitions of the United Nations (1998). According to the UN a (long-term) international migrant is a person who moves to a country other than that of his or her usual residence for a period of at least a year, so that the country of destination effectively becomes his or her country of usual residence.

The following countries are considered to provide reliable data:

- the four Nordic countries, i.e. Denmark, Finland, Norway and Sweden;
- the Netherlands and Austria.

The mutual differences for the four Nordic countries are small and have been eliminated by taking the average in each cell. The resulting (9) values have been fixed and the totals adjusted.

Starting with immigration (immigration figures are considered more reliable than emigration figures) the unknowns for the Nordic countries have been evenly distributed over the remaining (not yet fixed) cells. This resulted in the following correction factors:

- Denmark 1.014;
- Finland 1.019;
- Sweden 1.013;
- Norway 1.009.

Then, these immigration figures have been fixed and the corresponding emigration figures have been overruled and fixed as well.

For the Netherlands the original immigration figures have been fixed (no unknowns) and the corresponding emigration figures have been overruled and fixed as well.

Because the emigration figures of the Nordic countries are considered more reliable than the immigration figures of Austria, these emigration figures have been fixed after having distributed the unknowns evenly over the remaining (not yet fixed) cells. Apart from Finland, these correction factors are somewhat higher than those for immigration:

- Denmark 1.092;
- Finland 1.006;
- Sweden 1.160;
- Norway 1.361.

The corresponding immigration figures have been overruled and fixed as well.

The immigration of Austria is next. First, the unknowns have been evenly distributed over the remaining cells (factor 1.220). Then they have been fixed and the corresponding emigration figures have been overruled and fixed as well.

Back to the emigration figures of the Netherlands and Austria. After evenly distribution of the unknowns (Austria 1.710, Netherlands 1.487), the remaining cells have been fixed and the corresponding immigration figures have been overruled and fixed as well.

Knowing that the quality of the German figures is satisfying from the point of view of source and completeness but too high because of the lack of a time limit for migrants, a downward correction for these figures is needed. That has been done by comparing the fixed cells (Nordic countries, Austria and the Netherlands) with the original (German) figures. This resulted in:

- a correction factor mainly due to definition for remaining immigration figures 0.783;
- a correction factor mainly due to definition for remaining emigration figures 0.814.

Different from the approach that was followed for the Nordic countries, Austria and the Netherlands, the unknowns for Germany and all other remaining countries are not fully distributed among the not yet fixed cells. It is assumed that part of the unknowns are included in the cells fixed by the mutual information of former countries. Hence, the correction factor for the unknowns relates to the original total (total divided by total minus unknown) and is applied to the cells that have not been fixed yet. For Germany these factors are:

- for immigration 1.070;
- for emigration 1.099.

After multiplying the two factors the total correction factor is obtained:

- for immigration 0.838;
- for emigration 0.894.

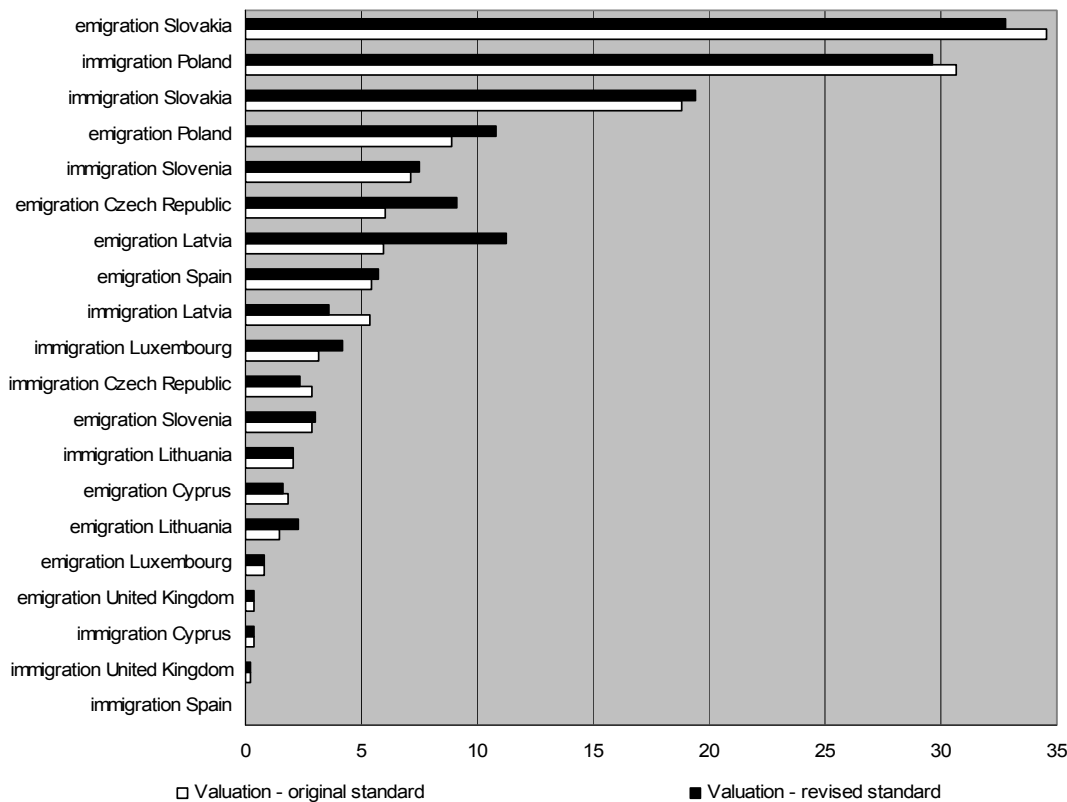
These factors have been applied, the results have been fixed and the corresponding emigration and immigration figures have been overruled and fixed as well.

Step 2: Revise remaining flows

The migration figures that have been fixed so far for seven countries serve as a standard for the remaining migration flows. To determine the sequence in the process of further revision a valuation score has been calculated for each of the still remaining migration flows. Similar to the approach for Germany, a correction factor for differences due to definition, source (completeness), etc. has been calculated and a correction factor for the unknowns. Together they lead to the total correction factor. Because the value 1 is optimal, the valuation score is calculated as the absolute value of the total correction factor minus 1 (see figure 1). The valuation score of the immigration of Spain appears to be closest to zero and therefore the further revision process has been started with this migration flow. The highest value relates to the emigration of Slovakia indicating a huge underestimation of this migration flow. Therefore this flow will be corrected at the very end of the further revision process.

A consequence of the chosen approach is that the 'standard' changes after former fixations. For example, after correction of the immigration of Spain the standard for the emigration of the UK includes Spain too, leading to a revised overall correction factor for the emigration of the UK. As a result, the ranking of flows may change as well. Indeed, the ranking on the basis of revised correction factors differs somewhat from the original one. Ideally by means of an iterative process the original ranking should be replaced by the revised ranking. In this paper this process has not been carried out because from some tests it appeared that the results are hardly sensitive to a small shift in the ranking.

Figure 1. Valuation scores for selected migration flows, 2004



During the iterative procedure some specific adjustments have been made that diverge from the 'normal' procedure.

Firstly, this has been done because of a number of cells that contain unlikely zeros:

- for the immigration of the UK the emigration figures of Ireland, Cyprus, Luxembourg and Slovenia have been used. For the last three mentioned the figures have been adjusted later on (e.g. at the occasion of the correction of the emigration of Cyprus). As Ireland does not belong to the list of countries with sufficient migration data, the emigration figure from Ireland to the UK has been fixed as such;
- for the immigration of Cyprus the not yet revised emigration figures of Luxembourg and Slovenia have been used;
- for the emigration of the UK the unadjusted immigration figure of Ireland has been used and the not yet revised immigration figures of Latvia, Lithuania, Slovenia and Slovakia;
- for the emigration of Luxembourg the not yet revised immigration figures of Lithuania and Slovenia have been used;
- for the emigration of Cyprus the not yet revised immigration figures of the Czech Republic, Lithuania, Poland and Slovenia have been used;
- for the emigration of Slovenia the not yet revised immigration figures of Latvia, Lithuania and Poland have been used.

Secondly, because of the special character of these migration flows, both the immigration in the Czech Republic from Slovakia and the emigration from the Czech Republic to Slovakia have not been revised. Revision should have blown up the total migration figures to levels that expressed per 1000 of the population would not have been plausible anymore.

Thirdly, because of an unlikely big difference, the not yet revised immigration figure of Slovakia has been used for the emigration of Poland.

Results for 2004

The revised (consistent) migration matrix is presented in table 2. The differences between the original and revised double-entry migration matrix are given in table 3 (absolute) and table 4 (relative).

For three countries, Germany, Spain and Cyprus, the revised total number of immigrants is significantly lower than the original total (22, 10 and 37 per cent). In contrast, for 5 out of 17 countries the revised number of immigrants is more than twice as much as the original one. Most extreme values can be found for Poland (31 times higher) and Slovakia (20 times). This is due to the fact that in those countries only 'permanent' immigrants (and emigrants) are counted. In only two countries, Germany and Luxembourg, the revised total number of emigrants appears to be significantly lower (19 and 10 per cent) than the original number.¹ On the emigration side, 6 countries show revised total figures that are more than twice as much as the original ones. Apart from Slovakia (34 times higher) and Poland (12 times), also Latvia scores extremely high (12 times).

In estimating immigration and emigration flows, Raymer (2005) assumes that the residual net migration totals as reported by Eurostat (2006) are correct. Those residuals would result after the (correct) determination of the total population on 1 January of year t and year $t+1$, and the number of births and deaths in year t , according to the following equation:

$$NM_t = P_{t+1} - P_t - B_t + D_t$$

where NM is net migration, P population size, B births and D deaths.

However, as shown in table 6, the countries that are studied here base their population increase by migration (for non-census years) primarily on the migration flows. They may include some other corrections (e.g. Netherlands and Austria) but the main part of the annual population increase as reported by Eurostat is the difference between the original immigration and emigration flows. Hence, the population size on 1 January of the year $t+1$ is here the dependent variable.

$$P_{t+1} = P_t + B_t - D_t + NM_t$$

As a consequence, the intercensal annual population figure may be based on a diverging definition of migrants and/or on an incomplete measurement of the flows of migrants. This means that in case the number of migrants should be adjusted in order to comply with the recommended definition and/or to compensate for incomplete measurement, the annual population figure should be adjusted as well. According to the results of this study, this would be most dramatically for Spain: mainly due to a strong underestimated emigration the 'adjusted' population increase in 2004 is estimated about 170 thousand lower than reported to (and by) Eurostat. On the other side, when adjusting the numbers of migrants for Poland, the population increase would be instead of negative (decrease of 9 thousand) considerably positive (increase of more than 70 thousand; see table 5).

¹ For Luxembourg the revised country specific emigration figures are higher than the original ones because of the high proportion unknown under the original figures.

Comparison of the results for 2002, 2003 and 2004

The original double-entry migration matrices for 2003 and 2002 are presented in table 6 and table 11. Compared to the matrix of 2004 (see table 1) the composition of countries slightly differs in those years:

- 2002: includes Iceland, Italy and Romania, excludes Austria and Luxembourg;
- 2003: includes Italy, excludes Austria.

The correction factors for the standard migration flows are given in table 16, the correction factors for the remaining migration flows in table 17.

As regards the correction factors for the standard migration flows the differences between the years are limited. Worth mentioning is the decreased correction for the German emigration and the increased correction for the German immigration. Furthermore, the correction for the unknowns is considerable over the years for the emigration from Norway and the Netherlands.

