

Long-term international migration scenarios for Europe, 2002-2052

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INTERNATIONAL MIGRATION IN EUROPE:
NEW TRENDS, NEW METHODS OF ANALYSIS

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1. Introduction

Hypotheses regarding the future shape of international migration are not only demographic by nature, but also have to take into the account the economic, political, sociological and ethnic factors. Moreover, migration is a phenomenon characterised by much higher level of uncertainty and is much more controversial in terms of the expectations for the future than fertility and mortality. For these reasons, predicting migration is very difficult and the results of the forecasts often prove to be unsuccessful, bearing very high prediction errors.

This paper presents assumptions on future developments of long-term international migration in 27 European countries for the period 2002-2052. The assumptions have been developed to serve as an input to the forecasts and simulations of population and labour force changes in Europe. In geographic terms, the analysis covers the European Union (but Cyprus and Malta), Norway and Switzerland, as well as two EU accession countries: Bulgaria and Romania.

Section 2 of this study depicts the legal and political developments concerning the freedom of movement in Europe and the expectations for the future. In two further sections of this paper (3 and 4), the qualitative scenarios for migration respectively among the countries under study and for population exchange with the rest of the World. The scenarios, describing the knowledge-based expectations for the future developments of international population flows are subsequently quantified using algorithms described in details in Section 5. Results of the analysis, including the impact of the assumed scenarios on population projections for the selected European countries, are summarised in brief in the final, sixth section of this paper. Section 7 presents a summary of the outcome of the study, as well as the major conclusions.

2. Freedom of movement in Europe: status quo and expectations¹

The high profile of migration policy in the public debate in recent years in the old EU-15 countries has heavily influenced the negotiations on the EU enlargement. The fears arising from the growing migratory pressure from the South were further fuelled by sometimes contradictory and exacerbated forecasts about the possible flood of workers from the new member states. Such forecasts, offered both by researchers and journalists, were highly influential on the public opinion. The negotiations in the area of free flow of persons were delicate and sometimes tense (Duszczuk 2002), but finally the respective negotiations chapters have eventually been closed.

The definite conditions of accession of the ten new states to the EU were laid down in the Treaty on Accession and in the Act on Accession, signed on the 16th of April 2004 (European Communities 2003a, 2003b). Following the results of negotiations, the Treaty provided for

¹ Section based on the documents of the European Communities (2002, 2003a, b) and the European Commission (2004), as well as on the recent press releases regarding the post-enlargement policies on the freedom of movement of persons (Gazeta Wyborcza 2004, Polish Press Agency 2004, UKIE 2004).

the transitional periods in the area of the free flow of persons for the citizens of eight new Central European member states, excluding Malta and Cyprus. According to the Treaty, the old EU-15 countries were given the right to introduce the transitory provisions for two, five or maximally seven years in order to limit the access to their labour markets for workers originating from the new member states. The key element of the transitory provisions was the possibility to apply national measures and those resulting from the previous bilateral agreements in lieu of the Community law, which normally would have had to be applied.

The decision whether to introduce the transition periods was left to the respective member states. After the first two years following the accession, the EU Council is expected to make a review of the situation, but the decision whether to discard or to maintain the restrictions will be again left to the states. Finally, after the five-year period all the restrictions on the free flow of workers should be lifted, with the exception of the countries where there are serious disturbances on the labour market or a threat thereof. Such countries would be eligible to extend the application of the transitory measures for the subsequent two years.

According to the Accession Treaty, the new member states were given the possibility to introduce similar restriction against the 'old' EU nationals on the principle of the reciprocity. Nevertheless, only Poland, Hungary and Slovenia used this opportunity, while the Czech Republic, Estonia, Latvia, Lithuania and the Slovak Republic allowed for the asymmetry in their relations with the EU-15.

The decisions whether to impose the transitional periods were announced by 1st of May 2004. According to them, only three countries: **Ireland**, **Sweden** and the **United Kingdom**, did not introduce any transitional measures, however imposed some obligations not stipulated in the community law, as the Workers Registration Scheme in the UK. The rest of the EU-15 decided to introduce a two-year transitional period in order to protect their labour markets and to calm down the public opinion. Taking into account the politicians' statements, as well as the economic and political situation of different countries, one may try to set up a scenario of the probable future dates of opening of these labour markets for the new members' nationals. It has to be noted that there is always some uncertainty about such predictions, originating from the changing political and economic milieu in which the political decisions are taken.

The next wave of liberalisation of the rules on the accession to labour markets is supposed to take place in two years' time, thus in 2006. In that year, **Denmark**, **Finland** and the **Benelux** countries are highly likely to open their labour markets for the nationals of the new EU member states. For these countries, the introduction of the two-year transitional period was probably more an insurance against the unpredictable effects of enlargement than the real necessity for the labour market protection. Most of these governments (the Netherlands, Denmark and Finland) failed to keep their earlier promises to open the labour markets from the day of enlargement. One of the factors influencing their decision was the fear of being left as the only state with the open labour market and consequently to become an economic

magnet attracting workers from the new member states. Anyway, the rather limited wave of post-accession migration to Ireland, Sweden and the United Kingdom, to some extent already confirmed by the preliminary statistics (Home Office 2004), will likely alleviate the public emotions and politicians' fears. Moreover, opening the labour markets in these countries already in 2006 would also be a remedy for serious shortages of labour in selected sectors (IT, health care, education, construction, agriculture).

Southern European EU members i.e. **Italy, France, Spain, Portugal and Greece** are less likely to open their labour markets in 2006 than the countries of Northern Europe. Judging by such economic factors as higher unemployment rates, as well as some politicians' official and unofficial statements and declarations, the date 2009 seems to be much more probable than 2006 when considering the opening of their labour markets for the workers coming from new EU member states. The popularity of the right-wing extremist anti-immigrant parties as Northern League in Italy and Front National in France proves to be an additional factor that is supposed to influence the states' decision in the subject matter.

