KING

Knowledge for INtegration Governance

The expected contribution of migrations to the future European economic and socio-demographic system

Paweł Kaczmarczyk

KING Project – Demography Unit
Desk Research Paper n. 20/July 2014

KING - Knowledge for INtegration Governance

The KING project is co-funded by the European Commission, Directorate-General Home Affairs, under the Action HOME/2012-2013/EIFX/CA/CFP/4000004268. Start date: 15 September 2013; end date: 15 March 2015.

The KING project's objective is to elaborate a report on the **state of play** of migrant integration in Europe through an interdisciplinary approach and to provide decision- and policy-makers with **evidence-based recommendations** on the design of migrant integration-related policies and on the way they should be articulated between different policy-making levels of governance.

Migrant integration is a truly multi-faceted process. The contribution of the insights offered by different disciplines is thus essential in order better to grasp the various aspects of the presence of migrants in European societies. This is why **multidisciplinarity** is at the core of the KING research project, whose Advisory Board comprises experts of seven different disciplines:

EU Policy – Yves Pascouau
Political Science - Alberto Martinelli
Public Administration – Walter Kindermann
Social Science – Rinus Penninx
Applied Social Studies – Jenny Phillimore
Economics – Martin Kahanec & Alessandra Venturini
Demography – Gian Carlo Blangiardo

The project consists in the conduct of preliminary **Desk Research** to be followed by an empirical in-depth analysis of specific key topics identified within the desk research. To carry out these two tasks, each Advisory Board member chose and coordinated a team of two to five researchers, who have been assigned a range of topics to cover.

The present paper belongs to the series of contributions produced by the researchers of the "Demography" team directed by Professor Gian Carlo Blangiardo:

EU Policy	ADVISORY BOARD MEMBER	DESK RESEARCH PAPERS
Political Science		
Public Administration	GIAN CARLO BLANGIARDO Overview Paper	• "The contribution of migration to the demography of Europe between 1991 and 2011: an overview" by Maria Rita Testa
Social Science		• **"The expected contribution of migrations to the future European economic and socio-demographic system" by Pawel Kaczmarczyk**
Applied Social Studies		
Economics		• "Laboratories of integration at local level" by Mariachiara Di Cesare
Demography		

The project is coordinated by the **ISMU Foundation**, based in Milan (Italy).

Contacts:

Guia Gilardoni, Project Coordinator – g.gilardoni@ismu.org
Daniela Carrillo, Project Co-Coordinator – d.carrillo@ismu.org
Marina D'Odorico, Project Co-Coordinator – m.dodorico@ismu.org

Website: www.king.ismu.org
Twitter: @KING_Project_EU

ISMU Foundation - Initiatives and Studies on Multiethnicity
www.ismu.org
Via Copernico 1
20125 Milano
Italy

The expected contribution of migrations to the future European economic and socio-demographic system

1. INTRODUCTION[1]

It is commonly acknowledged that forecasting international migration is a challenging task. In terms of population forecasts the migration component is the most difficult to measure and to project and this is attributable to many factors. First, the data used in the projection process vary in terms of quality and are very often not reliable. Second, migration is commonly described as a complex social phenomenon which makes all the attempts to foresee migration movements an extremely challenging task. This refers both to the economically motivated movements as well as to refugee movements – all of them can be described in terms of very high volatility (much higher than in case of other demographic processes) (UN 2013; Bijak et al. 2013). In fact, recent migration theories claim that migration is a social phenomenon driven by structural conditions in both sending and destination countries, but migrants do have their agency and respond to structural conditions in a selective way. Moreover, over time migrant networks are shaping the scale and structure of migration movements which gain a good deal of internal inertia. Last but not least, scale, structure and forms of migration are influenced and shaped by migration policies (Massey 1999; Castles, de Haas and Miller 2013; Stark and Bloom 1985). All of those factors are extremely difficult to forecast which creates a serious skepticism towards most of the attempts to foresee migration flows. Notwithstanding, the ageing process is expected to influence the demographic future of Europe in a significant way. This is why the concept of replacement migration (in its various versions) is widely discussed by scholars and policy makers.

Against this background aims of this paper are threefold. First, a review of the most important attempts to forecast future migration in and to EU will be provided to identify the most important similarities/differences and to build a ground for further discussion. Second, the question will be asked what will be (in the perspective of next two decades) the contribution of foreign population to the equilibrium on the labor market and what will be the regional differences with respect to this process. Three, we will look at migration as a demographic asset and try to assess the impact of inflowing foreigners on the EU demography in the context of the labour market, the welfare system etc. The structure of the rest of this paper clearly reflects these three topics.

---

2. FUTURE MIGRATORY FLOWS AND FOREIGN POPULATION IN THE EU COUNTRIES – OVERVIEW OF EXISTING FORECASTS

This section is devoted to review of the most important attempts to forecast future migration flows and presence of foreigners in the EU. We start with the most influential studies presented by United Nations, International Labor Organization and EUROSTAT whereas the emphasis will be put exclusively on the methodologies related to migration. Then several other approaches will be presented including economically grounded models which question purely demographic approach to migration's estimation.

UN (2013) provides projection of worldwide migration until 2050. Based on historical developments (steady growth in migration between 1960 and 2010, the more developed countries as net gainers, Europe as a region with the highest level of net migration – 1.88 million annually) it was projected that net migration to the more developed countries will decline slowly[2]. Importantly, over the projection period the most important expected source of emigrants remains Asia (over a half of the net migrants from the less developed countries), see Table 1.

Table 1 - Net migration according to the UN forecast (2012 Revision), 1950-2050 (medium variant)

Major area	1950-1960	1960-1970	1970-1980	1980-1990	1990-2000	2000-2010	2010-2020	2020-2030	2030-2040	2040-2050
More developed regions	29	601	1 307	1 475	2 548	3 455	2 564	2 349	2 331	2 320
Less developed regions	-29	-601	-1 307	-1 475	-2 548	-3 455	-2 564	-2 349	-2 331	-2 320
Africa	-101	-185	-487	-501	-443	-388	-484	-497	-499	-498
Asia	116	12	-319	-294	-1 334	-1 780	-1 397	-1 256	-1 245	-1 233
Europe	-427	41	414	525	960	1 866	1 119	935	916	905
Latin America and the Caribbean	-80	-318	-439	-708	-707	-1 155	-609	-533	-525	-526
Northern America	403	324	792	880	1 438	1 282	1 220	1 200	1 200	1 200
Oceania	89	126	39	98	87	175	151	152	153	153

Source: UN 2013: 22

The UN projection clearly reveals most of the problems with forecasting of international migration. Out of the two migration scenarios proposed, the first one – normal migration assumption – assumes that the future migration streams will follow past experience regarding mobility and eventually consider policy measures taken by given country. As a consequence the projected levels of net migration are relatively stable over the period 2010-2050 (in case of Europe it varies between 1.1 million and 0.9 million). In the long-term perspective gradual decline to the level of zero net migration was assumed (by 2100)[3]. In the long-run (after 2050) it was assumed that the net migration will gradually decline to reach zero in all areas considered. Interestingly, authors clearly state that this assumption is far from being realistic but it is impossible to project the levels of emigration and immigration over such a long time horizon (UN 2013).