More fluctuation over the years can be observed in table 17. Looking at the final correction factors several unexpected changes occur, for example in the 2002 versus 2003 emigration from Cyprus, the 2002 versus 2003 immigration into the United Kingdom, etc. These changes can be partly due to 'real' year to year changes in the countries under concern, in the sense that the completeness of measurements may vary strongly. On the other hand, another but unknown part of the instability of the correction factors may be the result of the chosen correction process. Further refinements of this process combined with the findings obtained by other similar techniques or models may lead to some more stability in the correction factors.

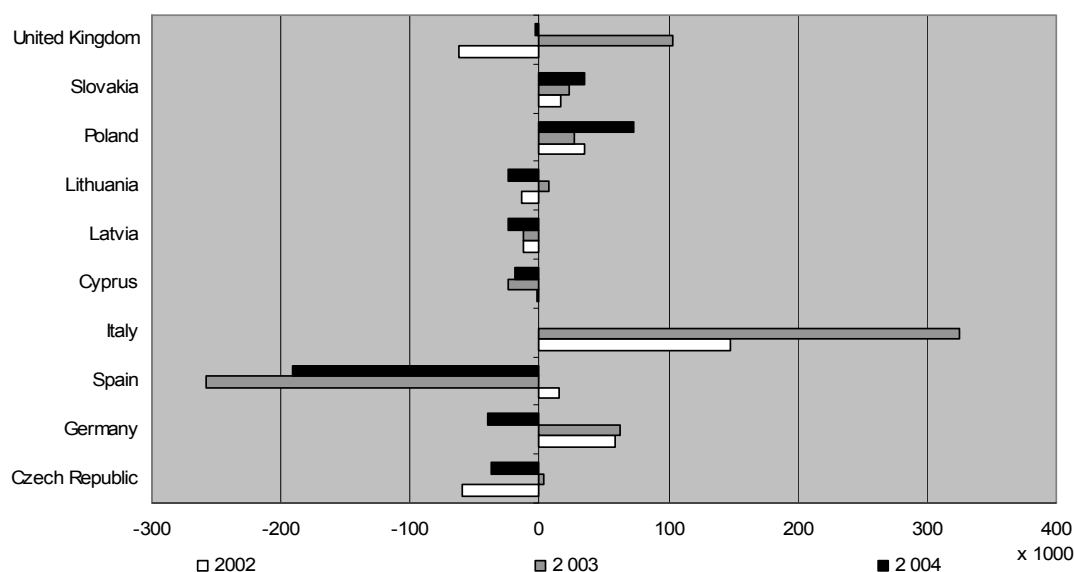
The revised double-entry matrices are presented in table 7 (2003) and table 12 (2002). The absolute differences between the revised and original matrix are given in table 8 (2003) and table 13 (2002), the relative differences in table 9 (2003) and table 14 (2002). Compared to the fluctuations in the correction factors, the absolute and relative differences between the revised and original matrices show a more stable picture over the years. This was to be expected given the fact that the correction factors only influence figures that not have been fixed earlier in the correction process. It also explains why small shifts in the ranking of the valuation score hardly affect the final results.

A summary of the differences between the revised and original total immigration and emigration flows is shown in table 10 (2003) and table 15 (2002).² Focusing on the net migration figures, it appears that the difference between the revised and original figure does not need to have the same sign over the years. For example, the revised net migration for the United Kingdom is in 2002 lower than the original one, but in 2003 higher. This is mainly due to the immigration flows (in 2002 revised lower than original, in 2003 the other way around). Other relevant differences in this respect are put together in figure 2. Spain (2003 and 2004) and Italy (2002 and 2003) form the peaks in this figure, however, with opposite directions. For Spain the emigration is the main cause (original is assumed to be too low), for Italy the immigration (original also assumed to be too low).

In the tables 10 and 15 the net migration figure according to and published by Eurostat (2004, 2006) is included as well. As was concluded earlier during the discussion of the 2004 results, net migration according to Eurostat generally does not differ much from the original net migration, indicating that net migration has been used as a separate component (independent variable) to determine the population size. However, for 2003 and 2002 some exceptions to this rule can be observed, in the sense that the population size has been the independent variable and net migration the dependent one.

² For 2004 see table 5.

Figure 2. Difference between revised and original net migration for selected European countries



NB. Italian figures for 2004 are not available

The exceptions are:

- the 2003 net migration for Spain is according to Eurostat much higher than the difference between the original immigration and emigration flows, i.e. 610 thousand versus 392 thousand, and hence closer to the estimated revised figure (717 thousand);
- the 2003 net migration for the United Kingdom is according to Eurostat much higher than the original figure, i.e. 178 thousand versus 118 thousand, and again closer to the estimated revised figure (221 thousand);
- the 2002 net migration for Spain is according to Eurostat much lower than the original net migration, i.e. 224 thousand versus 447 thousand; in this case the estimated revised figure is close to the original one (462 thousand);
- the 2002 net migration for Italy is according to Eurostat much higher than the original one, i.e. 350 thousand versus 171 thousand and herewith closer to the estimated revised figure (320 thousand);
- the 2002 net migration for the United Kingdom is according to Eurostat higher than the original figure, i.e. 126 thousand versus 80 thousand; the estimated revised figure is much lower (18 thousand).

It would be interesting to further analyse the above mentioned differences, e.g. by studying in which ways the population size has been determined in these cases. However, this is beyond the scope of this project.

Finally, for the 15 countries with available data for all years, table 18 presents a summary of the whole period 2002-2004. According to the results of this study, and hence more or less based on the recommended definition of a migrant, including complete measurement, the population increase during this period should be adjusted downward for some countries and adjusted upward for some other countries. Examples of the first mentioned are Spain (207 thousand lower), the Czech Republic (94 thousand lower) and the United Kingdom (62 thousand lower). Examples of the last mentioned are Poland (131 thousand higher), Germany (83 thousand higher) and Slovakia (75 thousand higher). For those 15 countries together the population increase during the years 2002-2004 should be 221 thousand less than reported by Eurostat, due to the fact that generally the number of emigrants is more underestimated than the number of immigrants.

Conclusion

Despite many efforts to harmonise statistics on international migration (see for an overview Herm, 2006), to date there are still big discrepancies in migration flows reported by receiving and sending countries. These discrepancies are due to several causes, such as the definition of an international migrant, the kind of source (e.g. population register, alien register, large scale surveys), the completeness of the source, etc. To overcome the discrepancies several techniques and models have been developed. Evidently, none of the techniques or models will result in the 'real' figures. The comparison of different ways to create a consistent double-entry migration matrix is needed to judge the reliability of the results. This study focussed on the revision of existing migration data for about 17 European countries by means of an iterative process in which the sequence of revision is dominant. Besides, interventions have been made based on expert knowledge. A further elaboration may be considered in order to come to more stability over the years in the correction factors. Furthermore, an extension towards the estimation of missing data is recommended. Nevertheless, it is clear that in several cases dramatic corrections are needed, especially for some of the newly accessed countries, especially Poland, Romania and Slovakia. Another important conclusion of this study is that in case the number of migrants should be adjusted in order to comply with the recommended definition of a migrant and/or to compensate for incomplete measurement, the annual population figure should be adjusted as well.

References

- Eurostat (2004) *Population statistics, 2004 edition*, Luxembourg, table F-1.
- Eurostat (2006) *Population statistics, 2006 edition*, Luxembourg, table F-1.
- Herm, A. (2006) Recommendations on international migration statistics and development of data collection at an international level. In: Michel Poulain, Nicolas Perrin and Ann Singleton eds. *THESIM, Towards Harmonised European Statistics on International Migration*, Louvain, pp. 77-106.
- Poulain, M. (1999) *International Migration within Europe: Towards more complete and reliable data?* Paper presented at the Joint ECE-Eurostat Work Session on Demographic Projections, Perugia, 3-7 May.
- Raymer, J. (2005) Obtaining an overall picture of population movements in the European Union. Paper presented at the workshop on the Estimation of International Migration Flows in Europe: Issues, Models and Assessment, Southampton, September 28-30, 2005. Forthcoming in J. Raymer and F.J. Willekens eds. *Estimation of international migration in Europe: issues, models and assessment*. Wiley, London.
- Raymer, J. (2006) The estimation of international migration flows: a general technique focused on the origin-destination association structure. Forthcoming in *Environment and Planning A*.
- United Nations (1998) Recommendations on statistics of International Migration, Revision 1, UN publications sales no. E.98.XVII.14.
- Willekens, F.J. (2005) Models of migration: observations and judgments. Paper presented at the workshop on the Estimation of International Migration Flows in Europe: Issues, Models and Assessment, September 28-30, 2005. Forthcoming in J. Raymer and F.J. Willekens eds. *Estimation of international migration in Europe: issues, models and assessment*. Wiley, London.

Table 1. Original double-entry migration matrix for selected European countries, 2004