Germany and Austria, according to statements of the politicians, are almost sure to extend the restrictions in access to their labour markets for the maximal period, i.e. for seven years. High unemployment rates (above 10% in Germany), the popularity of anti-immigrant and xenophobic slogans (Haider's party in Austria) and the direct neighbourhood of the new member countries surely contributed to German and Austrian position during the negotiations on enlargement. Hence, both these countries proposed and supported the idea of transitional periods, with the aim of alleviating the public fears of the flood of workers from the East.

Although **Norway** is not a member of the European Union, yet it belongs to the European Economic Area (EEA), where the principle of the free flow of workers is equally secured. Therefore no barriers exist now for the EU workers to take up an employment in Norway and vice versa. With the enlargement of the EU, the necessary agreement on the enlargement of the EEA was signed. The EEA non-EU states (Norway, Island and Lichtenstein) were given the possibility to introduce restrictions on access to their labour markets, identical to those provided in the Accession Treaty. All of them, including Norway, introduced such restrictions initially for two years. The assumption that Norway will discard the restrictions already in 2006 can be founded on the good state of the Norwegian economy, low unemployment rates, and the fact that all other Scandinavian states are likely to lift the restrictions in this year.

Switzerland does not participate in the free movement of workers in Europe as it does not belong to the EU nor to the EEA. The Agreement between the EU and Switzerland on the free movement of persons from 1994 did not introduce the principle of the free flow of workers between the contracting parties. Instead, it introduced the system of annual quotas of Swiss residence permits for the EU workers until 2007 (European Communities 2002). No quotas were foreseen for the Swiss nationals in the EU. After 2007 Switzerland will still be protected by a special clause in case of excessive increase in immigration from EU countries until 2014.

Finally, since 2014 the regulation of the free flow of persons between Switzerland and the EU is supposed to be entirely in place, under the condition of a positive outcome of the Swiss referendum in 2009. An Additional Protocol to the Agreement was initialled in July 2004 to regulate the free movement of persons between the Switzerland and the new member countries (DFA/DEA 2004). Since mid-2005, the new EU member states will be subject to the transition periods until the end of April 2011, including a quota system for residence permits. Since 2011, the new EU members are supposed to be treated by Switzerland in the same way as the old member states. The year 2014 is finally due to mark an unrestricted flow of labour force between the Switzerland and the extended EU.

Judging by the politicians' declarations, **Bulgaria** and **Romania** are going to join the EU in 2007, although the treaty on accession of these countries to the EU has not been signed nor accepted yet. Bulgaria has successfully finished its negotiations on the EU membership in June 2004 and the Romanian negotiations are still on going, yet both countries have provisionally closed the chapters on the free flow of persons. Both EU candidates accepted the transitional periods in the free flow of persons identical to those provided by the Accession Treaty for the eight Central and Eastern European states that joined the Union in 2004. The reasons for imposing such restrictions would probably comprise among others the economic disparities between Bulgaria and Romania and the EU countries, unsolved problems with the Roma and other ethnic minorities in these countries, an experience of Bulgarian and Romanian illegal immigration to the EU countries, as well as the developed migratory networks of these countries' nationals in Western and Central Europe. Therefore the transitory measures are almost bound to be introduced in 2007 by all or most of the EU members. For the purpose of this study it will be therefore assumed that this process for Bulgaria and Romania will follow the schedule of opening Western European labour markets for the citizens of the new Central European EU members, yet with a three-year time delay.

3. Scenarios of intra-European migration after the EU enlargement

International migration flows can be described in terms of the push (unfavourable) and pull (attracting) factors. The current study focuses on the two types of such determinants: economic and related to migration policies. There are also other important factors (political disturbances, wars, etc.) that to a large extent shape the international population flows, as for example fall of the socialist system or the recent Yugoslav wars. Nevertheless, due to the unpredictability of such events, they have not been considered in setting the scenarios.

There have been numerous attempts to predict migration from Central and Eastern Europe to the EU-15 countries following the enlargement of the European Union, presented here as a background reference for the current scenarios of intra-European migration. These studies, published during the 1990s mainly by the Western European researchers focus on the East-to-West migration, not analysing population flows in the opposite direction. Unfortunately, many studies refer to the "migration potential" of Central and Eastern Europe, a term lacking

precision and not really applicable as a predictor of actual migration streams (Kupiszewski 2002b). The existing studies cover the European origin and destination countries either in whole, or only partially, the latter focusing mainly on a group of the then candidate countries, or on Germany as the major destination country. An overview of the selected studies assessing the size of post-enlargement migration flows is presented in Table 1:

Table 1. Selected studies assessing size of East-West migration after EU enlargement

Study	Countries of origin	Destination	Number of migrants
Layard et al. (1992)	10 CEE countries *	EU-15	Potential: 3,000,000
Franzmeyer, Brücker (1997)	10 CEE countries *	EU-15	Yearly: 590,000 - 1,180,000
Orłowski (2000)	10 CEE countries *	EU-15	Potential: 1,800,000 - 3,500,000
Hille, Straubhaar (2001)	10 CEE countries *	EU-15	Yearly: 188,000 - 396,000
Brücker, Boeri (2001)	10 CEE countries *	EU-15	Yearly: 335,000 down to 100,000 by 2030
Alvarez-Plata et al. (2003)	10 CEE countries *	EU-15	Yearly: 367,000 down to 0 by 2030
Fassmann, Hintermann (1997)	PL, CZ, HU, SK	EU-15	Potential: 721,000 - 4,000,000
Lundborg (1998)	PL, EE, LT, LV	EU-15	Potential: 1,900,000
Orłowski, Zienkowski (1999)	PL	EU-15	Potential: 390,000 - 1,500,000
Bauer, Zimmermann (1999)	PL, RO, BG, CZ, SK, SI	EU-15	Total in 15 years: 3,000,000
Salt et al. (1999)	PL, CZ, EE, HU, SI	EU-15	Potential: 500,000
Fertig (1999)	PL, CZ, EE, HU, SI	Germany	Potential: 400,000
Fertig, Schmidt (2000)	PL, CZ, EE, HU	Germany	Total in 20 years: 300,000 - 1,200,000
Sinn et al. (2001)	PL, RO, CZ, HU, SK	Germany	Yearly: 250-270,000 down to 60-150,000 by 2020

* BG, CZ, EE, HU, LT, LV, PL, RO, SI, SK.