An aim of the forecast presented in ILO (2013) was to project future sizes of the labour force (as well

---

[2] From a level 3.46 million in years 2000-2010 to about 2.3 million per year during 2040-2050.

[3] In one of the variants – the zero-migration one – international migration was set to the level 0 from 2010 on.

as participation ratios) based on the historical data dating back to 1990 (in several cases 1980)[4]. To project LFPRs (Labour Force Participation Ratios), four types of approaches have been identified in this document: 1) judgmental (qualitative) methods based on scenarios or targets to reach; 2) time extrapolation models (growth curves); 3) regression models based on associations between participation rates and econo-demographic variables; and 4) cohort based models (LFPRs projected on the basis of estimated probability of entry or exit of the labour force).

A two-step methodology has been applied in a following way. First, mechanic projections have been estimated to be used as a benchmark scenario (constant "naïve projection" and logistic trend scenarios). Second, projections obtained have been revised and adjusted judgmentally (including different conditions in particular countries, e.g. forthcoming changes in retirement age). The adjustment have been also made to make the forecasts consistent with those proposed by national institutions. Migration was considered in the second step only. Namely, based on national sources proportion of immigrant workers in a given country was included in the modeling process (Pasteels 2012)[5]. All in all – immigration is practically non-existent in the forecasted data and thus ILO forecast is hardly useful for assessment of future migration streams and their impacts. Additionally, as discussed above, it has been treated in a non systemic way.

The main source of information on future changes in the European population remains the so-called EUROPOPs, i.e. the Eurostat Population Projections. In this paper we refer mostly to the EUROPOP2008 (based on 2008 data - Lanzieri 2009, 2011) and thus for comparability purposes we will comment on this edition considering that it is not the most up-dated one[6]. In practical terms a process of convergence in terms of spatial mobility was assumed, see Figure 1.

Figure 1 - Estimated and projected migration in the EU27, 1961-2060

---

[4] Data were derived from a labour force survey or a census, and United Nations, World Population Prospects 2012 Revision Database.

[5] According to Pasteels (2012) the proportion of immigrant workers was used in not systematic way, i.e. the information obtained from national sources have been used to check and manually adjust the estimated values (similarly as HIV prevalence).

[6] The most recent population projection estimated by EUROSTAT – EUROPOP2013 – provides slightly lower numbers of migrants till 2030 (and this is the time perspective we refer to in the next sections): 19.5 million instead of around 22 million according to the EUROPOP2008. Estimated dynamics of the inflow is higher in following decades with an expected 23% contribution to the population of the EU28 in 2080. Notwithstanding the structural features do not differ significantly over the time horizon 2010-2030, particularly the structure of the most important destination countries remains (almost) the same with Italy, Germany, United Kingdom and France being the most important target countries in the EU. The most significant exception is Spain with an estimated decrease in net migration over the period 2010-2030 contrary to EUROPOP2008 (mostly due to recent economic crisis and related socio-economic issues).
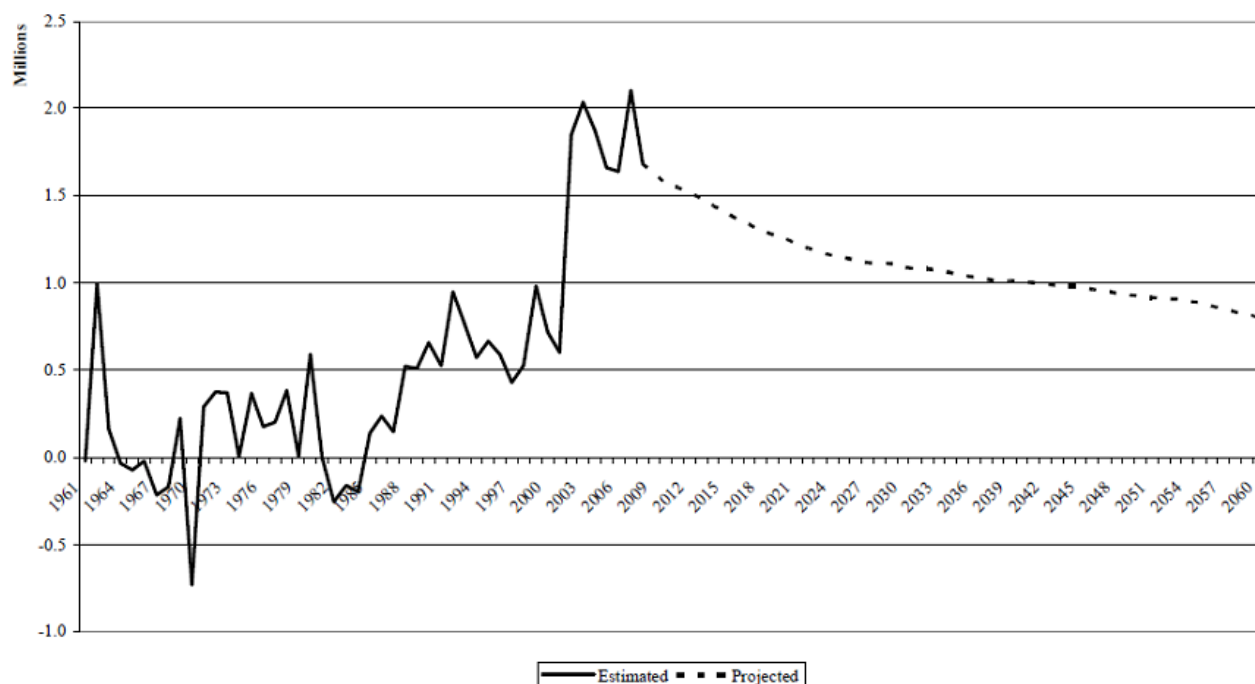
Source: Lanzieri 2009: 17

It means that the net migration (for every member state) is expected to converge to zero in the (very) long term. Additionally the quantitative values necessary for the forecast were adjusted upwards to take into account expected shortages of working age population, see Figure 2.