From	To																				
	cz	dk	de	es	cy	lv	lt	lu	nl	at	pl	si	sk	fi	se	uk	no	EU-27	non-EU	unknown	total
cz	I	-	249	9 711	725	100	5	32	5	565	1 503	61	5	987	47	120	7 266	115			
	E	-	29	961	64	21	13	21	6	128	330	1 011	13	21 152	59	32	379	33	25 529	9 278	11
dk	I	44	-	2 678	919	33	52	89	11	453	218	21	1	16	379	4 674	1 508	2 893			
	E	178	-	2 618	1 813	12	324	623	114	564	233	656	28	76	365	4 710	4 286	2 899	20 445	21 509	3 063
de	I	1 749	3 347	-	14 713	366	170	629	457	8 671	14 888	2 697	263	333	903	2 957	16 326	1 653			
	E	9 079	3 062	-	18 010	302	1 695	2 356	1 670	9 781	18 528	104 538	2528	10 248	2 696	4 168	18 529	1 811	349 362	285 440	62 830
es	I	90	1 658	14 406	-	47	10	250	13	2 826	674	103	2	23	616	1 174	12 819	717			
	E	38	128	1 838	-	8	11	70	46	730	79	219	8	19	69	130	2 233	104	12 112	14 625	28 355
cy	I	12	14	257	20	-	0	2	0	48	18	3	1	5	24	55	1 724	19			
	E	0	19	77	17	-	0	0	0	17	0	0	0	20	0	15	334	14	1 881	4 398	0
lv	I	18	394	2 419	263	160	-	147	4	155	121	11	0	0	80	218	4 015	135			
	E	4	53	233	8	1	-	152	4	11	11	19	1	1	50	72	113	25	943	1 801	0
lt	I	56	941	4 964	2 736	66	246	-	3	455	181	57	0	4	89	444	10 800	523			
	E	77	194	1 727	730	9	159	-	21	132	78	137	2	10	106	307	3 525	241	9 022	6 140	3
lu	I	1	172	1 987	150	0	0	1	-	154	67	3	5	1	58	89	0	16			
	E	11	111	852	93	2	3	0	-	102	28	23	0	11	44	77	172	4	4 800	547	5 564
nl	I	269	834	13 026	4 499	55	8	43	22	-	757	138	14	40	256	823	7 301	601			
	E	260	507	9 552	3 616	40	37	36	168	-	551	757	31	103	313	809	8 890	629	42 174	32 875	35 186
at	I	476	273	13 466	601	92	8	29	13	523	-	136	65	193	98	252	1 684	112			
	E	910	143	5 644	369	15	45	82	45	396	-	1 983	329	1 555	215	396	925	76	21 403	24 016	31 398
pl	I	1 806	1 263	139 283	6 150	1 086	27	117	9	5 073	7 111	-	3	216	134	2 521	16 985	1 576			
	E	41	50	12 646	201	2	3	3	14	363	404	-	1	1	6	174	543	51	15 359	3 513	5
si	I	17	33	2 411	141	0	1	2	2	74	599	2	-	15	1	41	0	10			
	E	8	1	473	14	5	0	0	29	21	207	0	-	4	2	44	61	6	1 362	895	6 012
sk	I	15 788	101	11 720	759	692	2	5	5	472	3 480	22	3	-	14	119	5 834	138			
	E	662	2	229	16	0	0	0	1	8	175	13	1	-	0	3	70	2	1 289	297	0
fi	I	51	393	2 229	774	34	49	54	1	348	286	3	2	5	-	3 035	747	647			
	E	51	384	816	738	21	34	20	63	234	100	92	6	16	-	3 074	1 267	645	9 205	4 395	56
se	I	84	3 169	3 484	1 587	156	32	86	16	625	463	114	14	20	3 570	-	5 918	4 308			
	E	111	3 024	1 582	1 342	60	48	40	111	440	249	299	16	31	3 507	-	3 878	4 211	17 711	15 369	3 506
uk	I	635	3 465	12 719	46 518	3 863	111	541	36	5 407	1 221	313	21	86	890	2 885	-	1 653			
	E	362	0	9 093	34 182	6 433	0	0	439	4 444	1 432	872	0	0	545	2 783	-	778	105 241	205 148	0
no	I	19	3 159	1 375	1 736	15	24	101	1	448	109	30	1	6	971	4 884	2 119	-			
	E	36	3 147	735	807	9	75	88	16	274	61	162	2	39	1 004	4 866	1 470	-	13 798	5 765	3 708
EU-27	I	23 189	20 877	352 005	221 520	14 382	903	2 570	3 040	40 336	45 469	4 528	528	2 606	10 163	23 344	130 855	16 825			
non-EU	I	30 214	28 400	377 117	337 347	7 601	762	2 862	159	53 683	59 157	4 964	887	1 854	9 889	38 033	387 242	19 401			
unknown	I	50	583	51 053	125 694	20	0	121	9 296	0	22 773	3	8 756	0	281	651	0	256			
total	I	53 453	49 860	780 175	684 561	22 003	1 665	5 553	12 495	94 019	127 399	9 495	10 171	4 460	20 333	62 028	518 097	36 482			

Source: Eurostat

NB The columns present immigration data (I), the rows emigration data (E)

Table 2. Revised migration matrix for selected European countries, 2004

From	To																			
	cz	dk	de	es	cy	lv	lt	lu	nl	at	pl	si	sk	fi	se	uk	no	EU-27	non-EU	total
cz	-	252	8 135	803	63	23	98	26	565	1 834	10 238	132	21 152	48	122	8 944	116	65 700	93 737	159 436
dk	194	-	2 858	1 979	13	354	680	124	453	254	716	31	83	372	4 692	4 679	2 896	21 680	23 212	44 892
de	8 119	3 393	-	16 105	270	1 516	2 107	1 493	8 671	18 162	93 481	2 261	9 164	920	2 996	16 569	1 668	312 360	255 297	567 657
es	298	1 681	12 068	-	29	46	768	68	2 826	822	1 475	54	128	627	1 190	15 779	723	81 533	98 501	180 033
cy	40	14	215	22	-	0	6	0	48	22	92	9	53	24	56	884	19	5 144	11 625	16 769
lv	60	399	2 026	291	100	-	452	21	155	148	233	12	12	81	221	4 942	136	11 728	21 903	33 631
lt	254	954	4 158	3 029	41	524	-	69	455	221	451	7	33	91	450	13 294	528	29 985	19 957	49 943
lu	20	174	1 664	166	4	6	3	-	154	82	42	43	20	59	90	316	16	8 846	1 013	9 859
nl	387	845	14 205	5 377	59	55	54	250	-	923	1 126	46	153	261	834	13 220	606	62 338	48 559	110 896
at	1 557	277	9 654	631	26	77	140	77	523	-	3 392	563	2 660	100	255	1 582	113	35 797	41 062	76 859
pl	5 989	1 280	116 676	6 809	682	125	359	47	5 073	8 675	-	26	4 401	136	2 555	20 907	1 590	184 431	42 395	226 826
si	32	33	2 020	156	20	5	6	116	74	731	61	-	16	1	42	244	10	5 529	3 567	9 096
sk	15 788	102	9 818	840	434	9	15	26	472	4 245	674	26	-	14	121	7 181	139	43 447	10 099	53 545
fi	51	389	821	742	21	34	20	63	348	101	93	6	16	-	3 055	1 275	646	9 337	4 419	13 756
se	129	3 097	1 835	1 557	70	56	46	129	625	289	347	19	36	3 539	-	4 499	4 260	19 720	17 204	36 924
uk	488	3 512	10 655	51 504	2 424	513	1 662	592	5 407	1 490	1 176	179	1 752	907	2 923	-	1 668	159 201	277 253	436 454
no	49	3 153	1 000	1 098	12	102	120	22	448	83	220	3	53	988	4 875	2 001	-	15 597	7 846	23 444
EU-27	40 347	21 037	295 022	246 087	9 046	4 183	8 085	15 863	40 336	54 933	139 461	4 511	53 169	10 240	23 590	165 102	16 859			
non-EU	100 189	28 740	315 755	372 681	4 773	3 513	8 601	847	53 683	72 117	151 424	7 563	37 708	10 071	38 466	476 056	19 576			
total	140 536	49 777	610 778	618 768	13 819	7 696	16 686	16 711	94 019	127 050	290 885	12 075	90 876	20 311	62 057	641 158	36 436			

Source: Eurostat figures revised by NIDI

Table 3. Absolute difference between the revised and original double-entry migration matrix for selected European countries, 2004

From	To	To																			total	
		cz	dk	de	es	cy	lv	lt	lu	nl	at	pl	si	sk	fi	se	uk	no	EU-27	non-EU		unknown
cz	I	-	3	-1 576	78	-37	18	66	21	0	331	10 177	127	20 165	1	2	1 678	1				
	E	-	223	7 174	739	42	10	77	20	437	1 504	9 227	119	0	-11	90	8 565	83	40 171	84 459	-11	124 618
dk	I	150	-	180	1 060	-20	302	591	113	0	36	695	30	67	-7	18	3 171	3				
	E	16	-	240	166	1	30	57	10	-111	21	60	3	7	7	-18	393	-3	1 235	1 703	-3 063	-125
de	I	6 370	46	-	1 392	-96	1 346	1 478	1 036	0	3 274	90 784	1 998	8 831	17	39	243	15				
	E	-960	331	-	-1 905	-32	-179	-249	-177	-1 110	-366	-11 057	-267	-1 084	-1 776	-1 172	-1 960	-143	-37 002	-30 143	-62 830	-129 975
es	I	208	23	-2 338	-	-18	36	518	55	0	148	1 372	52	105	11	16	2 960	6				
	E	260	1 553	10 230	-	21	35	698	22	2 096	743	1 256	46	109	558	1 060	13 546	619	69 421	83 876	-28 355	124 941
cy	I	28	0	-42	2	-	0	4	0	0	4	89	8	48	0	1	-840	0				
	E	40	-5	138	5	-	0	6	0	31	22	92	9	33	24	41	550	5	3 263	7 227	0	10 490
lv	I	42	5	-393	28	-60	-	305	17	0	27	222	12	12	1	3	927	1				
	E	56	346	1 793	283	99	-	300	17	144	137	214	11	11	31	149	4 829	111	10 785	20 102	0	30 887
lt	I	198	13	-806	293	-25	278	-	66	0	40	394	7	29	2	6	2 494	5				
	E	177	760	2 431	2 299	32	365	-	48	323	143	314	5	23	-15	143	9 769	287	20 963	13 817	-3	34 778
lu	I	19	2	-323	16	4	6	2	-	0	15	39	38	19	1	1	316	0				
	E	9	63	812	73	2	3	3	-	52	54	19	43	9	15	13	144	12	4 046	466	-5 564	-1 052
nl	I	118	11	1 179	878	4	47	11	228	-	166	988	32	113	5	11	5 919	5				
	E	127	338	4 653	1 761	19	18	18	82	-	372	369	15	50	-52	25	4 330	-23	20 164	15 684	-35 186	661
at	I	1 081	4	-3 812	30	-66	69	111	64	0	-	3 256	498	2 467	2	3	-102	1				
	E	647	134	4 010	262	11	32	58	32	127	-	1 409	234	1 105	-115	-141	657	37	14 394	17 046	-31 398	42
pl	I	4 183	17	-22 607	659	-404	98	242	38	0	1 564	-	23	4 185	2	34	3 922	14				
	E	5 948	1 230	104 030	6 608	680	122	356	33	4 710	8 271	-	25	4 400	130	2 381	20 364	1 539	169 072	38 882	-5	207 949
si	I	15	0	-391	15	20	4	4	114	0	132	59	-	1	0	1	244	0				
	E	24	32	1 547	142	15	5	6	87	53	524	61	-	12	-1	-2	183	4	4 167	2 672	-6 012	827
sk	I	0	1	-1 902	81	-258	7	10	21	0	765	652	23	-	0	2	1 347	1				
	E	15 126	100	9 589	824	434	9	15	25	464	4 070	661	25	-	14	118	7 111	137	42 158	9 802	0	51 959
fi	I	0	-5	-1 408	-32	-13	-15	-34	62	0	-185	90	4	11	-	20	528	-1				
	E	0	5	5	4	0	0	0	114	1	1	0	0	0	-	-20	8	1	132	24	-56	100
se	I	45	-73	-1 649	-30	-86	24	-40	113	0	-174	233	5	16	-32	-	-1 419	-49				
	E	18	73	253	215	10	8	6	18	185	40	48	3	5	32	-	621	49	2 009	1 835	-3 506	338
uk	I	-147	47	-2 064	4 986	-1 439	402	1 121	556	0	269	863	158	1 666	17	38	-	15				
	E	126	3 512	1 562	17 322	-4 009	513	1 662	153	963	58	304	179	1 752	362	140	-	890	53 960	72 105	0	126 065
no	I	30	-6	-375	-638	-3	78	19	21	0	-26	190	2	47	17	-9	-118	-				
	E	13	6	265	291	3	27	32	6	174	22	58	1	14	-17	9	531	-	1 799	2 081	-3 708	173
EU-27	I	17 158	160	-56 983	24 567	-5 336	3 280	5 515	12 823	0	9 464	134 933	3 983	50 563	77	246	34 247	34				
non-EU	I	69 975	340	-61 362	35 334	-2 828	2 751	5 739	688	0	12 960	146 460	6 676	35 854	182	433	88 814	175				
unknown	I	-50	-583	-51 053	-125 694	-20	0	-121	-9 296	0	-22 773	-3	-8 756	0	-281	-651	0	-256				
total	I	87 083	-83	-169 397	-65 793	-8 184	6 031	11 133	4 216	0	-349	281 390	1 904	86 416	-22	29	123 061	-47				

Table 4. Relative difference between the revised and original double-entry migration matrix for selected European countries, 2004*