Source: own elaboration on the basis of the study of Centraal Planbureau (2004) and the quoted sources.

A recent comprehensive study by Alvarez-Plata et al. (2003) shows that in most of the previous studies the projected numbers of migrants to Western Europe were overestimated, including the study of Franzmeyer and Brücker (1997) on the high extreme, projecting up to 1.18 million migrants yearly from Central and Eastern Europe to Western Europe. Moreover, the study of Alvarez-Plata et al. (2003) takes into consideration the policy issues in the form of different possible dates of opening of the labour markets of the EU-15 countries. Several possible years are assumed, from 2004 to 2011, according to the “2+3+2 years” scheme of transition periods. Although this proposition assumes the one-off opening of labour markets of the whole EU-15, the conclusion is that regardless of the date of full freedom of movement, the migration patterns are very similar, only observed with a time delay.

Most of the mentioned forecasts are based on the econometric models with purely economic explanatory variables. As it has been noted by Kupiszewski (2002b), such an approach lacks certain features that would be desired from the methodological point of view. First of all, the demographic, social or policy constraints of migration are not considered in such models, what seems to be a serious material omission. Secondly, the economic variables used as

predictors, like GDP or unemployment, are difficult to forecast themselves and thus increase the uncertainty of migration forecasts to a very significant degree. Therefore, the results of all mentioned studies will be used only as a background reference for the forecast outcome in the current study, applying the methodology of knowledge-based scenarios.

In the current forecasts, three different scenarios of intra-European migration developments are considered: Base (the most likely), Low and High, two latter expressing uncertainty in the form of expected range of possible deviations from the Base scenario. These scenarios differ primarily with respect to the assumptions on the expected economic performance of particular countries. The developments of intra-European migration policies are assumed the same for all scenarios, with gradual opening of Western European labour markets for the citizens of Central and South-Eastern European countries following the outline described in Section 2.

In general, the presence of an overall migration trend is assumed in all scenarios, with gradual implementation of the freedom of movement policy marking temporary deviations from the global tendency. This allows for distinguishing three phases of migration developments:

- *Pre-opening period*, with migration following the overall trend starting from the initial values observed for 2002.
- *Post-opening period*, following the full implementation of the freedom of movement policy, with increased migratory movements from Central and Eastern to Western European countries, yet systematically declining over time.
- *Period of long-term stabilisation*, with migration flows returning to their overall trends, which continues until the end of the projection / forecast horizon.

Especially in the first period following the full implementation of the freedom of movement policy, the scope and direction of migratory flows is going to depend heavily on the disparities between origin and destination countries. For the purpose of the current analysis, 27 countries under study have been clustered into three groups, according to their socio-economic situation: Western Europe, consisting of the EU-15 countries, Norway and Switzerland; Central Europe, composed of the 8 new member countries from 2004, as well as South-Eastern Europe (Bulgaria and Romania).

It is assumed that liberalisation of migration policies will have no impact on migration within Western Europe, as well as in the South-Eastern Cluster. In the former case the assumption is self-explanatory, while in the latter it is envisaged that the excess migration streams from Bulgaria and Romania will be directed predominantly to Western and to lesser extent to Central Europe. Disparities of income between the clusters are expected to be the only source of additional migration pressure in that case. Adversely, within Central Europe one can expect a slight increase of population movements, due to the opening of diversified labour market opportunities in various countries.

Naturally, the most important changes can be expected with respect to population flows from Central and South-Eastern to Western Europe, as well as to the lesser extent from South-Eastern to Central Europe. Their magnitude would depend on income disparities between particular clusters, as well as on the scenario type (highest migration pressure in the Low variant, assuming prevailing income gap in Europe, and lowest in the High one). With respect to eastward migration it can be assumed that there will be an increase in population flows, but the scope of this phenomenon will be rather limited in all projection variants. It can be envisaged that the labour movements between the old and new EU member states can become increasingly two-way flows, as more demand for specific types of labour in the new EU member countries may be required, including the highly skilled professionals. Nevertheless, the primary source of eastward migration will likely be the returns of former emigrants.

The Base scenario therefore assumes a stable socio-economic situation in Europe, most importantly a sustainable economic growth and thus a long-term convergence of income levels in all European countries. In terms of a global trend that would mean an overall increase in mobility of the Europeans, following the increase of job opportunities in the other countries. These possibilities are likely going to be of key importance for the East-West migration, where the gradual opening of Western European labour markets is expected to constitute a strong pull factor for the citizens of Central and Eastern Europe. The positive effects of European integration are likely to occur in full in the longer term, which is going to be visible in return of the migration flows to their overall tendencies.

The Low scenario in turn envisages economic stagnation in Europe, with higher unemployment levels and related structural labour market problems. Especially in the pre-opening and post-opening periods some economic disturbances may be observed in the countries of Central and Eastern Europe, similar to those witnessed in East Germany in the 1990s, after the German reunification. With hardly any factors increasing the overall spatial mobility due to very slow income growth and scarce new job opportunities, the key factor shaping population movements in Europe is likely to be the pressure on migration from Central and Eastern Europe to the West after introducing the freedom of movement policy. In this variant the disparities between different parts of Europe are going to pertain due to unfavourable economic conditions, what would generate substantial migration streams in the middle run. Therefore, the post-opening wave of migration in the Low variant is assumed to be higher and to last longer than under the 'regular' conditions assumed in the Base scenario.