Figure 2 - Converging net migration and the projected migration in the EU27, 2008-2060
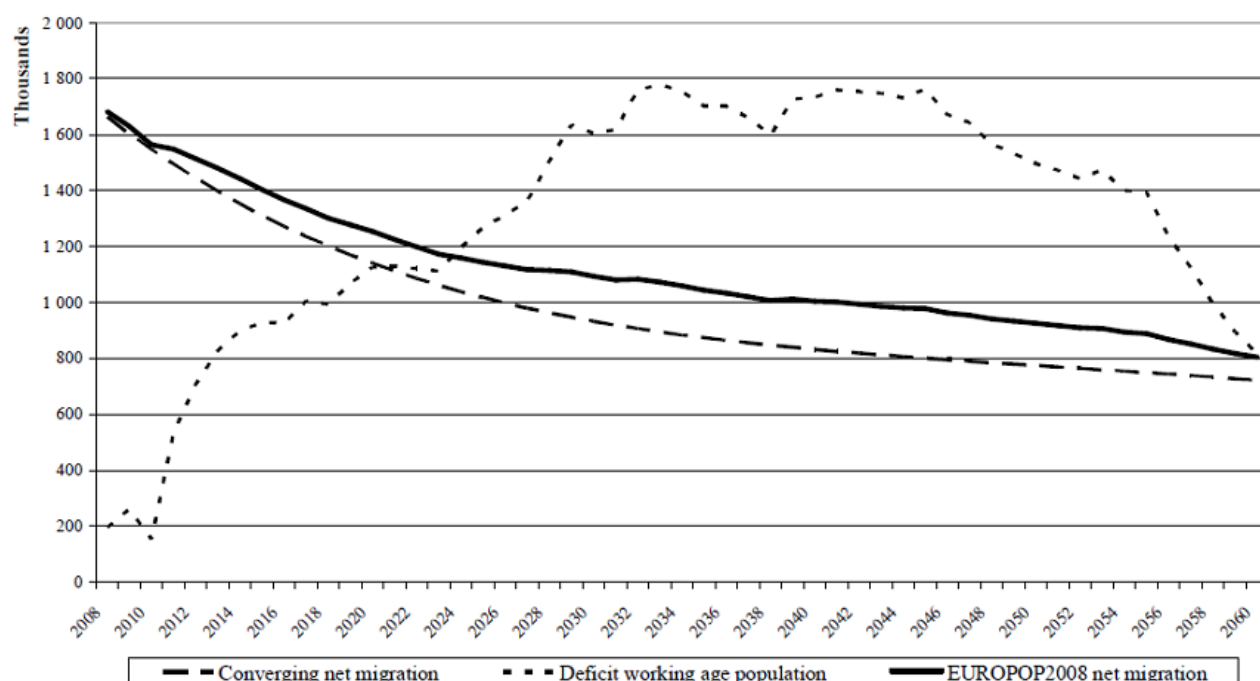
Source: Lanzieri 2009: 17

In terms of age profiles of migrants, the outcomes are result of the application of the Rogers-Castro schedule with seven parameters (Lanzieri 2009). Again, in practical terms it would mean that the age profiles of migrants are expected to converge to the EU standards.

According to the EUROPOP2008 estimates a net migration of around 59 millions (cumulative) is expected till 2060, see Table 1 in the Annex. Importantly, net migration to the EU countries will have an indirect effect as well – via natural change. According to Lanzieri (2009) the overall contribution of migration is assumed to be over 50% larger than suggested by the inflow only (59 million of the net inflow and additional 32 million of related natural increase), see Table 2. Importantly the overall effect is thus not purely quantitative (numbers) but depends on the age structures as well. In total the expected migration contribution is as high as 18%.

Table 2 - Demographic impacts of immigration according to the EUROPOP2008, in millions

	Births	Deaths	Natural change	Net migration	Total change	Population (2061)
With migration	255	305	-50	59	9	505
Without migration	219	301	-82	0	-82	414
Difference	36	4	32	59	91	91

Source: Lanzieri 2009: 18

Lanzieri (2009) stresses the importance of immigration in the future demographic structures of Europe. Table 2 in the Annex shows when particular countries will enter the period of negative demographic changes considering migration and zero-migration scenario. In most cases (this is the case of net immigration countries in the early 21. century) immigration is expected to seriously

postpone the process of population shrinking. An exceptionary case present the Central and Eastern European countries which are (and are expected to stay for some time) net sending areas.

The problem with this type of forecasting exercises is however that they result mainly from the set of assumptions taken. In case of fertility and mortality both long-term of convergence is assumed (in the basic scenario) which makes sense in the context of theoretical and empirical evidence at hand[7]. Migration poses more difficult case. First of all, as a consequence of the convergence hypothesis it is assumed that the socio-economic disparities will slowly disappear and thus pull factors will cease to exist. In practical terms it means that in the future all the EU countries are assumed to have similar pull power in terms of immigration. Moreover it is assumed that the internal European migration will have a zero net effect in terms of numbers (but not in terms of structural features of immigrants and emigrants).

Following Lanzieri (2009) one may argue that there are at least three factors challenging the hypothesis of lack of diversification within the EU: the climate, the migrant networks (diasporas settled abroad) and the ageing process. The first one could contribute to the post-retirement mobility. The second is well grounded in the recent migration literature (Castles, de Haas and Miller 2013; Massey 1999; Massey at al. 2009) posing to significant portion on internal inertia in case of migration processes. The third one results from diverse patterns (and dynamics) of population ageing in case of particular EU countries. From Lanzieri (2009) it follows that only the last factor could shape future migration flows in a significant way (through demand effect and possible recruitment practices). From the migration literature it follows, however, that this kind of approach is too simplistic and far too limited concerning state of the art on mobility and migration. To quote only two points. According to the NELM (New Economics of Labour Migration) migration can be used as a survival strategy and as a means towards diversifying economic activities of the household. Thus wage differentials are neither necessary nor sufficient conditions for migration to occur (Stark and Bloom 1985). This is clearly visible when analyzing well established migration patterns where migration becomes a relatively stable socio-economic strategy (e.g. part of the intra-EU migration). On the other hand, the dual labour market theory stresses the importance of structural and institutional conditions at destinations and, particularly, the persistence of structural demand for foreign labour (Piore 1981). One may claim, however, that this kind of approaches are more useful in explaining short-term or circular mobility and not permanent one and this form of migration was subject of interest in the EUROPOP2008[8]. Thus, in the following section we will refer to selected outcomes of this particular forecast to inquire into the impacts of migration on the demographic and economic future of Europe.

Notwithstanding, it is important to quote several other attempts to forecast migration flows. First two of them are similar to forecasts presented above but differ in terms of particular assumptions. The latter group suggests to depart from purely demographic approach do migration modeling.

Lanzieri (2011) claims that rough comparison as presented in Table 2 is not enough to assess the entire contribution of migration to the population changes in the future. Thus he suggests to consider also existing stocks of immigrants and people with foreign background in the assessment of immigration impacts (whereas persons with foreign background are defined, following UNECE 2006, as those persons whose parents were born abroad – in practice this category includes both immigrants and the second generation). He utilizes the EUROPOP2008 as a source to obtain the base population (the same assumptions are thus taken) to be broken then down by foreign/national

---

[7] For detailed analysis of assumptions and background literature see Lanzieri 2009.

[8] This assumption is commonly discussed in migration literature dealing with transitions between various forms of mobility (Hammar *et al.* 1997).

background (data on persons born of parents born abroad were taken from the UK LFS ad hoc module completed in 2008 as well as from the MIMOSA project). In the next step four models have been formulated:

1) The first model assumes that immigrants are fully assimilated from the 3rd generation onwards;
2) The second model allows considering long-term contribution of migration to the population change through assuming that all descendants from foreign born mothers are persons with foreign background (and thus allows for analyzing the full contribution of immigration to the demographic situation of a given country);
3) The third model takes into consideration (possible) different fertility behavior of immigrants and natives (in most cases significantly higher for immigrant population); and
4) The fourth model considers additionally illegal immigrant population (based on CLANDESTINO project – minimum and maximum values reported there have been averaged).

Figure 3 presents the outcomes of model 1. It shows that apparently those countries with low fertility and high migration flows will experience increase in share of immigrants while those with limited flows so far will change their position only slightly. This is clear when considering the very assumptions of the EUROPOP2008. Importantly by the 2060 only 6 countries are expected to have lower shares of foreigners than 10% (Cyprus as a very interesting case with a significant increase in number of migrants).