From		To																		EU-27	non-EU	total
		cz	dk	de	es	cy	lv	lt	lu	nl	at	pl	si	sk	fi	se	uk	no				
cz	I	-	101	84	111	63	462	307	522	100	122	16 788	2 634	2 143	102	101	123	101				
	E	-	870	846	1 254	299	178	468	435	441	556	1 013	1 013	100	81	380	2 360	352	257	1 011	458	
dk	I	442	-	107	215	40	680	764	1 131	100	117	3 410	3 057	519	98	100	310	100				
	E	109	-	109	109	109	109	109	109	80	109	109	109	109	102	100	109	100	106	108	100	
de	I	464	101	-	109	74	892	335	327	100	122	3 466	860	2 752	102	101	101	101				
	E	89	111	-	89	89	89	89	89	89	98	89	89	89	34	72	89	92	89	89	81	
es	I	332	101	84	-	63	462	307	522	100	122	1 432	2 693	556	102	101	123	101				
	E	785	1 313	657	-	369	420	1 097	148	387	1 041	673	673	673	909	915	707	696	673	674	327	
cy	I	332	101	84	111	-		307		100	122	3 065	853	1 059	102	101	51	101				
	E	∞	75	280	130	-		∞		282	∞	∞	∞	265	∞	372	265	137	273	264	267	
lv	I	332	101	84	111	63	-	307	522	100	122	2 117	∞	∞	102	101	123	101				
	E	1 492	754	870	3 640	10 041	-	297	522	1 409	1 342	1 226	1 226	1 226	163	307	4 374	545	1 244	1 216	1 226	
lt	I	453	101	84	111	63	213	-	2 306	100	122	792	∞	824	102	101	123	101				
	E	329	492	241	415	460	329	-	329	345	283	329	329	329	86	147	377	219	332	325	329	
lu	I	2 019	101	84	111	∞	∞	307	-	100	122	1 407	853	2 019	102	101	∞	101				
	E	184	157	195	179	184	184	∞	-	151	292	184	∞	184	134	117	184	404	184	185	90	
nl	I	144	101	109	120	108	688	124	1 136	-	122	816	329	383	102	101	181	101				
	E	149	167	149	149	149	149	149	149	-	168	149	149	149	83	103	149	96	148	148	101	
at	I	327	101	72	105	28	962	484	592	100	-	2 494	866	1 378	102	101	94	101				
	E	171	194	171	171	171	171	171	171	132	-	171	171	171	46	64	171	149	167	171	100	
pl	I	332	101	84	111	63	462	307	522	100	122	-	853	2 038	102	101	123	101				
	E	14 609	2 561	923	3 388	34 075	4 160	11 980	336	1 398	2 147	-	2 560	440 118	2 275	1 468	3 850	3 118	1 201	1 207	1 202	
si	I	188	101	84	111	∞	462	307	5 801	100	122	3 065	-	107	102	101	∞	101				
	E	400	3 345	427	1 115	400	∞	∞	400	352	353	∞	-	400	51	94	400	168	406	399	110	
sk	I	100	101	84	111	63	462	307	522	100	122	3 065	853	-	102	101	123	101				
	E	2 385	5 119	4 287	5 252	∞	∞	∞	2 612	5 900	2 426	5 186	2 560	-	∞	4 020	10 259	6 962	3 371	3 400	3 376	
fi	I	101	99	37	96	62	70	37	6 338	100	35	3 085	302	322	-	101	171	100				
	E	101	101	101	101	101	101	101	101	149	101	101	101	101	-	99	101	100	101	101	101	
se	I	153	98	53	98	45	174	54	805	100	62	304	133	180	99	-	76	99				
	E	116	102	116	116	116	116	116	116	142	116	116	116	116	101	-	116	101	111	112	101	
uk	I	77	101	84	111	63	462	307	1 644	100	122	376	853	2 038	102	101	-	101				
	E	135	∞	117	151	38	∞	∞	135	122	104	135	∞	∞	166	105	-	214	151	135	141	
no	I	258	100	73	63	82	425	119	2 178	100	76	735	272	885	102	100	94	-				
	E	136	100	136	136	136	136	136	136	164	136	136	136	136	98	100	136	-	113	136	101	
EU-27	I	174	101	84	111	63	463	315	522	100	121	3 080	854	2 040	101	101	126	100				
non-EU	I	332	101	84	110	63	461	301	533	100	122	3 051	853	2 034	102	101	123	101				
total	I	263	100	78	90	63	462	300	134	100	100	3 064	119	2 038	100	100	124	100				

* Revised figure as percentage of the original figure

∞ means that the revised figure is more than zero while the original figure equals zero

Empty cells mean that they were both zero in the revised and original matrix

Table 5. Revised and original total migration flows for selected European countries, 2004, x 1000

	Immigration			Emigration			Net migration			
	revised	original	rev-org	revised	original	rev-org	revised	original	acc Eurostat	rev-Eurostat
Czech Republic	141	53	87	159	35	125	-19	19	19	-38
Denmark	50	50	0	45	45	0	5	5	5	0
Germany	611	780	-169	568	698	-130	43	83	82	-39
Spain	619	685	-66	180	55	125	439	629	610	-171
Cyprus	14	22	-8	17	6	10	-3	16	16	-19
Latvia	8	2	6	34	3	31	-26	-1	-1	-25
Lithuania	17	6	11	50	15	35	-33	-10	-10	-24
Luxembourg	17	12	4	10	11	-1	7	2	2	5
Netherlands	94	94	0	111	110	1	-17	-16	-10	-7
Austria	127	127	0	77	77	0	50	51	62	-12
Poland	291	9	281	227	19	208	64	-9	-9	73
Slovenia	12	10	2	9	8	1	3	2	2	1
Slovakia	91	4	86	54	2	52	37	3	3	35
Finland	20	20	0	14	14	0	7	7	7	0
Sweden	62	62	0	37	37	0	25	25	25	0
United Kingdom	641	518	123	436	310	126	205	208	202	3
Norway	36	36	0	23	23	0	13	13	13	0
total	2 850	2 492	357	2 050	1 467	583	800	1 025	1 016	-216

Table 6. Original double-entry migration matrix for selected European countries, 2003

From		To																				
		cz	dk	de	es	it	cy	lv	lt	lu	nl	pl	si	sk	fi	se	uk	no	EU-27	non-EU	unknown	total
cz	I	-	232	9 258	388	915	79	2	11	3	333	46	7	650	47	123	1 674	70				
	E	-	47	950	70	197	32	12	13	6	149	1 040	9	18 262	57	43	455	38	22 827	11 395	4	34 226
dk	I	65	-	2 693	764	281	14	22	81	14	474	17	5	0	371	4 603	565	2 851				
	E	180	-	2 540	1 720	782	24	348	596	131	609	548	29	79	403	4 582	4 317	2 908	20 101	19 967	3 398	43 466
de	I	1 228	3 221	-	13 746	12 902	195	79	257	436	7 921	2 261	242	106	807	2 872	14 558	1 530				
	E	8 909	2 712	-	16 236	33 802	306	1 474	2 011	1 510	8 616	82 910	2 346	9 546	2 380	3 786	15 550	1 730	306 712	271 810	47 808	626 330
es	I	103	1 665	14 647	-	2 051	38	2	85	28	2 794	85	6	2	608	1 234	15 493	679				
	E	34	130	2 109	-	801	1	1	31	89	600	144	12	16	102	164	2 335	116	11 858	14 101	38 339	64 298
it	I	274	895	23 702	5 796	-	11	17	47	68	1 661	229	49	14	209	473	1 199	230				
	E	20	155	9 778	895	-	1	3	1	189	442	450	194	22	170	218	3 092	147	22 256	26 450	0	48 706
cy	I	35	33	260	19	26	-	0	2	0	32	3	1	0	22	44	1 918	14				
	E	16	14	80	14	16	-	0	0	0	19	15	0	0	0	21	261	0	1 802	2 635	0	4 437
lv	I	17	381	1 966	207	193	12	-	177	0	74	4	0	0	63	182	0	157				
	E	3	40	170	2	32	1	-	80	1	19	15	0	3	33	45	40	18	619	1 591	0	2 210
lt	I	27	701	3 457	1 401	392	15	146	-	1	173	60	0	1	44	232	76	265				
	E	53	158	1 204	465	184	2	192	-	1	95	123	0	3	112	191	980	180	4 395	6 636	1	11 032
lu	I	3	196	1 728	89	243	0	0	1	-	166	3	2	0	34	78	804	22				
	E	7	119	747	73	208	0	2	1	-	97	11	3	7	33	74	171	21	4 578	648	5 314	10 540
nl	I	245	820	13 015	3 567	893	65	8	40	25	-	72	8	11	239	707	10 190	443				
	E	172	430	9 822	3 365	1 274	37	21	41	150	-	622	40	65	292	648	7 022	492	39 294	29 591	35 946	104 831
pl	I	1 653	995	104 924	3 498	10 973	123	15	113	10	2 106	-	2	36	89	1 134	3 534	586				
	E	46	68	15 013	139	311	0	4	7	14	275	-	0	10	11	117	282	35	17 129	3 676	8	20 813
si	I	16	31	2 053	71	394	0	2	1	0	60	1	-	1	6	22	0	7				
	E	12	4	463	12	127	4	0	0	17	14	7	-	4	1	24	32	3	1 016	861	3 990	5 867
sk	I	24 385	84	10 684	324	757	63	5	5	5	191	19	5	-	12	56	2 112	99				
	E	448	0	199	8	38	0	0	0	5	8	10	0	-	1	6	52	3	958	236	0	1 194
fi	I	55	421	2 204	802	278	11	38	32	2	362	6	0	0	-	3 395	246	934				
	E	34	397	761	792	210	19	21	20	57	217	23	2	4	-	3 428	1 070	931	8 272	3 805	6	12 083
se	I	83	2 705	3 397	1 537	428	46	40	58	11	638	91	18	7	3 438	-	1 959	4 527				
	E	77	2 585	1 580	1 356	441	54	58	38	66	499	216	10	23	3 386	-	3 676	4 391	16 792	14 796	3 435	35 023
uk	I	488	3 707	13 197	34 177	4 970	2 870	35	122	37	5 872	261	16	33	914	3 022	-	1 395				
	E	833	1 979	25 576	37 658	5 047	2 980	0	0	1 223	2 349	3 172	0	1 483	708	487	-	2 192	121 104	192 856	0	313 960
no	I	36	3 305	1 439	1 692	231	0	17	38	1	476	24	1	1	990	5 807	2 382	-				
	E	41	3 259	703	1 079	190	17	74	104	12	323	244	11	29	1 017	5 817	1 408	-	15 348	6 116	3 208	24 672
EU-27	I	30 842	19 913	319 244	155 774	124 763	9 553	525	1 222	2 973	36 528	3 687	479	1 189	9 198	21 894	111 245	15 264				
non-EU	I	29 144	29 193	426 572	314 236	315 538	7 179	839	3 506	183	67 515	3 360	683	1 414	8 440	41 154	320 242	20 478				
unknown	I	29	648	23 159	202 256	0	47	0	0	9 457	471	1	8 117	0	200	747	0	215				
total	I	60 015	49 754	768 975	672 266	440 301	16 779	1 364	4 728	12 613	104 514	7 048	9 279	2 603	17 838	63 795	431 487	35 957				

Source: Eurostat

NB The columns present immigration data (I), the rows emigration data (E)