In the High scenario, a good overall situation, substantial economic growth and fast convergence of the economies and thus of the living standards are assumed for all European countries. On one hand this would significantly increase the overall mobility of people within Europe in search for emerging employment possibilities. On the other hand it will reduce the push factors to emigrate from the less developed regions including Central and Eastern Europe. In this scenario, the post-opening increase of the East-West population flows is expected to be a short-term phenomenon, rather moderate in size.

The assumptions for the Low and High scenarios are meant to provide the expected lower and upper bounds of the possible migration developments, rather than the complete 50-years-long trajectories for the countries under study. It seems implausible to believe that the conditions for either high net migration losses or gains would be such long-lasting. A belief in the existence of the long-term economic ‘equilibrium’ path of growth may contribute an additional argument in that respect.

Following the liberalisation of population movements within Europe, one may also expect the occurrence of a short-term phenomenon of ‘migration without migration’. In the Western European countries, many of the so far irregular migrants and illegal workers from Central and Eastern Europe are likely to regularise their status once they would have such an opportunity. Therefore, shortly after the liberalisation takes place, an increase in the numbers of migrants will likely be observed in the statistical registration, yet not in the reality. This hypothesis has been substantiated by the recent Home Office (2004) report stating that in May 2004 as many as 61% of those who registered under the Working Registration Scheme arrived before 1st of May 2004. By September 2004, the share decreased to 12%. This is exactly as was predicted by Kupiszewski (2002a).

4. Scenarios of net migration from the remaining countries

In setting the scenarios of net international migration from the remaining countries of the world (hereafter: the “external” migration), the economic and political situation at the fringes of the enlarged European Union has to be considered in the first place. The other post-socialist countries, including the former Soviet Union, as well as the countries of the former Yugoslavia are potential sources of large population inflows. A very important way in which the situation in these countries can have an impact on migration to their European neighbours is through the presence of established migrant networks. Situation in the countries of the former Soviet Union will most likely have impact on migration flows to Poland, the Baltic States, the Czech Republic, as well as to the rest of Central Europe. Countries of the former Yugoslavia may in turn generate substantial population movements to Slovenia and Hungary, following the strong historical and cultural ties in that region. These flows depend heavily on further political and economic development of the mentioned countries, and especially on their possibility of joining the EU, which factor, however, remains hardly predictable. One cannot also completely ignore the ethnic migration of Poles and Germans from the former USSR etc., although this migration source is already almost extinguished.

The second group of potential large sources of population inflows comprises of the countries of historically large migration into Western and Southern Europe, mainly Turkey and the Northern African countries. In general, it can be envisaged that these population inflows to Europe will continue, to some extent regardless of the pace of the socio-economic development in the origin countries. In general, existing disparities in income and living conditions between European countries and most of the outside world will no doubt constitute

a strong push factor to migrate. This will influence the possible magnitude of migration into Europe, especially taking into the account the large countries like China, especially as there are already significant Chinese migrant networks in Europe.

On the other hand, policy measures are almost certainly going to be in place, aimed at limiting migration or shaping it in a desired way, like admitting highly-skilled professionals. Hence, although migration potential outside Europe is very large, its impact is likely to be offset by these policies. The policies are also likely to depend on the economic developments on the global scale: both in the highly developed, as well as in the developing countries. For the purpose of setting the scenarios of net migration from remaining countries of the World, again three variants of global socio-economic developments are assumed:

- Base scenario, considered to be the most likely one, with a moderate, yet sustained improvement of economic, political and social situation worldwide, resulting in moderate overall population inflow to Europe and a gradual shift in places of origin from the neighbouring countries to the other developing regions of the world. In this scenario policy measures are not assumed to be very restrictive, due to relatively good and stable socio-economic situation in Europe.
- Low scenario, assuming economic stagnation both in Europe and in the rest of the world, resulting in strong migration pressure on the developed countries. The strong push factors are in this scenario offset with restrictive migration policy, having an impact at the decline of at least registered migration. Migration policies are primarily aimed at the protection of European labour markets and reducing the possible social tensions related to the inflow of large numbers of immigrants.
- High scenario, assuming dynamic economic growth and social development, resulting in a need for inflow of foreign labour and thus leading to relatively liberal immigration policies. Economic growth in the developing regions is assumed to be a factor contributing to the increased mobility of people worldwide.

In terms of the overall assumptions, comprehensive scenarios of the overall net migration for a majority of European countries have been presented by de Beer and van Wissen (1999). In their work, the countries have been clustered into five groups: Eastern (Bulgaria, Romania and the former USSR without the Baltic States), Central (remaining post-socialist countries including the Baltic States, Croatia and Slovenia), Northern (Scandinavian countries), Southern (Greece, Italy, Portugal and Spain) and Western (remaining countries of Western Europe). Two scenarios of population developments have been presented: the one of 'uniformity', assuming convergence of trends of demographic patterns within Europe, and the one of 'diversity', preserving the current differences between countries. In the 'uniformity' scenario it was assumed that by 2050, net migration rates in all European countries would reach the levels of +2.5 per 1,000 population, with the exception of Southern European countries, with the target rates of +3.5 per 1,000. In the 'diversity' scenario, the assumed target net migration rates were correlated with the level of socio-economic development in

particular clusters, ranging from -0.5 per 1,000 in Eastern Europe, through -1.0 in Central Europe, $+1.5$ in Western and Northern Europe, to $+3.5$ in Southern Europe. Although these scenarios are not directly comparable with the current study, as they relate to the overall net migration of particular countries, they form a valid point of reference in the scenario setting.

The major shortcoming of the projections of de Beer and van Wissen (1999) is that they do not take into the account the migration policy issues, and especially the EU enlargement. Moreover, as their projection is based on the data until 1995, they do not take into the account the recent population developments, which seem to be crucial for understanding the dynamics of migration processes, not only in Central Europe, but also in countries like Ireland or Spain. What seems worthwhile in their study is the clustering of European countries according to the similar demographic patterns. In the current work, an analogous grouping is therefore applied, with only three exceptions:

- The Czech Republic and Hungary have been assigned to cluster West, not to Central, due to their recent migration developments with positive net migration in the second half of the 1990s, as well as due to the high level of socio-economic development;
- Slovenia has been attached to cluster South, not only due to the recent migration history and geographic location, but also due to very good economic performance, the best among the former European socialist countries.