Figure 3 - Projected share of persons with foreign background in the EU27, model 1, 2011-2061 (in %)
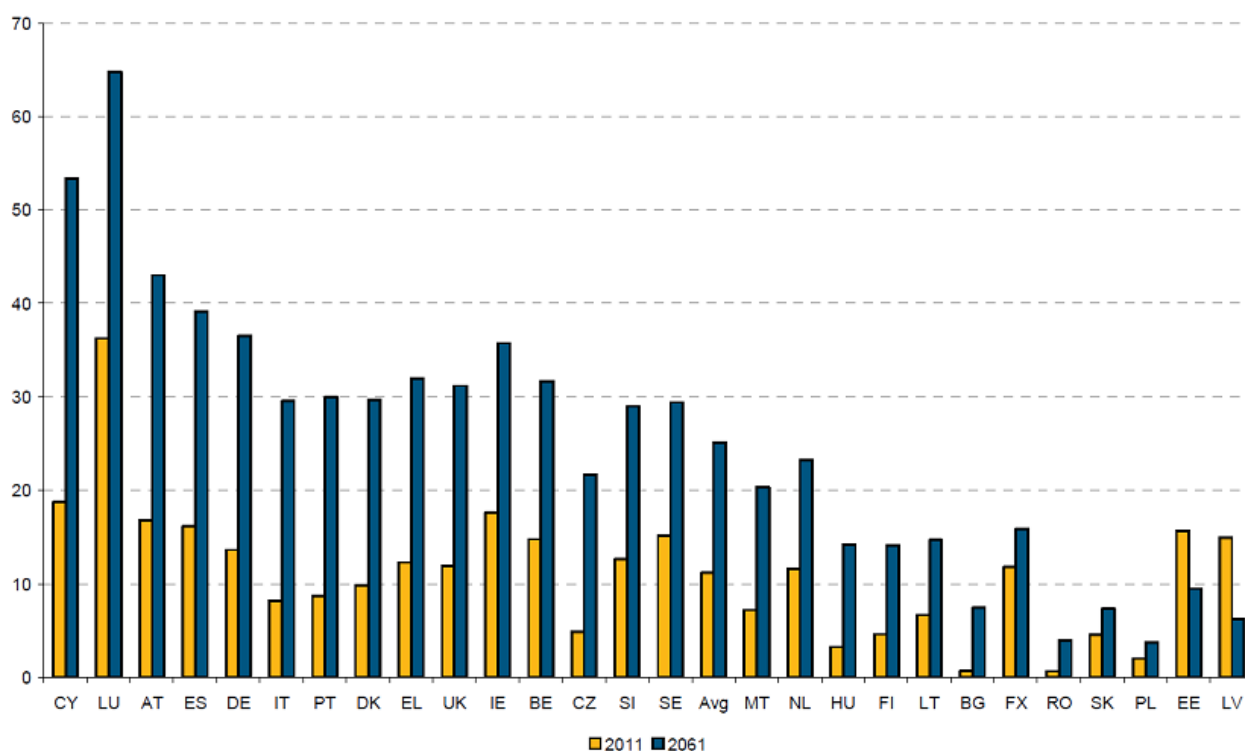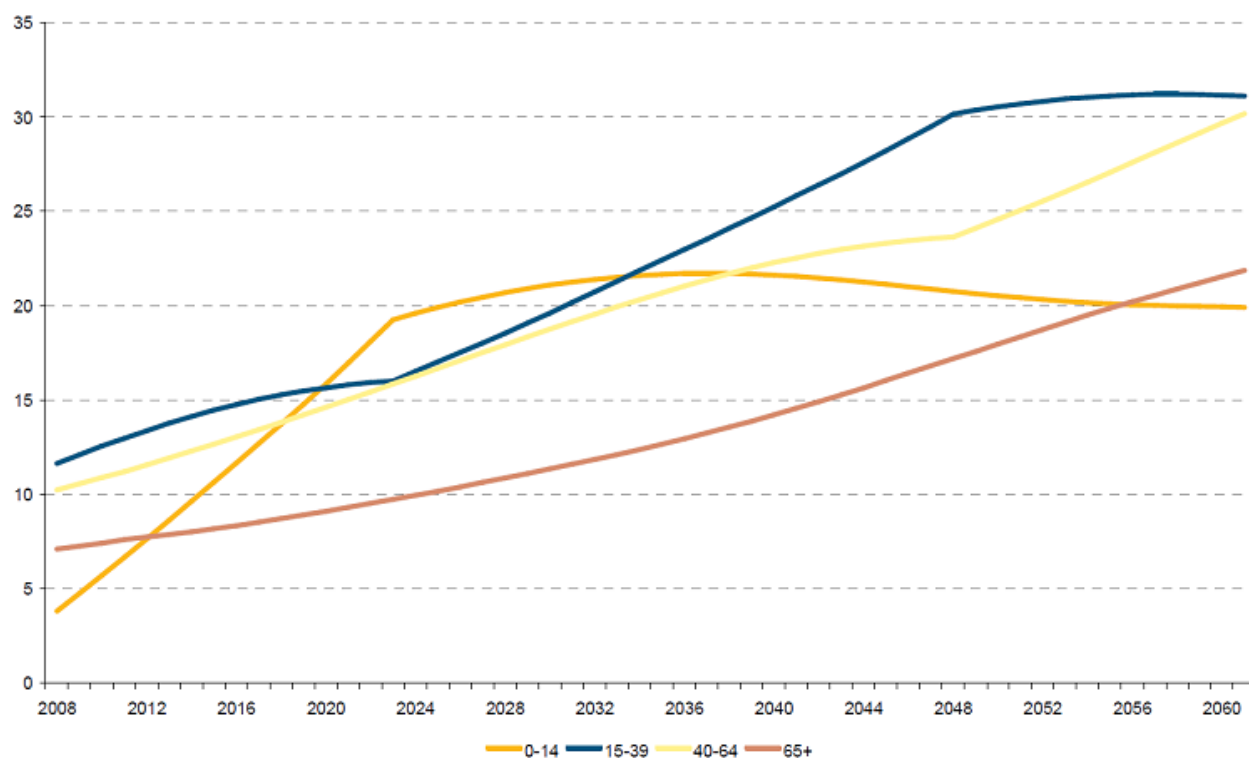

Source: Lanzieri 2011: 18

Importantly, the model estimates foresee increase in case of all age categories till 2030. Since then significant changes are to be expected. Particularly it refers to the decline in shares of foreign children and steady increase in case of those aged 65+: out of the 133 million of first and second

generation migrants in 2060, 33 millions are expected to be in the age bracket 65+ while majority –
87 million – at working age, see Figure 4.

Figure 4 - Projected share of the population with foreign background in the EU27 by age groups,
model 1, 2008-2061 (in %)

Source: Lanzieri 2011: 20.

Apparently, other scenarios increase the importance of migration's contribution. This is clearly visible
in case of the model 3 and 4 – here the threshold of 10% is expected to be reached in almost all
cases, see Figure 5.