Table 7. Revised migration matrix for selected European countries, 2003

From	To																			
	cz	dk	de	es	it	cy	lv	lt	lu	nl	pl	si	sk	fi	se	uk	no	EU-27	non-EU	total
cz	-	236	8 715	435	1 719	79	81	53	17	335	7 003	61	18 262	48	125	2 021	71	49 187	76 547	125 734
dk	199	-	2 813	1 905	866	27	385	660	145	476	607	32	88	387	4 593	4 782	2 880	21 524	21 775	43 299
de	7 648	3 270	-	13 939	29 019	263	1 265	1 726	1 296	7 957	71 179	2 014	8 195	820	2 916	13 350	1 542	263 257	233 407	496 664
es	378	1 690	13 788	-	3 852	38	7	407	159	2 807	981	82	109	617	1 253	18 702	684	80 913	95 986	176 899
it	45	909	22 312	6 496	-	11	7	2	428	1 669	1 020	440	50	212	480	1 447	232	50 547	59 850	110 397
cy	105	34	245	21	49	-	0	10	0	32	98	8	0	22	45	2 315	14	11 777	17 231	29 008
lv	62	387	1 851	232	363	12	-	848	0	74	143	0	29	64	185	382	158	5 918	15 163	21 081
lt	105	712	3 254	1 570	736	15	382	-	2	174	245	0	6	45	236	92	267	8 830	13 104	21 933
lu	17	199	1 627	100	498	0	5	2	-	167	26	7	17	35	79	971	22	10 997	1 524	12 521
nl	264	832	15 090	5 170	1 957	57	32	63	230	-	956	61	100	243	718	10 788	446	60 056	45 152	105 208
pl	6 073	1 010	98 770	3 921	20 611	123	34	541	57	2 116	-	15	85	90	1 151	4 266	591	145 967	31 677	177 644
si	53	31	1 933	80	740	18	12	5	76	60	31	-	18	6	22	142	7	4 538	3 820	8 358
sk	24 385	85	10 057	363	1 422	63	31	24	28	192	516	38	-	12	57	2 549	100	49 214	12 056	61 270
fi	34	409	762	793	210	19	21	20	57	364	23	2	4	-	3 412	1 071	933	8 418	3 809	12 227
se	90	2 645	1 842	1 581	514	63	68	44	77	641	252	12	27	3 412	-	4 285	4 459	18 731	16 588	35 319
uk	772	3 763	12 423	38 307	4 680	2 763	216	584	1 134	5 899	2 942	0	1 375	928	3 068	-	1 406	126 731	178 215	304 946
no	53	3 282	907	1 392	245	22	95	134	15	478	315	14	37	1 004	5 812	1 817	-	16 940	7 892	24 832
EU-27	48 186	20 096	300 968	175 100	234 532	9 586	3 250	5 899	16 984	36 693	100 374	3 680	39 171	9 272	22 111	140 767	15 277			
non-EU	106 990	29 563	401 106	351 700	592 489	7 229	5 169	16 740	1 051	67 821	90 829	5 264	46 594	8 570	41 695	385 508	20 639			
total	155 176	49 659	702 073	526 800	827 021	16 815	8 419	22 640	18 035	104 514	191 202	8 944	85 765	17 842	63 806	526 274	35 916			

Source: Eurostat figures revised by NIDI

Table 8. Absolute difference between the revised and original double-entry migration matrix for selected European countries, 2003

From	To																				total	
		cz	dk	de	es	it	cy	lv	lt	lu	nl	pl	si	sk	fi	se	uk	no	EU-27	non-EU		unknown
cz	I	-	4	-543	47	804	0	79	42	14	2	6 957	54	17 612	1	2	347	1	49 187			
	E	-	189	7 765	365	1 522	47	69	40	11	186	5 963	52	0	-9	82	1 566	33	26 360	65 152	-4	91 508
dk	I	134	-	120	1 141	585	13	363	579	131	2	590	27	88	16	-11	4 217	29	21 524			
	E	19	-	273	185	84	3	37	64	14	-133	59	3	9	-16	11	465	-29	1 423	1 808	-3 398	-167
de	I	6 420	49	-	193	16 117	68	1 186	1 469	860	36	68 918	1 772	8 089	13	44	-1 208	12	263 257			
	E	-1 261	558	-	-2 297	-4 783	-43	-209	-285	-214	-659	-11 731	-332	-1 351	-1 560	-870	-2 200	-188	-43 455	-38 403	-47 808	-129 666
es	I	275	25	-859	-	1 801	0	5	322	131	13	896	76	107	9	19	3 209	5	80 913			
	E	344	1 560	11 679	-	3 051	37	6	376	70	2 207	837	70	93	515	1 089	16 367	568	69 055	81 885	-38 339	112 601
it	I	-229	14	-1 390	700	-	0	-10	-45	360	8	791	391	36	3	7	248	2	50 547			
	E	25	754	12 534	5 601	-	10	4	1	239	1 227	570	246	28	42	262	-1 645	85	28 291	33 400	0	61 691
cy	I	70	1	-15	2	23	-	0	8	0	0	95	7	0	0	1	397	0	11 777			
	E	89	20	165	7	33	-	0	10	0	13	83	8	0	22	24	2 054	14	9 975	14 596	0	24 571
lv	I	45	6	-115	25	170	0	-	671	0	0	139	0	29	1	3	382	1	5 918			
	E	59	347	1 681	230	331	11	-	768	-1	55	128	0	26	31	140	342	140	5 299	13 572	0	18 871
lt	I	78	11	-203	169	344	0	236	-	1	1	185	0	5	1	4	16	2	8 830			
	E	52	554	2 050	1 105	552	13	190	-	1	79	122	0	3	-67	45	-888	87	4 435	6 468	-1	10 901
lu	I	14	3	-101	11	255	0	5	1	-	1	23	5	17	1	1	167	0	10 997			
	E	10	80	880	27	290	0	3	1	-	70	15	4	10	2	5	800	1	6 419	876	-5 314	1 981
nl	I	19	12	2 075	1 603	1 064	-8	24	23	205	-	884	53	89	4	11	598	3	60 056			
	E	92	402	5 268	1 805	683	20	11	22	80	-	334	21	35	-49	70	3 766	-46	20 762	15 561	-35 946	377
pl	I	4 420	15	-6 154	423	9 638	0	19	428	47	10	-	13	49	1	17	732	5	145 967			
	E	6 027	942	83 757	3 782	20 300	123	30	534	43	1 841	-	15	75	79	1 034	3 984	556	128 838	28 001	-8	156 831
si	I	37	0	-120	9	346	18	10	4	76	0	30	-	17	0	0	142	0	4 538			
	E	41	27	1 470	68	613	14	12	5	59	46	24	-	14	5	-2	110	4	3 522	2 959	-3 990	2 491
sk	I	0	1	-627	39	665	0	26	19	23	1	497	33	-	0	1	437	1	49 214			
	E	23 937	85	9 858	355	1 384	63	31	24	23	184	506	38	-	11	51	2 497	97	48 256	11 820	0	60 076
fi	I	-21	-12	-1 442	-9	-68	8	-17	-12	55	2	17	2	4	-	17	825	-2	8 418			
	E	0	12	1	1	0	0	0	0	147	0	0	0	0	-	-17	1	2	146	4	-6	144
se	I	7	-60	-1 555	44	86	17	28	-14	66	3	161	-6	20	-26	-	2 326	-68	18 731			
	E	13	60	262	225	73	9	10	6	11	142	36	2	4	26	-	609	68	1 939	1 792	-3 435	296
uk	I	284	56	-774	4 130	-290	-107	181	462	1 097	27	2 681	-16	1 342	14	46	-	11	126 731			
	E	-61	1 784	-13 153	649	-367	-217	216	584	-89	3 550	-230	0	-108	220	2 581	-	-786	5 627	-14 641	0	-9 014
no	I	17	-23	-532	-300	14	22	78	96	14	2	291	13	36	14	5	-565	-	16 940			
	E	12	23	204	313	55	5	21	30	3	155	71	3	8	-14	-5	409	-	1 592	1 776	-3 208	160
EU-27	I	17 344	183	-18 276	19 326	109 769	33	2 725	4 677	14 011	165	96 687	3 201	37 982	74	217	29 522	13				
non-EU	I	77 846	370	-25 466	37 464	276 951	50	4 330	13 234	868	306	87 469	4 581	45 180	130	541	65 266	161				
unknown	I	-29	-648	-23 159	-202 256	0	-47	0	0	-9 457	-471	-1	-8 117	0	-200	-747	0	-215				
total	I	95 161	-95	-66 902	-145 466	386 720	36	7 055	17 912	5 422	0	184 154	-335	83 162	4	11	94 787	-41				

Table 9. Relative difference between the revised and original double-entry migration matrix for selected European countries, 2003*

From	To																		EU-27	non-EU	total
		cz	dk	de	es	it	cy	lv	lt	lu	nl	pl	si	sk	fi	se	uk	no			
cz	I	-	102	94	112	188	100	4 040	479	569	100	15 224	866	2 810	102	102	121	101			
	E	-	501	917	621	872	248	673	405	285	225	673	673	100	84	290	444	186	215	672	367
dk	I	307	-	104	249	308	190	1 752	815	1 036	100	3 571	642	∞	104	100	846	101			
	E	111	-	111	111	111	111	111	111	111	78	111	111	111	96	100	111	99	107	109	100
de	I	623	102	-	101	225	135	1 602	672	297	100	3 148	832	7 731	102	102	92	101			
	E	86	121	-	86	86	86	86	86	86	92	86	86	86	34	77	86	89	86	86	79
es	I	367	102	94	-	188	100	341	479	569	100	1 154	1 363	5 452	102	102	121	101			
	E	1 113	1 300	654	-	481	3 815	681	1 313	179	468	681	681	605	764	801	590	682	681	275	
it	I	17	102	94	112	-	100	40	5	630	100	445	897	356	102	102	121	101			
	E	227	586	228	726	-	1 104	227	227	227	377	227	227	227	125	220	47	158	227	226	227
cy	I	299	102	94	112	188	-	479			100	3 267	770		102	102	121	101			
	E	653	239	306	152	305	-	∞			169	653	∞		∞	213	887	∞	654	654	654
lv	I	367	102	94	112	188	100	-	479		100	3 577		∞	102	102	∞	101			
	E	2 082	967	1 089	11 601	1 133	1 205	-	1 059		391	954		954	194	411	954	879	956	953	954
lt	I	390	102	94	112	188	100	261	-	199	100	408		596	102	102	121	101			
	E	199	450	270	338	400	753	199	-	199	183	199		199	40	123	9	148	201	197	199
lu	I	559	102	94	112	205		∞	240	-	100	878	359	∞	102	102	121	101			
	E	240	167	218	137	240		240	240	-	172	240	240	240	105	107	568	106	240	235	119
nl	I	108	102	116	145	219	87	403	157	922	-	1 327	768	908	102	102	106	101			
	E	154	194	154	154	154	154	154	154	154	-	154	154	154	83	111	154	91	153	153	100
pl	I	367	102	94	112	188	100	228	479	569	100	-	770	237	102	102	121	101			
	E	13 202	1 485	658	2 821	6 627	∞	854	7 730	406	769	-	∞	854	822	984	1 513	1 687	852	862	854
si	I	333	102	94	112	188	∞	617	479	∞	100	3 111	-	1 777	102	102	∞	101			
	E	444	787	417	663	583	444	∞	∞	444	431	444	-	444	609	93	444	235	447	444	142
sk	I	100	102	94	112	188	100	617	479	569	100	2 713	770	-	102	102	121	101			
	E	5 443	∞	5 054	4 539	3 742	∞	∞	∞	569	2 398	5 155	∞	-	1 219	947	4 903	3 326	5 137	5 109	5 132
fi	I	62	97	35	99	76	173	55	63	2 852	100	384	∞	∞	-	100	435	100			
	E	100	103	100	100	100	100	100	100	100	168	100	100	100	-	100	100	100	102	100	101
se	I	108	98	54	103	120	137	169	76	699	100	277	65	383	99	-	219	98			
	E	117	102	117	117	117	117	117	117	117	128	117	117	117	101	-	117	102	112	112	101
uk	I	158	102	94	112	94	96	617	479	3 065	100	1 127	0	4 167	102	102	-	101			
	E	93	190	49	102	93	93	∞	∞	93	251	93	∞	93	131	630	-	64	105	92	97
no	I	147	99	63	82	106	∞	562	353	1 548	100	1 312	1 419	3 742	101	100	76	-			
	E	129	101	129	129	129	129	129	129	129	148	129	129	129	99	100	129	-	110	129	101
EU-27	I	156	101	94	112	188	100	619	483	571	100	2 722	768	3 294	101	101	127	100			
non-EU	I	367	101	94	112	188	101	616	477	574	100	2 703	771	3 295	102	101	120	101			
total	I	259	100	91	78	188	100	617	479	143	100	2 713	96	3 295	100	100	122	100			