Given the above, it is envisaged that in all European countries the net migration from the rest of the world will eventually be positive, regardless of the projection variant. The lowest external net migration rates are expected for Eastern Europe, the highest – for Southern Europe, with Central, Northern and Western clusters in between. The Northern countries have been assigned lower target external net migration rates in comparison with Western Europe due to their slightly more peripheral position in the European migratory system. The highest values for Southern Europe reflect their recent migration history, post-colonial ties and the related migrant networks, as well as their proximity to the important sending countries like Turkey and North Africa. The targets for the Low and High variants need to be specified allowing for reasonable deviations from the Base scenario, given the assumptions on the global socio-economic situation mentioned before. Quantification of the assumptions is discussed in details in the next section.

5. Quantification of the projection assumptions

With regard to intra-European migration scenarios for the period 2002-52, the projected variable is migration volume between the particular countries within Europe. Following the proposition of Kupiszewski (2002a: 106), initial migration figures for 2002 have been taken as greater from the values registered by the sending and receiving countries, according to the data of the Council of Europe (2003: Tables 6) and Eurostat (NewCronos). In the forecasting model *MULTIPOLES* applied in this study (Kupiszewski, Kupiszewska 1998), the crude

numbers of migrants are transformed into total migration rates (*TMR*). The scenarios are made on the basis of the *TMR* multipliers (*m*), satisfying the condition $TMR_{t+1} = TMR_t \cdot m_{t+1}$.

The multipliers *m* are comprised of two multiplicative components: the overall trend (*TR*) for a given scenario, constant for the whole projection period, and the post-accession deviation. The latter component is assumed to occur at the moment of introducing a free-flow policy between particular countries, and gradually diminish within a given period of time. The post-accession deviation is calculated in such way that the difference between the current *TMR* and its trend follows a logistic curve, diminishing from the post-accession level to zero. In terms of multipliers *m*, the relevant formula for flows from country *i* to country *j* in the year *t* is:

$$m_{t,i,j} = TR \cdot \frac{PAI_{i,j} + (TR - PAI_{i,j}) / (1 + \exp(-r \cdot (t - (YF_{i,j} - 2002) - \frac{1}{2} YS)))}{PAI_{i,j} + (TR - PAI_{i,j}) / (1 + \exp(-r \cdot (t - (YF_{i,j} - 2002) - \frac{1}{2} YS - 1)))}$$

where *r* denotes a growth rate of the logistic curve, *t* – year, *PAI*_{*i,j*} – assumed post-accession increase in migration rates, expressed as a multiplier; *YF*_{*i,j*} – year of introducing the freedom of movement from country *i* to *j*, and *YS* – years needed to return to the trend. Specific assumptions have been made for:

- $m_{t,i,i} = 1$ for the default zero flows from country *i* to country *i*;
- $m_{t,i,j} = TR$ for both *i, j* denoting Western European countries;
- $m_{t,i,j} = TR$ for $t < YF_{i,j}$ and for $t \geq YF_{i,j} + YS$;
- $m_{t,i,j} = TR \cdot PAI_{i,j}$ for $t = YF_{i,j}$.

Assumptions for *PAI*_{*i,j*} have been established for three clusters of European countries: Western, Central and South-Eastern. The Low scenario is based on the assumption of difficult economic situation in Europe, resulting in slow convergence in the development levels of the countries and thus in strong westward mobility. The Base scenario depicts the situation of modest, yet sustainable economic growth across Europe, having effects of moderate convergence and moderate increase in mobility. Finally, the High scenario assumes relatively fast economic growth, convergence and intensification of the unification processes, resulting in overall high mobility, with less importance of the westward population movements.

In terms of numbers, the overall trend in the Low scenario is assumed to be constant throughout the projection period ($TR = 1$), in the Base scenario to reflect the moderate mobility increase by 0.5% yearly ($TR = 1.005$) and in the High scenario – a significant increase by 1% per annum ($TR = 1.01$). In the case of westward movements from South-Eastern to Central and Western clusters, as well as from Central to Western cluster, the trends for High and Low variants have been swapped, to ensure consistency of the assumptions.

The time needed for the migration flows to stabilise and return to the trend after liberalisation of the population movements (*YS*) is assumed to equal 20, 15 and 10 years, respectively in the Low, Base and High scenarios. In all cases, growth rate for the logistic curve *r* is assumed to

amount to 0.5. Hypotheses regarding the size of post-accession increase of migration from country i to j ($PAI_{i,j}$) are presented in Table 2.

Table 2. Initial post-accession increase ($PAI_{i,j}$) for clusters of countries

Low Scenario , From \ To	Western Europe	Central Europe	South-Eastern Europe
Western Europe	1.00	1.00	1.00
Central Europe	1.50	1.00	1.00
South-Eastern Europe	2.00	1.50	1.00

Base Scenario , From \ To	Western Europe	Central Europe	South-Eastern Europe
Western Europe	1.00	1.05	1.05
Central Europe	1.35	1.10	1.05
South-Eastern Europe	1.60	1.35	1.00

High Scenario , From \ To	Western Europe	Central Europe	South-Eastern Europe
Western Europe	1.00	1.10	1.10
Central Europe	1.20	1.20	1.10
South-Eastern Europe	1.20	1.20	1.00