Figure 5 - Projected share of persons with foreign background in the EU27, 2011-2061 (in %)
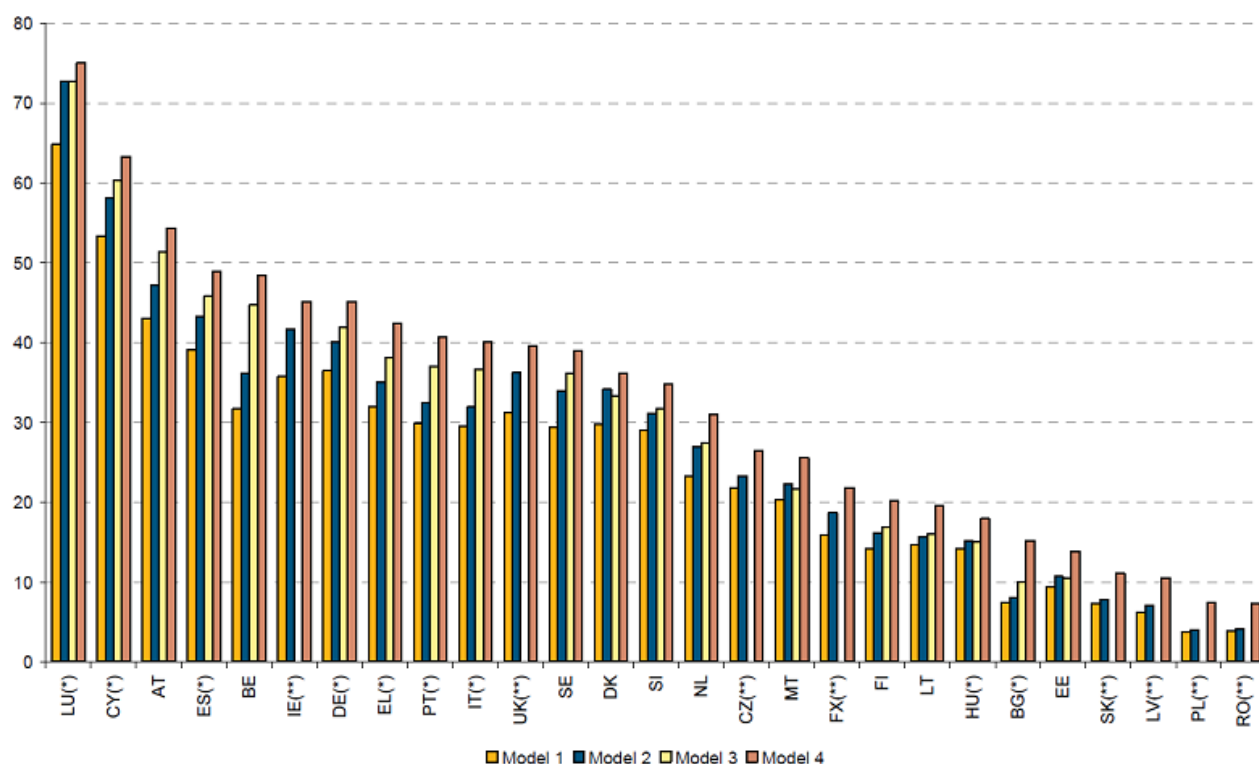

Source: Lanzieri 2011: 21.

In addressing future migration flows in Europe and their impacts on both European populations as well as labour force resources Bijak et al. (2013a) develop three scenarios differing with respect to assumptions concerning push / pull factors and migration policies. Importantly the scenarios are based not only on past migration trends but also on expert knowledge (particularly in terms of migration policies)[9]. In practical terms two groups of scenarios are considered: intra-European migration after the EU Enlargement and net migration from the remaining countries.

The first group of scenarios is built upon the premise that source of intra-European migration in recent years have been the new member states of the UE (2004 and 2007 enlargement rounds). This is the reason why authors pay a lot of attention to previous studies on migration potential of the Central and Eastern Europe (CEE) and its impacts on real flows to happen in the post-2004 period. Contrary to previous studies (commonly criticized for omission of many important variables and vague estimates of the critical economic factors) Bijak et al. (2013a) suggest to include the policy dimension into the analysis. Particularly the EU-enlargement is expected to play a vital role with three assumed phases of migration: pre-opening period, post-opening period following the full implementation of mobility's freedom (significant increase of migration from the CEE), and the period of long-term stabilization when migration is expected to the general trend as observed in the phase one. In quantitative terms estimates presented are predominantly based on income disparities

---

[9] Similarly to other studies discussed in this paper, the analysis provided by Bijak *et al.* (2013a) focuses exclusively on registered long-term movements. One has to consider that this approach is reasonable from the purely demographic point of view, however, the picture provided is far from reality: particularly in less developed countries a significant portion of all movements comprises temporary migration (UNDP 2009; Hammar *et al.* 1997).

between Western Europe, Central Europe and Southeastern Europe[10]. The base scenario assumes long-term convergence of wages and stable socio-economic situation in Europe. Thus, in the short-term a significant increase in the intra-European mobility is expected with Central and Southeastern parts of the continent serving as a pool of labour. The low scenario assumes much worse economic situation in Europe, but particularly in the less developed parts of the EU. As a consequence much higher post-accession wave of migration is to forecasted. On the other hand, the high scenario assumes substantial economic growth and fast pace of the convergence across Europe. Thus, post-accession migration is named as "short-term phenomenon" with rather moderate size of the flows. All in all time needed for the migration flows to stabilize was imposed as 20, 15 and 10 years for the low, base and high scenario. In terms of age-gender structures of migrants it was assumed that they will replicate those observed in 2002 (Bijak et al. 2013a). Importantly, in the base scenario it is expected that all of the Central European countries (except for Bulgaria and Romania categorized as Southeastern countries) will transform themselves into net receiving areas till 2020. However, and this is an important value added of the study, under difficult economic conditions (low scenario) most of them will remain net emigration countries, see Figure 6.