* Revised figure as percentage of the original figure

∞ means that the revised figure is more than zero while the original figure equals zero

Empty cells mean that they were both zero in the revised and original matrix

Table 10. Revised and original total migration flows for selected European countries, 2003, x 1000

	Immigration			Emigration			Net migration			
	revised	original	rev-org	revised	original	rev-org	revised	original	acc Eurostat	rev-Eurostat
Czech Republic	155	60	95	126	34	92	29	26	26	4
Denmark	50	50	0	43	43	0	6	6	7	-1
Germany	702	769	-67	497	626	-130	205	143	142	63
Spain	527	672	-145	177	64	113	350	608	625	-275
Italy	827	440	387	110	49	62	717	392	610	107
Cyprus	17	17	0	29	4	25	-12	12	12	-25
Latvia	8	1	7	21	2	19	-13	-1	-1	-12
Lithuania	23	5	18	22	11	11	1	-6	-6	7
Luxembourg	18	13	5	13	11	2	6	2	2	3
Netherlands	105	105	0	105	105	0	-1	0	7	-8
Poland	191	7	184	178	21	157	14	-14	-14	27
Slovenia	9	9	0	8	6	2	1	3	4	-3
Slovakia	86	3	83	61	1	60	24	1	1	23
Finland	18	18	0	12	12	0	6	6	6	0
Sweden	64	64	0	35	35	0	28	29	29	0
United Kingdom	526	431	95	305	314	-9	221	118	178	44
Norway	36	36	0	25	25	0	11	11	11	0
total	3 361	2 699	662	1 767	1 364	404	1 594	1 336	1 638	-45

Table 11. Original double-entry migration matrix for selected European countries, 2002

From		To																					
		cz	dk	de	es	it	cy	lv	lt	nl	pl	si	sk	fi	se	uk	ro	is	no	EU-27	non-EU	unknown	total
cz	I	-	202	11 150	442	330	93	8	6	393	34	5	749	47	151	0	3	7	79				
	E	-	56	1 087	64	211	24	8	20	159	1 117	19	14 455	39	57	389	158	4	22	19 225	13 163	1	32 389
dk	I	51	-	2 889	723	291	54	30	87	465	27	0	1	360	4 250	3 507	0	1 133	3 232				
	E	143	-	2 700	1 722	777	35	372	680	613	588	30	78	376	4 337	4 317	109	1 076	3 325	20 316	20 137	3 028	43 481
de	I	987	3 543	-	13 757	11 376	374	76	189	7 959	2 335	332	86	854	2 699	23 577	224	195	1 572				
	E	9 691	2 974	-	16 681	36 535	242	1 378	2 290	9 336	78 739	2 502	9 820	2 658	3 876	16 662	17 834	268	1 753	312 599	281 262	29 394	623 255
es	I	42	1 613	15 426	-	2 316	30	4	36	2 824	63	5	3	525	1 166	13 122	10	58	757				
	E	50	122	3 310	-	1 256	4	4	14	907	99	1	22	178	215	5 083	271	5	240	18 539	18 060	6	36 605
it	I	253	943	26 882	4 967	-	26	11	25	1 756	251	68	20	227	508	6 674	91	39	217				
	E	28	126	7 416	849	-	0	2	4	481	459	148	16	149	186	2 741	645	0	109	18 430	23 326	0	41 756
cy	I	12	13	260	17	11	-	0	0	29	4	0	2	26	59	276	2	2	11				
	E	21	0	42	62	63	-	0	0	21	21	0	0	42	21	790	457	0	0	3 596	3 858	31	7 485
lv	I	8	455	2 195	218	128	0	-	197	92	5	0	2	53	189	0	0	18	170				
	E	11	52	210	6	11	0	-	176	14	28	0	1	60	60	62	2	1	38	955	2 307	0	3 262
lt	I	20	835	4 135	2 003	132	0	162	-	156	40	0	1	66	261	0	0	92	289				
	E	28	128	817	174	64	3	122	-	69	128	0	2	97	119	216	1	11	57	2 237	4 849	0	7 086
nl	I	224	886	13 976	3 273	985	73	9	18	-	83	10	7	228	780	8 411	11	54	482				
	E	207	540	10 822	3 150	1 202	32	11	39	-	492	26	100	299	659	6 051	131	48	511	39 209	27 519	30 190	96 918
pl	I	1 679	962	100 968	3 869	3 886	29	23	126	2 275	-	3	29	95	1 186	1 288	3	270	702				
	E	38	95	17 806	166	302	2	7	4	290	-	0	11	9	174	254	2	9	47	20 283	4 193	56	24 532
si	I	21	37	2 379	57	256	0	2	0	66	0	-	2	2	14	0	0	1	3				
	E	18	6	907	14	145	1	0	1	45	10	-	4	4	44	51	0	2	1	1 666	958	4 645	7 269
sk	I	13 326	72	11 600	422	413	0	3	1	256	10	1	-	13	76	0	4	7	120				
	E	449	3	219	20	36	1	0	0	19	11	1	-	0	10	55	1	0	3	1 110	301	0	1 411
fi	I	34	396	2 203	875	253	8	23	102	408	4	0	0	-	3 532	1 025	0	42	1 249				
	E	30	384	730	724	183	22	24	28	270	37	2	3	-	3 591	980	24	37	1 186	8 533	4 334	24	12 891
se	I	70	2 388	3 481	1 730	378	46	26	52	680	70	15	9	3 255	-	2 460	7	394	4 552				
	E	68	2 241	1 659	1 284	477	64	46	23	551	190	24	21	3 211	-	3 451	67	347	4 404	16 132	14 172	2 705	33 009
uk	I	489	3 645	14 703	27 249	4 843	3 476	20	73	6 810	208	22	16	870	3 120	-	13	197	1 628				
	E	914	1 705	14 338	36 746	6 344	2 387	0	0	10 965	1 387	0	284	273	1 759	-	0	0	1 208	118 462	187 271	198	305 931
ro	I	350	290	24 560	48 671	18 121	94	6	2	627	3	0	56	33	366	225	-	17	210				
	E	98	0	1 305	172	1 317	18	0	0	67	2	0	122	4	42	45	-	0	12	4 885	3 266	3	8 154
is	I	4	1 656	294	102	19	0	8	6	98	2	4	0	45	485	0	0	-	609				
	E	7	1 721	184	49	32	2	7	15	62	101	2	11	51	498	239	6	-	619	3 175	1 295	20	4 490
no	I	41	3 426	1 534	1 961	208	7	8	23	426	31	0	6	1 048	6 374	1 612	0	433	-				
	E	33	3 309	679	1 099	162	13	56	52	337	87	3	28	1 056	6 357	1 300	62	419	-	15 582	6 011	1 355	22 948
EU-27	I	19 261	20 160	334 497	142 095	54 966	9 407	497	1 045	38 444	3 706	592	1 146	9 037	21 972	90 298	656	2 724	16 758				
non-EU	I	25 416	30 849	493 363	341 096	158 236	4 897	931	4 065	82 122	2 807	794	1 166	8 905	41 669	295 603	5 923	1 480	23 274				
unknown	I	2	1 769	14 683	69	0	66	0	0	684	74	7 748	0	171	446	0	3	11	90				
total	I	44 679	52 778	842 543	483 260	213 202	14 370	1 428	5 110	121 250	6 587	9 134	2 312	18 113	64 087	385 901	6 582	4 215	40 122				

Source: Eurostat

NB The columns present immigration data (I), the rows emigration data (E)

Table 12. Revised migration matrix for selected European countries, 2002

From	To																				
	cz	dk	de	es	it	cy	lv	lt	nl	pl	si	sk	fi	se	uk	ro	is	no	EU-27	non-EU	total
cz	-	210	10 283	533	710	63	57	26	395	7 948	31	14 455	48	152	2 768	1 124	7	79	48 495	93 562	142 057
dk	157	-	2 957	1 886	851	38	407	745	468	644	33	85	368	4 294	4 728	119	1 178	3 279	21 546	21 691	43 238
de	7 929	3 683	-	13 648	29 892	198	1 127	1 874	8 004	64 422	2 047	8 034	865	2 723	13 632	14 591	219	1 577	255 618	230 264	485 882
es	164	1 677	14 227	-	4 984	20	13	46	2 840	325	3	72	532	1 177	10 943	891	56	759	60 937	59 382	120 320
it	93	980	24 792	5 990	-	18	7	13	1 766	1 527	492	53	230	513	5 566	2 146	38	218	61 418	77 491	138 909
cy	13	14	240	21	24	-	0	0	29	13	0	57	26	60	230	288	2	11	2 309	2 443	4 752
lv	21	473	2 024	263	275	0	-	857	93	194	0	7	54	191	431	14	17	170	6 716	15 941	22 657
lt	150	868	3 814	2 416	284	16	655	-	157	687	0	11	67	263	1 160	5	89	290	11 997	26 050	38 047
nl	304	921	15 870	4 619	1 763	47	16	57	-	722	38	147	231	787	8 874	192	70	483	57 241	40 090	97 331
pl	224	1 000	93 118	4 666	8 363	20	41	24	2 288	-	18	65	96	1 197	1 074	12	262	704	118 818	25 326	144 144
si	42	38	2 194	69	338	2	13	2	66	23	-	9	2	14	119	0	1	3	3 904	2 233	6 137
sk	13 326	75	10 698	509	889	34	19	4	257	248	6	-	13	77	1 872	34	7	120	37 765	10 273	48 038
fi	30	390	732	726	184	22	24	28	410	37	2	3	-	3 562	983	24	37	1 218	8 664	4 376	13 039
se	77	2 315	1 885	1 459	542	73	52	26	684	216	27	24	3 233	-	3 920	76	394	4 478	17 737	15 574	33 311
uk	902	3 789	13 560	36 274	6 263	2 356	127	318	6 849	1 369	134	280	881	3 148	-	0	0	1 633	130 579	185 306	315 885
ro	903	301	22 650	58 698	38 998	64	38	9	631	80	0	4 876	33	369	188	-	16	211	195 510	130 292	325 801
is	7	1 721	271	51	33	2	7	15	99	104	2	11	46	489	247	6	-	611	3 306	1 315	4 621
no	37	3 368	766	1 240	183	15	63	59	428	98	3	32	1 052	6 366	1 467	70	473	-	16 318	6 784	23 102
EU-27	28 707	20 767	309 138	172 567	118 564	6 450	3 196	4 599	38 662	92 576	3 632	32 831	9 093	22 173	87 184	34 158	2 586	16 721			
non-EU	65 491	31 873	454 356	410 173	340 263	3 348	5 897	17 635	82 588	69 035	4 826	33 145	9 010	41 979	246 886	315 427	1 488	23 342			
total	94 199	52 640	763 494	582 740	458 827	9 798	9 093	22 234	121 250	161 611	8 458	65 976	18 103	64 152	334 069	349 585	4 074	40 063			