Source: own elaboration

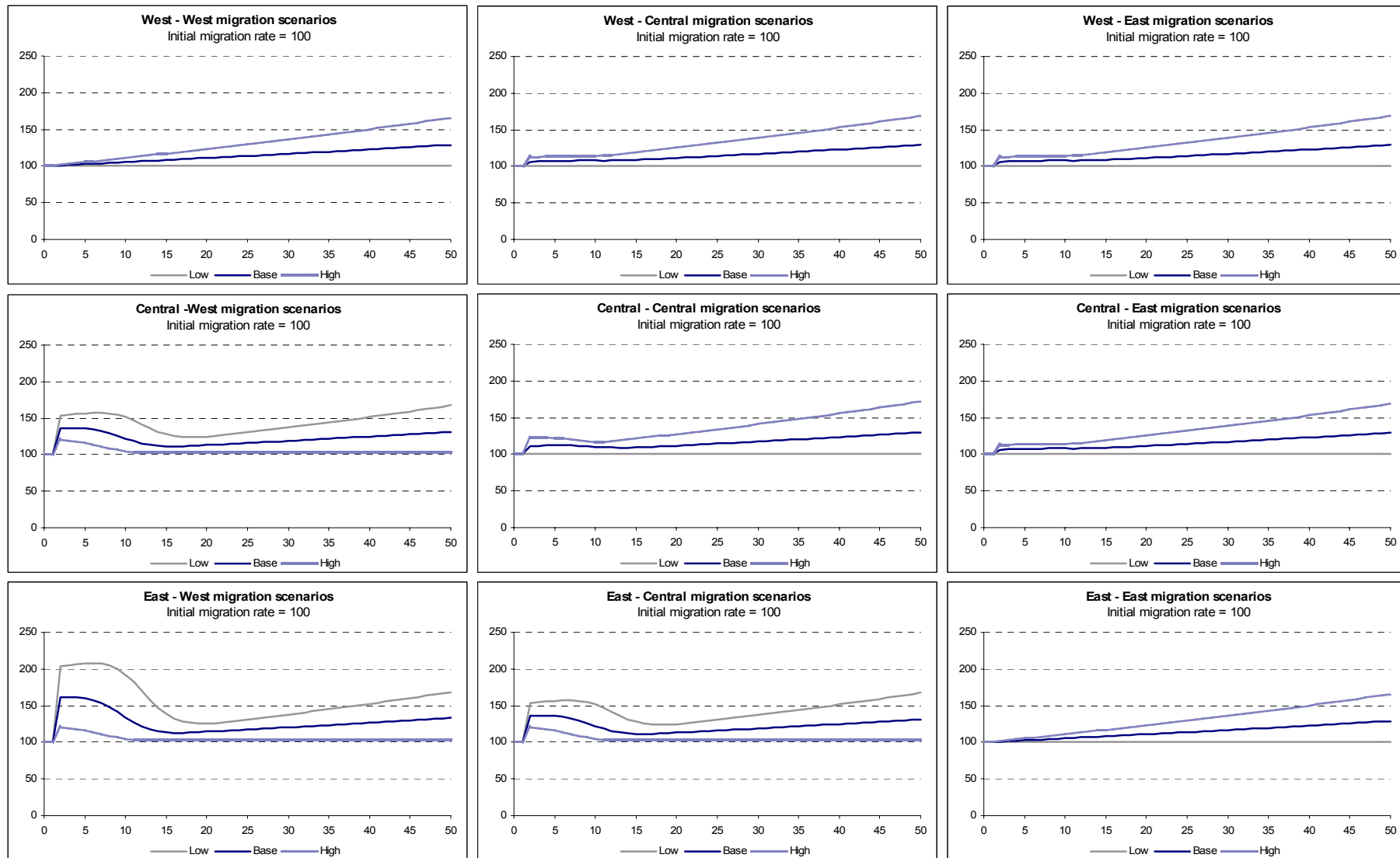
The results in terms of ‘hypothetical’ trajectories of migration rate developments, in relation to the values observed for the period prior to the introduction of freedom of movement policy, are presented in Figure 1. It has to be noted that in reality, the schedules will be postponed, according to the policy-related assumptions presented in Section 2 influencing the delay in mutual opening of labour markets by particular countries (YF).

Separate assumptions have been made with respect to the sex and age distributions of migrants within Europe. The distribution by gender has been assumed to be the one observed in 2002, remaining constant throughout the projection period. The age-specific migration rates have been calculated for the following four groups of countries:

- Germany, separated due to its key position in European migration system;
- Western Europe: Austria, Belgium, Denmark, Finland, Ireland, Luxembourg, the Netherlands, Norway, Sweden, Switzerland and the United Kingdom;
- Southern Europe: France, Greece, Italy, Portugal and Spain;
- Central and Eastern Europe: Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic and Slovenia.

In most cases, German data on migrants by citizenship have been used, as the best available proxy of the distributions by origin and destination. The only exception were flows from Western to Southern Europe, where the data of the destination countries have been applied, due to the local specificities in the age structures, namely the post-retirement migration.

Figure 1. Overview of assumed post-accession intra-European migration developments: Low, Base and High scenarios



Source: own elaboration

The input has been taken from Eurostat (NewCronos), except for France, where the figures have been estimated on the basis of the study of INED (1999). In all cases, age distributions of migrants have been assumed constant throughout the projection horizon, i.e. until 2052.

With regard to the population exchange with the countries other than the 27 ones under study, assumptions on net migration for the particular countries have been made in terms of crude numbers of migrants. The projected variable is thus the “external” net migration (*ENM*). The initial projection values for 2002 have been estimated as total net migration, reported by the countries themselves, less net migration among the 27 European countries under study.