Figure 6 - Assumed intra-European migration flows
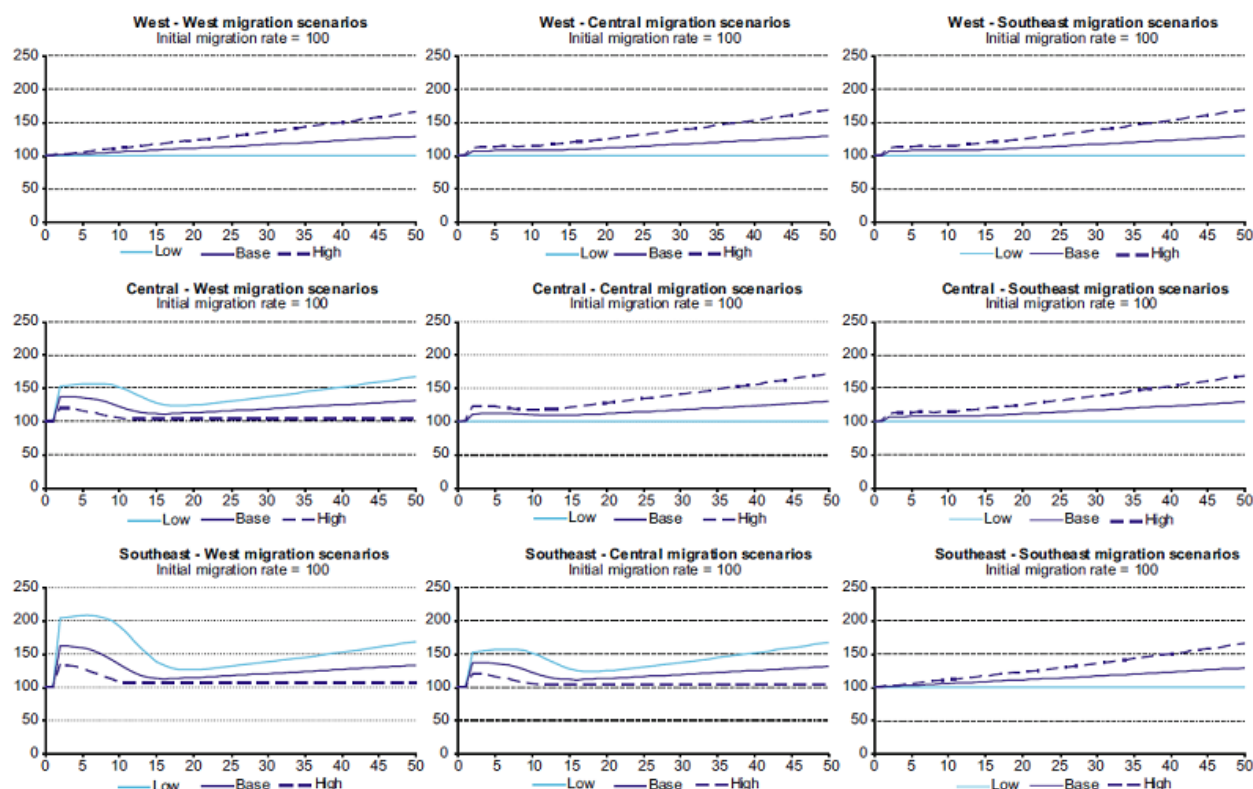
Source: Bijak et al. 2013a: 86

With regard to the migration from outside the EU situation at the borders of the enlarged EU is suggested to be treated with particular caution. Specifically, Bijak et al. (2013a) claim that migration

---

[10] Note that categories used by Bijak (2013a) refer to migration status rather than purely geographical typology and include: Western Europe - Austria, Belgium, Czech Republic, France, Germany, Hungary, Ireland, Luxembourg, the Netherlands, Switzerland, United Kingdom; Southeastern Europe - Bulgaria and Romania; and Central Europe - Estonia, Latvia, Lithuania, Poland and Slovak Republic.

from the post-Soviet space (mainly from Ukraine) and from those countries with high migration flows in the past (mostly from Turkey and from the North Africa, to some extent from China) will have critical importance for demographic future of Europe. In both cases presence of migrant networks as well as significant wage gaps are to be seen as decisive factors, however, migration potential is expected to be offset (to some extent) by (increasingly) restrictive migration policies of the EU. Three scenarios have been proposed:

1) the most likely base scenario assumes sustainable improvement of the situation in Europe and worldwide – thus inflow to Europe is expected to be moderate and to gradually shift from neighboring countries to more distant ones;
2) low scenario assumes economic stagnation leading to strong migration pressure from the side of the South – authors assume that these pressures and tensions on the EU labour markets will result in more restrictive migration policies and lower scale of extra EU immigration;
3) in the high scenario worldwide economic prosperity is expected to increase the demand for foreign labour and to push pressure on liberalizing of migration policies – thus an increase in scale of migration is expected (both in the EU and worldwide)[11]. Notwithstanding in all scenarios a positive net migration from outside the EU was expected as an ultimate outcome for 2052 – see Table 3.

Table 3 - "External" net migration rates (per 1,000 population) for 2052

Cluster	Countries	Target external net migration rates		
		Low	**Base**	**High**
Southeastern Europe	Bulgaria, Romania	0.0	1.0	2.0
Central Europe	Estonia, Latvia, Lithuania, Poland, Slovak Republic	0.25	1.5	3.0
Northern Europe	Denmark, Finland, Norway, Sweden	0.5	2.0	4.0
Western Europe	Austria, Belgium, Czech Rep., France, Germany, Hungary, Ireland, Luxembourg, Netherlands, Switzerland, UK	1.0	2.5	5.0
Southern Europe	Greece, Italy, Portugal, Slovenia, Spain	1.5	3.0	6.0

Source: Bijak et al. 2013a: 90.

Note that – similarly to other studies discussed in this paper – Southern European countries (mainly Italy and Spain) are expected to host the highest number of immigrants in the future, mostly due to well developed migrant networks, geographical proximity to North Africa as well as pull factors related to their labour markets[12].

The second important strand of literature questions the purely demographic approach to migration forecasting. Brunborg and Capellen (2010) point that in many cases migration forecasts are ad hoc

---

[11] Note that these assumptions differ significantly from those proposed by de Beer and van Wissen (1999). They proposed only two scenarios – uniformity assuming long-term convergence of economic and demographic trends and diversity assuming growing disparities. In the first case the net migration rates per 1,000 population were assumed to vary between +2.5 (most of EU) to +3.5 (Southern Europe) by 2050. In the second net migration was expected to be highly correlated with the economic situation and thus ranging from -0.5/-1 in Eastern and Central Europe through +1.5 in the Western and Northern Europe to +3.5 in the Southern Europe.
[12] Note that in short- or medium-term many of the assumptions taken are hardly valid, e.g. recent Syrian crisis has a profound impact on the migration situation of Bulgaria, situation in the Eastern Ukraine can impact significantly on the flows between Poland and Ukraine etc.

extrapolations of past trends. Such approaches are hardly meeting our knowledge on migration processes. Additionally, as shown by Keilman et al. (2001) in case of Norway stochastic random walk models provided not useful estimates while ARMA models resulted in large confidence intervals. Thus they suggest to base the projection on economic variables. A model for Norway was estimated where net immigration was expressed as a function of relative unemployment rates and incomes in Norway (as receiving country) and major sending countries[13]. Survey of this kind of models was delivered by Howe and Jackson (2006) who refer to more sophisticated projections of international migration in case of Australia, Canada, France, Germany, the Netherlands, the UK and the USA. Gorbey, James and Poot (1999) applied Bayesian or unrestricted vector autoregression (VAR) model including set of economic variables to assess future migration flows between Australia and New Zealand.

Recently, Brunborg and Capellen (2010) refer in their modeling exercise to a classical Roy model (Roy 1951) in the version presented by Borjas (1987) whereas probability of migration is a function (direct) or wage differentials and (indirect) of observable and non observable characteristics. Similar approach was suggested by Calian (2013) who was looking for long-term relationship between migration flows to Iceland and unemployment, change in the GDP, number of graduating students and several dummy variables indicating structural breaks in the data. Auto-regressive distributed lag models were used (ARDL) to include both auto-correlation and non-stationarity into the model. Assumptions related to migration taken by populations forecasts have been questioned also by Strzelecki (2013). He points that the assumptions about migration are usually the most volatile components of population projections and one of the reasons is that they do not take into considerations economic variables. Author looks at the recent migration from Poland and estimates a set of regressions for every destination country to find the most satisfactory set of regressors to be used in the projection. Results obtained are far more satisfactory than those provided by "traditional" forecasts because they reflect much better the very nature of recent Polish mobility (with a large share of non-permanent movements). Nonetheless outcomes of the econometric models are still not robust enough to provide reliable results which points to serious difficulties with economically based approaches.