Source: Eurostat figures revised by NIDI

Table 13. Absolute difference between the revised and original double-entry migration matrix for selected European countries, 2002

From		cz	dk	de	es	it	cy	lv	lt	nl	pl	si	sk	fi	se	uk	ro	is	no	EU-27	non-EU	unknown	total
cz	I	-	8	10 283	91	380	-30	49	20	2	7 914	26	13 706	1	1	2 768	1 121	0	0	48 495			
	E	-	154	10 283	469	499	39	49	6	236	6 831	12	0	9	95	2 379	966	3	57	29 270	80 399	-1	109 668
dk	I	106	-	2 957	1 163	560	-16	377	658	3	617	33	84	8	44	1 221	119	45	47	21 546	1 554	-3 028	-243
	E	14	-	2 957	164	74	3	35	65	-145	56	3	7	-8	-44	411	10	102	-47	1 230	1 554	-3 028	-243
de	I	6 942	140	-	-109	18 516	-176	1 051	1 685	45	62 087	1 715	7 948	11	24	-9 945	14 367	24	5	255 618			
	E	-1 762	709	-	-3 033	-6 643	-44	-251	-416	-1 332	-14 317	-455	-1 786	-1 793	-1 153	-3 030	-3 243	-49	-176	-56 981	-50 998	-29 394	-137 373
es	I	122	64	-1 199	-	2 668	-10	9	10	16	262	-2	69	7	11	-2 179	881	-2	2	60 937			
	E	114	1 555	10 917	-	3 728	16	9	32	1 933	226	2	50	354	962	5 860	620	51	519	42 398	41 322	-6	83 715
it	I	-160	37	-2 090	1 023	-	-8	-4	-12	10	1 276	424	33	3	5	-1 108	2 055	-1	1	61 418			
	E	65	854	17 376	5 141	-	18	5	9	1 285	1 068	344	37	81	327	2 825	1 501	38	109	42 988	54 165	0	97 153
cy	I	1	1	-20	4	13	-	0	0	0	9	0	55	0	1	-46	286	0	0	2 309			
	E	-8	14	198	-41	-39	-	0	0	8	-8	0	57	-16	39	-560	-169	2	11	-1 287	-1 415	-31	-2 733
lv	I	13	18	-171	45	147	0	-	660	1	189	0	5	1	2	431	14	-1	0	6 716			
	E	10	421	1 814	257	264	0	-	681	79	166	0	6	-6	131	369	12	16	132	5 761	13 634	0	19 395
lt	I	130	33	-321	413	152	16	493	-	1	647	0	10	1	2	1 160	5	-3	1	11 997			
	E	122	740	2 997	2 242	220	13	533	-	88	559	0	9	-30	144	944	4	78	233	9 760	21 201	0	30 961
nl	I	80	35	1 894	1 346	778	-26	7	39	-	639	28	140	3	7	463	181	16	1	57 241			
	E	97	381	5 048	1 469	561	15	5	18	-	230	12	47	-68	128	2 823	61	22	-28	18 032	12 571	-30 190	413
pl	I	-1 455	38	-7 850	797	4 477	-9	18	-102	13	-	15	36	1	11	-214	9	-8	2	118 818			
	E	186	905	75 312	4 500	8 061	18	34	20	1 998	-	18	54	87	1 023	820	10	253	657	98 535	21 133	-56	119 612
si	I	21	1	-185	12	82	2	11	2	0	23	-	7	0	0	119	0	0	0	3 904			
	E	24	32	1 287	55	193	1	13	1	21	13	-	5	-2	-30	68	0	-1	2	2 238	1 275	-4 645	-1 132
sk	I	0	3	-902	87	476	34	16	3	1	238	5	-	0	1	1 872	30	0	0	37 765			
	E	12 877	72	10 479	489	853	33	19	4	238	237	5	-	13	67	1 817	33	7	117	36 655	9 972	0	46 627
fi	I	-4	-6	-1 471	-149	-69	14	1	-74	2	33	2	3	-	30	-42	24	-5	-32	8 664			
	E	0	6	2	2	1	0	0	0	140	0	0	0	-	-30	3	0	0	32	131	42	-24	148
se	I	7	-74	-1 596	-271	164	27	26	-26	4	146	12	15	-22	-	1 460	69	0	-74	17 737			
	E	9	74	226	175	65	9	6	3	133	26	3	3	22	-	469	9	47	74	1 605	1 402	-2 705	302
uk	I	413	144	-1 143	9 025	1 420	-1 120	107	245	39	1 161	112	264	11	28	-	-13	-197	5	130 579			
	E	-12	2 084	-778	-472	-81	-31	127	318	-4 116	-18	134	-4	608	1 389	-	0	0	425	12 117	-1 965	-198	9 954
ro	I	553	11	-1 910	10 027	20 877	-30	32	7	4	77	0	4 820	0	3	-37	-	-1	1	195 510			
	E	805	301	21 345	58 526	37 681	46	38	9	564	78	0	4 754	29	327	143	-	16	199	190 625	127 026	-3	317 647
is	I	3	65	-23	-51	14	2	-1	9	1	102	-2	11	1	4	247	6	-	2	3 306			
	E	0	0	87	2	1	0	0	0	37	3	0	0	-5	-9	8	0	-	-8	131	20	-20	131
no	I	-4	-59	-768	-721	-25	8	55	36	2	67	3	26	4	-9	-145	70	40	-	16 318			
	E	4	59	87	141	21	2	7	7	91	11	0	4	-4	9	167	8	54	-	736	773	-1 355	154
EU-27	I	9 446	607	-25 359	30 472	63 598	-2 957	2 699	3 554	218	88 870	3 040	31 685	56	201	-3 114	33 502	-138	-37				
non-EU	I	40 075	1 024	-39 007	69 077	182 027	-1 549	4 966	13 570	466	66 228	4 032	31 979	105	310	-48 717	309 504	8	68				
unknown	I	-2	-1 769	-14 683	-69	0	-66	0	0	-684	-74	-7 748	0	-171	-446	0	-3	-11	-90				
total	I	49 520	-138	-79 049	99 480	245 625	-4 572	7 665	17 124	0	155 024	-676	63 664	-10	65	-51 832	343 003	-141	-59				

Table 14. Relative difference between the revised and original double-entry migration matrix for selected European countries, 2002*

From		cz	dk	de	es	it	cy	lv	lt	nl	pl	si	sk	fi	se	uk	ro	is	no	EU-27	non-EU	total
cz	I	-	104	92	121	215	68	712	435	101	23 376	610	1 930	101	101	∞	37 475	97	100			
	E	-	375	946	833	337	264	712	131	249	712	161	100	122	267	712	712	170	360	252	711	439
dk	I	307	-	102	261	292	71	1 358	856	101	2 385	∞	8 543	102	101	135	∞	104	101			
	E	110	-	110	110	110	110	110	110	76	110	110	110	98	99	110	110	110	99	106	108	99
de	I	803	104	-	99	263	53	1 483	991	101	2 759	617	9 342	101	101	58	6 514	112	100			
	E	82	124	-	82	82	82	82	82	86	82	82	82	33	70	82	82	82	90	82	82	78
es	I	391	104	92	-	215	68	329	128	101	517	66	2 411	101	101	83	8 909	97	100			
	E	329	1 374	430	-	397	511	329	329	313	329	329	329	299	547	215	329	1 124	316	329	329	329
it	I	37	104	92	121	-	68	60	53	101	608	724	266	101	101	83	2 358	97	100			
	E	333	778	334	706	-	∞	333	333	367	333	333	333	154	276	203	333	∞	200	333	332	333
cy	I	110	104	92	121	215	-	-	-	101	331	-	2 854	101	101	83	14 391	97	100			
	E	63	∞	571	33	38	-	-	-	139	63	-	∞	63	283	29	63	∞	∞	64	63	63
lv	I	258	104	92	121	215	-	-	435	101	3 890	-	347	101	101	∞	∞	97	100			
	E	188	910	964	4 382	2 504	-	-	487	661	695	-	695	89	318	695	695	1 744	449	703	691	695
lt	I	752	104	92	121	215	∞	404	-	101	1 718	-	1 074	101	101	∞	∞	97	100			
	E	537	678	467	1 388	444	537	537	-	227	537	-	537	69	221	537	537	811	508	536	537	537
nl	I	136	104	114	141	179	64	179	318	-	869	381	2 095	101	101	106	1 746	130	100			
	E	147	171	147	147	147	147	147	147	-	147	147	147	77	119	147	147	147	95	146	146	100
pl	I	13	104	92	121	215	68	179	19	101	-	610	223	101	101	83	393	97	100			
	E	589	1 053	523	2 811	2 769	988	589	589	789	-	∞	589	1 069	688	423	589	∞	1 498	586	604	588
si	I	200	104	92	121	132	∞	637	∞	101	∞	-	467	101	101	∞	-	97	100			
	E	233	641	242	491	233	233	∞	233	147	233	-	233	51	32	233	-	48	301	234	233	84
sk	I	100	104	92	121	215	∞	637	435	101	2 481	610	-	101	101	∞	851	97	100			
	E	2 968	2 495	4 885	2 545	2 469	3 405	∞	∞	1 355	2 256	610	-	∞	767	3 405	3 405	∞	4 012	3 402	3 413	3 405
fi	I	89	98	33	83	73	276	105	28	101	928	∞	∞	-	101	96	∞	88	97			
	E	100	102	100	100	100	100	100	100	152	100	100	100	-	99	100	100	100	103	102	101	101
se	I	110	97	54	84	143	158	201	50	101	308	182	265	99	-	159	1 087	100	98			
	E	114	103	114	114	114	114	114	114	124	114	114	114	101	-	114	114	114	102	110	110	101
uk	I	185	104	92	133	129	68	637	435	101	658	610	1 752	101	101	-	-	-	100			
	E	99	222	95	99	99	99	∞	∞	62	99	∞	99	323	179	-	-	-	135	110	99	103
ro	I	258	104	92	121	215	68	637	435	101	2 665	-	8 708	101	101	83	-	97	100			
	E	921	∞	1 736	34 127	2 961	356	∞	∞	941	3 997	-	3 997	836	879	417	-	∞	1 755	4 002	3 989	3 996
is	I	181	104	92	50	174	∞	90	258	101	5 214	52	∞	101	101	∞	∞	-	100			
	E	103	100	147	103	103	103	103	103	159	103	103	103	89	98	103	103	-	99	104	102	103
no	I	91	98	50	63	88	210	790	255	101	317	∞	527	100	100	91	∞	109	-			
	E	113	102	113	113	113	113	113	113	127	113	113	113	100	100	113	113	113	-	105	113	101
EU-27	I	149	103	92	121	216	69	643	440	101	2 498	613	2 865	101	101	97	5 207	95	100			
non-EU	I	258	103	92	120	215	68	633	434	101	2 459	608	2 843	101	101	84	5 325	101	100			
total	I	211	100	91	121	215	68	637	435	100	2 453	93	2 854	100	100	87	5 311	97	100			