Assumptions on target values of net migration from the outside world are also by necessity judgemental, due to the higher uncertainty related to the predictions of international migration on a global scale. As proposed in the previous section of this paper, for the purpose of scenario setting, the countries have been grouped in five clusters, according to the similar levels of socio-economic development, common migration history, as well as the geographic and cultural proximity. The following cluster-specific target “external” net migration rates (*ENMR*) per 1,000 population have been assumed for three projection variants (Table 3):

Table 3. Target “external” net migration rates per 1,000 population for 2052

No.	Cluster	Countries	Target <i>ENMR</i> per 1,000 population		
			Low	Base	High
1	South-Eastern Europe	Bulgaria, Romania	0.0	1.0	2.0
2	Central Europe	Estonia, Latvia, Lithuania, Poland, Slovak Republic	0.25	1.5	3.0
3	Northern Europe	Denmark, Finland, Norway, Sweden,	0.5	2.0	4.0
4	Western Europe	Austria, Belgium, Czech Rep., France, Germany, Hungary, Ireland, Luxembourg, the Netherlands, Switzerland, U.K.	1.0	2.5	5.0
5	Southern Europe	Greece, Italy, Portugal, Slovenia, Spain	1.5	3.0	6.0

Source: Own elaboration

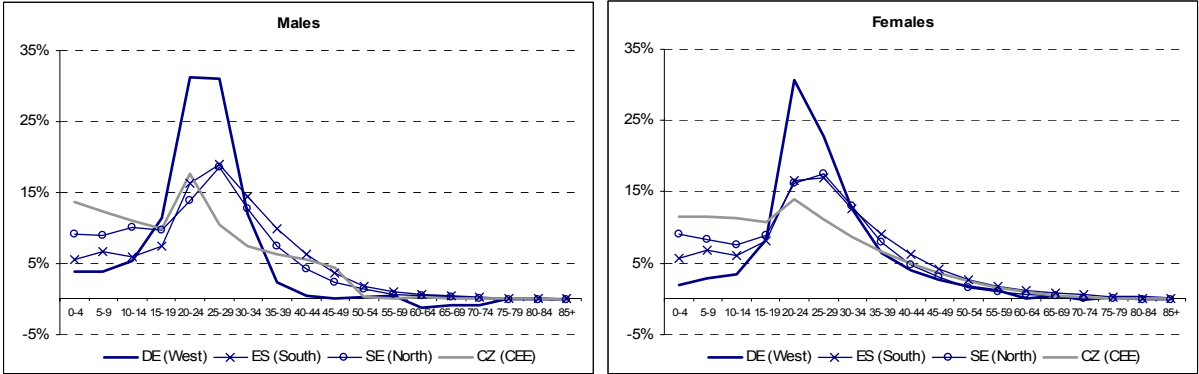
The *ENMR* rates have been further transformed into crude target *ENM* numbers multiplying by the 2002 population size of particular countries. The results have been taken as target values for 2052 (ENM_{2052}). The initial and target *ENM* values have been bridged by the means of an exponential interpolation, according to the formula:

$$ENM_t = ENM_{2052} + (ENM_{2002} - ENM_{2052}) \cdot \exp[-r \cdot (t - 2002)],$$

where t denotes year and r the growth rate, assumed to equal 0.05. Such a curve ensures a smooth passage from ENM_{2002} to ENM_{2052} and the stabilisation of the *ENM* by the end of the forecast period.

With respect to sex and age distributions of the “external” migrants, cluster-specific assumptions have been made, on the basis of clustering presented in Section 4. For Western, Northern and Southern Europe, three countries have been chosen as typical: Germany, Sweden and Spain. Due to unavailability of similar data for the Central and South-Eastern Europe, the schedules have been estimated on the basis of the Czech statistics. The sex-specific age distributions of ‘net migrants’ from outside the system of 27 countries under study has been calculated in the form of shares of the overall total, as shown in Figure 2:

Figure 2. Age schedules of the net “external” migrants, shares of the total



Source: Eurostat / NewCronos, own calculations

The proposed distributions reflect slight propensity to return among the people migrating to Western Europe, especially among males above 60 years of age. For the remaining clusters, net migration remains positive for almost all age groups, with only very minor exceptions.

6. Preliminary results

The impact of different migration scenarios on population size and structure of the 27 countries under study in the period 2002-2052 has been assessed by running the forecasting model with fairly standard assumptions on key demographic variables: fertility and mortality (Bijak 2004). As a result, it appears that although higher immigration generally contributes to maintaining the population size, it does not stop or reverse the ageing processes. A summary of the forecast results is presented in Table 4, showing changes in population size and in the old-age dependency ratios (ODR)² between 2002 and 2052. For the final year of the forecast, the impact of three different scenarios of international migration is shown in Table 4. It can be clearly seen that for the total of the countries under study, although hardly any change in the overall population size is forecasted in the Base migration scenario, the ODR nearly doubled from 24% in 2002 to 55% by 2052.

It is worth noting that the contribution of post-2002 migrants to the population size of all countries under study forecasted for 2052 was very substantial. In comparison with the Base

² ODR is calculated as a ratio of elderly population (here assumed as 65+ years of age) to the population in the working age (15-64 years).

scenario, a simulation with the zero-migration assumption results in projecting the overall population size of the 27 countries smaller by 80.4 million in 2052 (Table 4). The contribution of migrants to the overall population size of the 27 countries totals respectively in the Low and High variants 32.5 and 148.5 million over five decades. Especially in the countries with low fertility (Southern Europe, Central Europe, German-speaking countries), the impact of international migration on overall population dynamics is thus clearly visible.

7. Summary and conclusions

Forecasting international migration is a very difficult task, due to the high level of uncertainty associated with this phenomenon. As migration is highly sensitive to two unpredictable factors: migration policies and political developments, the results of the forecasts are in many cases uncertain. Therefore, we created and quantified the knowledge-based scenarios, applying a methodology widely used in demographic forecasting, in order to accommodate the possible impact of economic factors and migration policies. Still, we did not consider the consequences of possible future political disruptions, in particular, the armed conflicts.