3. MIGRATION AND EQUILIBRIUM ON THE LABOUR MARKET – LOOK INTO THE FUTURE

The aim of this section is to look at the future of the European labour market and to assess what will be the importance of foreign labour in filling out (possible) labour shortages. This is one of the commonly discussed outcomes of the population ageing. Apparently, due to population ageing the population at working age is expected to decline. This could result in labour shortages and, moreover, this situation can become reality in some OECD countries from 2015 onwards already (OECD 2003). There are several policy measures at hand: increasing participation rates, changes in retirement age, impacting participation ratios. Nonetheless, immigration is commonly discussed as one of additional hypothetical solutions.

There is a number of studies looking at possible impact of immigration on the EU labour markets. Chagny et al. (2001) discussed the effects of population changes in Europe and potential measures –

---

[13] According to authors the model yielded stable estimates and is practically used for estimation of future streams of migrants to Norway (Keilman *et al.* 2001).

migration and changing participation rates and found that even significant increase in scale of immigration would not stop the process of population ageing. Feld (2001) distinguished between demographic effects (fertility, longevity and migration) and behavioral effects (participation rates, retirement age etc.) as potential solutions to population ageing. According to the study in some cases (Denmark, France, the Netherlands, the United Kingdom) behavioral effects would be enough to compensate for unfavorable demographic conditions, in some they are not necessary (Ireland and Portugal). In the rest of the sample migration was presented as a (necessary) solution. Several studies for Germany (Fuchs and Thon 1999, IAB 1999) showed that immigration is not an ultimate solution to labour market problems, however, it can seriously postponed (and eased) the negative changes: 0.5 million of immigrants admitted from 2000 onwards would postpone the onset of the labour force decline by 20 years. Süssmuth (2001) showed that maintaining of the immigration at the level from 1980-2000 would limit the decline in population size and additionally might have significant effects on wage-flexibility. On the other hand, some studies have shown that due to unfavorable characteristics of immigrants their inflow could contribute rather to worsening of the situation on the labour market than vice versa (van Ewijk et al. 2000; Lofstrom and Hansen 2009). This point is particularly well taken in case of countries targeting by large numbers of humanitarian migrants, e.g. Scandinavian countries.

All in all, apparently behavioral effects (as called by Feld 2001) can be very helpful in limiting the future labour market pressures. This refers particularly to the labour market reserves. OECD studies show that the unused labour supply varies from 18% (Switzerland) to 40% (Italy) (as for 2000) and it could be claimed that they are sufficient to offset the recent and future labour shortages (OECD 2013). Notwithstanding, even if the labour market reserves do exist it does not necessarily mean that they are easy to mobilize (particularly in the short-term and in case of unfavorable structural characteristics of not active population). This is why immigration is so often considered as (one of) solution(s). Additionally immigration has a serious advantage over other possible measures: it has an immediate effect on the size and structure of the labour force (and politicians rarely consider long-term consequences of recent decisions – it would be enough to consider the recruitment during the guest worker period and its long term consequences). This is clearly shown by the example of those countries which already now refer to active recruitment or selection policies to control or stimulate immigration of economically active population.

Importantly, future labour market needs are to be assessed both in quantitative and qualitative terms. EMN (2011) looks at the labour shortages on the sectoral level and attempts to answer the question to which extent they could be addressed by inflowing foreign workers (the study covers the period 2004-2010 and is mostly devoted to analysis of migration policies as useful or not in the context of future needs). Based on the LFS data a clearly two-tier structure of the labour market needs has been identified. On the one hand, EU member states experienced shortages in case of such sectors/occupations as engineers, health workers, IT specialists (where the quality of labour does matter). On the other hand, the same situation referred to construction, agriculture, basic services and domestic workers (quantity). Against this background it is not surprising that in most of the EU countries third-country nationals are concentrated in the highly skilled and low skilled jobs (EMS 2011). This analysis is to be complemented by the study provided by Cedefop (2008) which projected likely labour shortages in the EU25 countries[14]. Figure 7 shows the past and projected future employment trends (by broad sectors of the economy).

---

[14] Study was based on the EUROSTAT (not LFS) data and covered the time period up to 2020.

Figure 7 - Employment trends by the sector, EU25
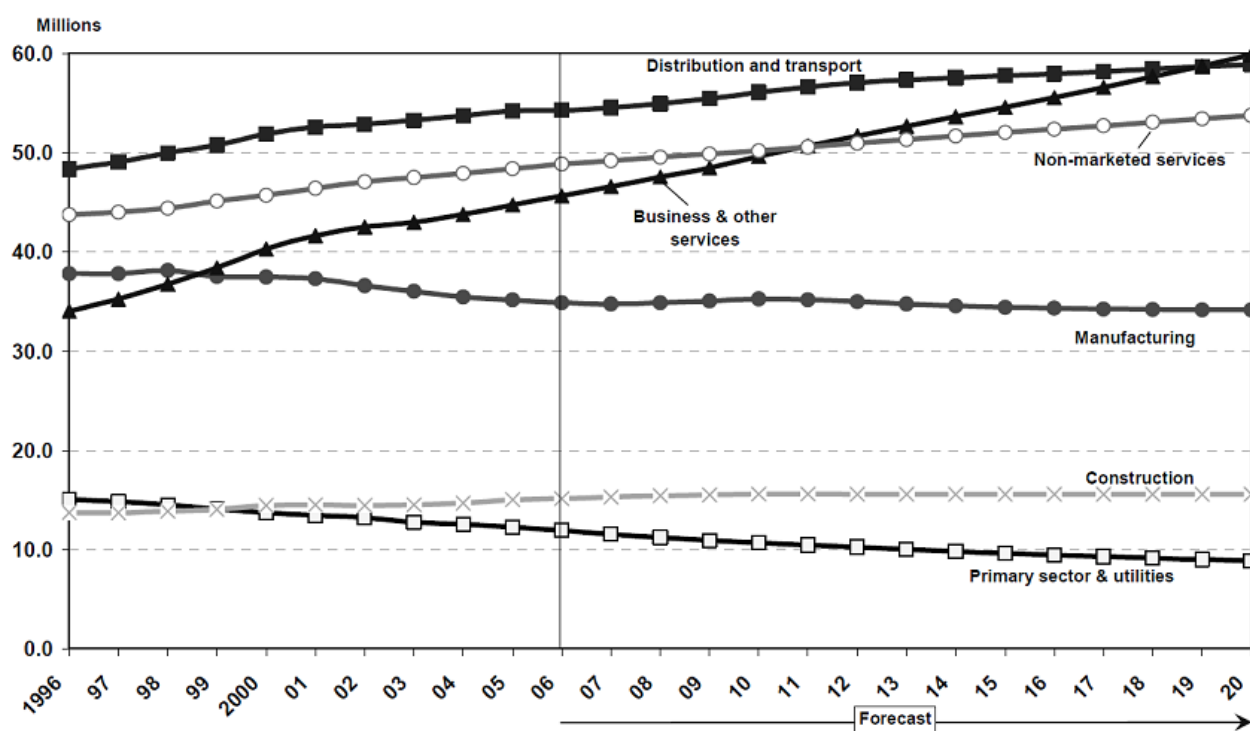
Source: Cedefop 2008: 7.