* Revised figure as percentage of the original figure

∞ means that the revised figure is more than zero while the original figure equals zero

Empty cells mean that they were both zero in the revised and original matrix

Table 15. Revised and original total migration flows for selected European countries, 2002, x 1000

	Immigration			Emigration			Net migration			
	revised	original	rev-org	revised	original	rev-org	revised	original	acc Eurostat	rev-Eurostat
Czech Republic	94	45	50	142	32	110	-48	12	12	-60
Denmark	53	53	0	43	43	0	9	9	10	0
Germany	763	843	-79	486	623	-137	278	219	219	59
Spain	583	483	99	120	37	84	462	447	224	239
Italy	459	213	246	139	42	97	320	171	350	-30
Cyprus	10	14	-5	5	7	-3	5	7	7	-2
Latvia	9	1	8	23	3	19	-14	-2	-2	-12
Lithuania	22	5	17	38	7	31	-16	-2	-2	-14
Netherlands	121	121	0	97	97	0	24	24	28	-4
Poland	162	7	155	144	25	120	17	-18	-13	30
Slovenia	8	9	-1	6	7	-1	2	2	2	0
Slovakia	66	2	64	48	1	47	18	1	1	17
Finland	18	18	0	13	13	0	5	5	5	0
Sweden	64	64	0	33	33	0	31	31	31	0
United Kingdom	334	386	-52	316	306	10	18	80	126	-108
Romania	350	7	343	326	8	318	24	-2	-2	25
Iceland	4	4	0	5	4	0	-1	0	0	0
Norway	40	40	0	23	23	0	17	17	17	0
total	3 160	2 316	845	2 007	1 313	694	1 153	1 003	1 013	140

Table 16. Correction factors for the standard migration flows, 2002-2004

	Correction 1			Correction 2 - original			Correction 2 - revised			Final correction		
	2 002	2 003	2 004	2 002	2 003	2 004	2 002	2 003	2 004	2 002	2 003	2 004
immigration Netherlands				1.006	1.005	1.000				1.006	1.005	1.000
emigration Finland				1.002	1.000	1.004	1.003	1.001	1.006	1.003	1.001	1.006
immigration Norway				1.002	1.006	1.007	1.003	1.008	1.009	1.003	1.008	1.009
immigration Sweden				1.007	1.012	1.011	1.009	1.015	1.013	1.009	1.015	1.013
immigration Denmark				1.035	1.013	1.012	1.039	1.015	1.014	1.039	1.015	1.014
immigration Finland				1.010	1.011	1.014	1.013	1.016	1.019	1.013	1.016	1.019
emigration Denmark				1.075	1.085	1.073	1.095	1.108	1.092	1.095	1.108	1.092
emigration Germany	0.780	0.793	0.814	1.049	1.083	1.099				0.818	0.859	0.894
emigration Sweden				1.089	1.109	1.106	1.136	1.166	1.160	1.136	1.166	1.160
immigration Germany	0.906	0.913	0.783	1.018	1.031	1.070				0.922	0.941	0.838
immigration Austria				na	na	1.218	na	na	1.220	na	na	1.220
emigration Norway				1.063	1.149	1.190	1.129	1.290	1.361	1.129	1.290	1.361
emigration Netherlands				1.452	1.522	1.469	1.466	1.536	1.487	1.466	1.536	1.487
emigration Austria				na	na	1.691	na	na	1.710	na	na	1.710

NB The original standard is the four Nordic countries plus the Netherlands and Germany; for 2004 Austria is included as well

Correction 1 relates to differences in definition; here it only applies to Germany

Correction 2 relates to the distribution of the category unknown; the original factor distributes the unknowns to all migration flows, the revised one only to those flows that have not been fixed yet

For Germany the final correction is the multiplication of the two correction factors, for the other countries the final correction equals the revised correction, except for the Netherlands where no revised correction was needed

na: not available

The flows have been sorted by the 2004 valuation score (absolute value of 1 minus final correction)

Table 17. Correction factors and valuation scores for the remaining migration flows, 2002-2004

	Correction 1 - original standard			Correction 1 - revised standard			Correction 2			Valuation - original standard			Valuation - revised standard			Final correction		
	2 002	2 003	2 004	2 002	2 003	2 004	2 002	2 003	2 004	2 002	2 003	2 004	2 002	2 003	2 004	2 002	2 003	2 004
emigration Iceland	1.028	na	na		na	na	1.004	na	na	0.032	na	na		na	na	1.032	na	na
immigration Iceland	1.051	na	na	0.967	na	na	1.003	na	na	0.054	na	na	0.031	na	na	0.969	na	na
immigration Spain	1.056	0.784	0.904	1.206			1.000	1.430	1.225	0.056	0.121	0.107	0.206			1.206	1.121	1.107
immigration United Kingdom	0.828	1.207	1.231	0.834			1.000	1.000	1.000	0.172	0.207	0.231	0.166			0.834	1.207	1.231
immigration Cyprus	0.696	1.356	0.627	0.678	1.001		1.005	1.003	1.001	0.301	0.360	0.372	0.319	0.004		0.681	1.004	0.628
emigration United Kingdom	0.987	0.826	1.392		0.927	1.348	1.001	1.000	1.000	0.013	0.174	0.392		0.073	0.348	0.987	0.927	1.348
emigration Luxembourg	na	0.967	0.901	na	1.188	0.899	na	2.017	2.041	na	0.951	0.839	na	1.396	0.835	na	2.396	1.835
immigration Italy	2.477	2.186	na	2.152	1.878	na	1.000	1.000	na	1.477	1.186	na	1.152	0.878	na	2.152	1.878	na
emigration Italy	3.366	2.366	na	3.327	2.267	na	1.000	1.000	na	2.366	1.366	na	2.327	1.267	na	3.327	2.267	na
emigration Lithuania	4.241	2.416	2.461	5.369	1.988	3.294	1.000	1.000	1.000	3.241	1.416	1.462	4.369	0.988	2.294	5.369	1.988	3.294
emigration Cyprus	2.998	2.922	2.808	0.627	6.534	2.647	1.004	1.000	1.000	2.011	1.922	1.808	0.370	5.534	1.647	0.630	6.534	2.647
immigration Lithuania	5.920	5.233	3.005	4.351	4.788	3.005	1.000	1.000	1.022	4.920	4.233	2.072	3.351	3.788	2.072	4.351	4.788	3.072
emigration Slovenia	0.831	1.295	1.054	0.843	1.422	1.092	2.770	3.126	3.664	1.302	3.047	2.860	1.334	3.444	3.001	2.334	4.444	4.001
immigration Czech Republic	6.065	4.839	3.891	2.579	3.672	3.313	1.000	1.000	1.001	5.065	3.842	2.895	1.580	2.674	2.316	2.580	3.674	3.316
immigration Luxembourg	na	0.932	1.061	na	1.424	1.337	na	3.997	3.906	na	2.725	3.143	na	4.691	4.224	na	5.691	5.224
immigration Latvia	9.829	9.153	6.395	6.368	6.172	4.623	1.000	1.000	1.000	8.829	8.153	5.395	5.368	5.172	3.623	6.368	6.172	4.623
emigration Spain	4.265	2.612	3.144	3.287	2.751	3.268	1.000	2.477	2.061	3.266	5.470	5.477	2.288	5.815	5.733	3.288	6.815	6.733
emigration Latvia	6.923	8.365	6.960	6.946	9.539	12.256	1.000	1.000	1.000	5.923	7.365	5.960	5.946	8.539	11.256	6.946	9.539	12.256
emigration Czech Republic	7.864	7.420	7.041	7.115	6.733	10.126	1.000	1.000	1.000	6.864	6.421	6.043	6.115	5.734	9.129	7.115	6.734	10.129
immigration Slovenia	0.914	0.976	1.131	0.926	0.964	1.187	6.590	7.985	7.188	5.024	6.794	7.131	5.102	6.697	7.533	6.102	7.697	8.533
emigration Poland	5.330	6.681	9.928	5.875	8.534	11.783	1.002	1.000	1.000	4.342	5.684	8.930	4.888	7.538	10.787	5.888	8.538	11.787
emigration Romania	16.914	na	na	39.956	na	na	1.000	na	na	15.920	na	na	38.971	na	na	39.971	na	na
immigration Slovakia	76.376	67.607	19.845	28.536	32.948	20.376	1.000	1.000	1.000	75.376	66.607	18.845	27.536	31.948	19.376	28.536	32.948	20.376
immigration Poland	25.645	29.672	31.648	24.535	27.129	30.636	1.011	1.000	1.000	24.937	28.677	30.658	23.814	26.132	29.646	24.814	27.132	30.646
emigration Slovakia	44.254	48.402	35.588	34.045	51.315	33.761	1.000	1.000	1.000	43.254	47.402	34.588	33.045	50.315	32.761	34.045	51.315	33.761
immigration Romania	62.257	na	na	53.217	na	na	1.000	na	na	61.285	na	na	52.242	na	na	53.242	na	na

NB The original standard is the four Nordic countries plus the Netherlands and Germany; for 2004 Austria is included as well
 The revised standard also includes fixed values from former steps
 Correction 1 relates to differences in definition, source, completeness of source, etc.
 Correction 2 relates to the distribution of the category unknown over all migration flows
 In some cases (e.g. emigration Iceland 2002) there was no need to revise correction 1
 The final correction is the multiplication of, if applicable, the revised correction 1 and correction 2
 The valuation score is defined as the absolute value of the overall correction factor minus 1
 The flows have been sorted by the original valuation score for 2004 or earlier

Table 18. Revised and original total migration flows for selected European countries, 2002-2004, x 1000

	Immigration			Emigration			Net migration			
	revised	original	rev-org	revised	original	rev-org	revised	original	acc Eurostat	rev-Eurostat
Czech Republic	390	158	232	427	101	326	-37	57	57	-94
Denmark	152	152	0	131	132	-1	21	20	22	-1
Germany	2 076	2 392	-315	1 550	1 947	-397	526	444	443	83
Spain	1 728	1 840	-112	477	156	321	1 251	1 684	1 458	-207
Cyprus	40	53	-13	51	18	32	-10	35	35	-45
Latvia	25	4	21	77	8	69	-52	-4	-4	-48
Lithuania	62	15	46	110	33	77	-48	-18	-18	-30
Netherlands	320	320	0	313	312	1	6	8	25	-18
Poland	644	23	621	549	64	484	95	-41	-36	131
Slovenia	29	29	1	24	21	2	6	7	7	-2
Slovakia	243	9	233	163	4	159	80	5	5	75
Finland	56	56	0	39	39	0	17	18	18	-1
Sweden	190	190	0	106	105	1	84	85	85	0
United Kingdom	1 502	1 335	166	1 057	930	127	444	405	506	-62
Norway	112	113	0	71	71	0	41	42	42	-1
total	7 570	6 690	879	5 146	3 943	1 203	2 424	2 748	2 644	-221