The presented analysis assumes that the increase of emigration from the new EU member and accession countries to Western Europe is going to be temporary by nature and thus in the long run a declining trend of this phenomenon can be anticipated. To a lesser extent, an increase of population movements in the opposite direction can be also expected. In the long run, the stabilisation of the intra-European migratory phenomena is envisaged, with an increasing impact of migration from outside Europe, as the whole continent is expected to become more and more attractive to the immigrants from less developed regions of the world. Notably, this will increasingly be the case of Central and South-Eastern European countries, being both migration destinations and possible ways of transit to the West. Summing up, it is expected that in the Base scenario all the new EU members will eventually become immigration countries by 2020, except for Bulgaria and Romania, for which the net migration is going to remain negative throughout the forecast period. In the High scenario, the change of the dominant direction of migration flows is expected to happen earlier, including the two Eastern Balkan candidate countries. In the Low scenario, negative net migration prevails in all Central and South-Eastern European countries but the Czech Republic, Hungary and Slovenia.

According to Coleman (1992) the need for immigration in the developed countries in the context of population ageing is motivated by three main factors: need for care of the elderly, mismatch between demand and supply of labour on the domestic labour markets and need to rejuvenate working population, which is beneficial for productivity. Although international migration may be helpful in filling the labour force shortages in certain sectors of the economy, it does not seem to be the solution for sustaining for example the pension systems, given the decline of the labour force and of cohorts in productive age. Summing up, in none of the scenarios presented above and under fairly standard demographic assumptions for the future, international migration is going to offset the demographic impact of population ageing.

Table 4. Impact of different migration scenarios on population size and structure of 27 European countries, 2002-2052

Country	Population 2002	ODR 2002 (%)	Population 2052			Contribution of post-2002 migrants *			ODR 2052 (%)		
			Low	Base	High	Low	Base	High	Low	Base	High
1. Austria	8 053 101	22,8	7 277 390	7 853 335	8 739 476	767 568	1 343 513	2 229 654	64,6	58,6	51,9
2. Belgium	10 332 784	25,9	10 160 789	11 268 964	12 862 980	659 326	1 767 501	3 361 517	52,6	47,3	41,7
3. Bulgaria	7 868 898	24,9	3 768 833	4 484 963	5 210 055	-493 118	223 012	948 104	77,1	66,5	58,7
4. Czech Republic	10 204 858	19,7	7 735 531	8 950 563	10 615 394	261 411	1 476 443	3 141 274	68,9	59,2	50,1
5. Denmark	5 375 931	22,3	5 363 927	5 812 839	6 433 865	373 340	822 252	1 443 278	48,1	44,7	41,0
6. Estonia	1 358 201	23,2	912 514	1 038 878	1 185 227	-34 156	92 208	238 557	56,3	50,4	45,1
7. Finland	5 200 602	22,8	5 071 344	5 522 855	6 135 788	274 129	725 640	1 338 573	51,8	48,0	43,9
8. France	59 486 121	25,0	64 230 277	70 380 717	79 189 414	3 873 188	10 023 628	18 832 325	50,7	46,6	42,0
9. Germany	82 488 495	25,6	71 095 778	77 006 596	86 093 119	8 526 093	14 436 911	23 523 434	65,2	58,2	50,9
10. Greece	11 003 202	24,2	9 584 479	10 751 831	12 509 162	695 330	1 862 682	3 620 013	70,2	62,6	54,7
11. Hungary	10 158 606	22,4	7 465 747	8 706 719	10 418 568	196 241	1 437 213	3 149 062	58,7	50,9	43,3
12. Ireland	3 931 755	16,4	5 276 930	5 775 978	6 498 237	495 308	994 356	1 716 615	46,6	43,0	38,9
13. Italy	57 157 409	28,2	48 280 051	54 044 177	62 812 780	4 964 096	10 728 222	19 496 825	75,5	67,4	58,8
14. Latvia	2 338 622	23,1	1 501 521	1 692 740	1 917 392	-37 605	153 614	378 266	59,5	53,4	47,8
15. Lithuania	3 469 070	21,8	2 203 556	2 521 404	2 891 048	-97 238	220 610	590 254	62,5	55,7	49,7
16. Luxembourg	446 175	20,8	506 118	559 574	637 719	36 768	90 224	168 369	50,0	44,2	38,1
17. The Netherlands	16 148 933	20,2	17 307 270	18 966 852	21 368 986	1 568 886	3 228 468	5 630 602	48,9	44,5	39,7
18. Norway	4 538 157	22,8	4 917 566	5 302 444	5 831 726	386 752	771 630	1 300 912	48,2	44,9	41,3
19. Poland	38 425 494	18,2	27 276 944	31 266 638	35 988 105	-1 195 637	2 794 057	7 515 524	67,9	60,5	53,7
20. Portugal	10 368 404	24,6	9 284 237	10 399 243	12 064 476	722 443	1 837 449	3 502 682	63,4	57,4	51,1
21. Romania	21 803 130	20,5	11 333 520	13 365 280	15 371 594	-1 712 298	319 462	2 325 776	63,3	57,2	52,2
22. Slovak Republic	5 379 057	16,4	4 016 105	4 600 222	5 318 390	-145 466	438 651	1 156 819	65,4	57,5	50,2
23. Slovenia	1 994 528	20,8	1 603 058	1 851 532	2 209 187	67 298	315 772	673 427	71,5	62,8	54,1
24. Spain	41 200 565	24,7	44 513 490	48 693 266	55 318 037	6 738 280	10 918 056	17 542 827	74,2	67,5	60,0
25. Sweden	8 924 962	26,5	9 172 870	9 992 669	11 111 426	649 481	1 469 280	2 588 037	51,4	47,6	43,5
26. Switzerland	7 289 544	23,0	7 775 882	8 630 401	9 882 205	772 245	1 626 764	2 878 568	56,5	50,1	43,4
27. United Kingdom	59 231 902	23,8	59 292 295	65 481 365	74 352 728	4 142 271	10 331 341	19 202 704	50,3	45,6	40,5
28. All countries	494 178 506	23,9	446 928 022	494 922 045	562 967 084	32 454 936	80 448 959	148 493 998	60,8	54,9	48,7

* Difference between forecasted population size in a given scenario and the one obtained under a zero-migration assumption.

Source: Own computations

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