It is clear that according to forecast presented one has to expect an increase in the demand in both highly skilled (business and other services) as well as low skilled sectors (non-marketed services, distribution and transport, construction). At the EU level the total number of additional jobs has been estimated at around 20 million (2006-2020) whereas majority of them is to be expected in business and other services and non-marketed services (with a significant share of domestic workers). However, it is important to consider demand in those expanding sectors (expansion demand) but also in those which are no longer perceived as attractive (replacement demand). According to authors migration could be relatively easy solution in case of highly skilled sectors and the expansion demand. Notwithstanding even considering expected changes in low skilled sectors (see Figure 8) it still be necessary to fill gaps described as replacement demand – in this case migration is presented as a partial solution only. Additionally, authors of the report claim that the intra-European mobility will be not sufficient and there is a need to foster inflows from third countries (Cedefop 2008).

Figure 8 - Total requirements by qualification level, projected changes 2006-2020, in millions, EU25
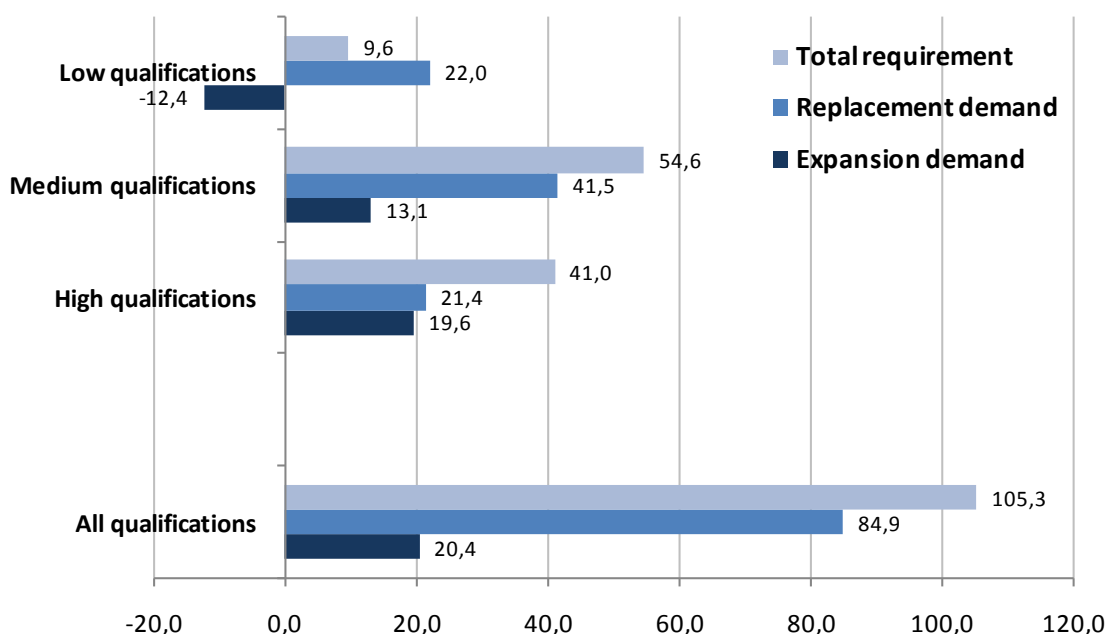
Source: Cedefop 2008: 13.

These observations are additionally supported by the study by Fargues and McCormick (2013) looking at the process of skill ageing. Authors claim, first, that in the no migration scenario we have to expect shrinking active age population which will be mostly due to decrease in number of persons aged below 45. Second, apart from shrinking of the active age population in most of the EU countries from 2015 onwards there are striking differences in terms of age profiles of particular skills/occupations, see Figure 9.

Figure 9 - Projection of the EU27 employed population aged below 45 by occupation, 2010-2025
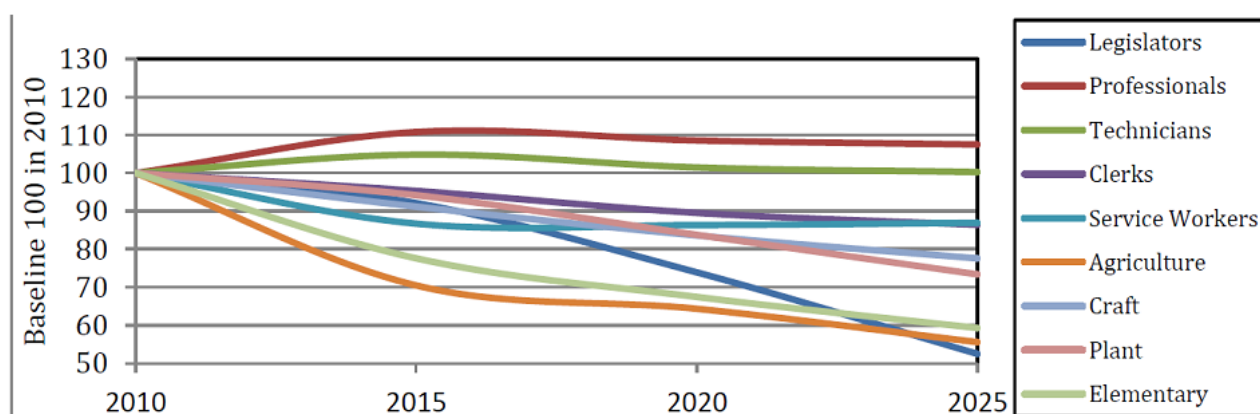
Source: Fargues and McCormick 2013: 6.

Figure 9 shows that the highest decreases are expected in the "typical" migrant jobs as agriculture,

elementary occupations or plant workers. This is why they advise to consider increased immigration in future.

Recent OECD study (OECD 2014) presents, among others, a set of projections of the labour force by educational attainment. All of the projections have been obtained by estimating shares of three educational levels – low (ISCED level 0, 1 or 2), medium (3-4), and high (5-6) – by birth status, age group and gender. Additionally two scenarios have been estimated. The first one (s. 1) assumed progress in educational attainment of cohorts aged 35-64 and present on the labour market in 2010 already but no improvement of those aged 15-34 in 2020 (as compared to 2010). The second one assumes educational progress in case of all groups considered.

Figure 10 presents the outcomes of the demographic decomposition of the projected changes in educational attainment by source of labour between 2010 and 2020. For reference purposes changes recorded between 2000 and 2010 have been included. From the presented data it follows that significantly lower labour market dynamics are expected in case of low educated persons (under both scenarios). As a consequence this group is expected to decrease significantly in most of the countries under consideration (and in OECD and EU27 in total). In case of the medium and high levels of education a significant increase in number of retiring workers is expected. These changes however are expected to be offset by entries of new workers (the most significant impact) and inflow of new immigrants.

Figure 10 - Changes in the educational attainment of the labour force by source, including new immigrants, 2000-2010 vs. 2010-2020 (in thous.)
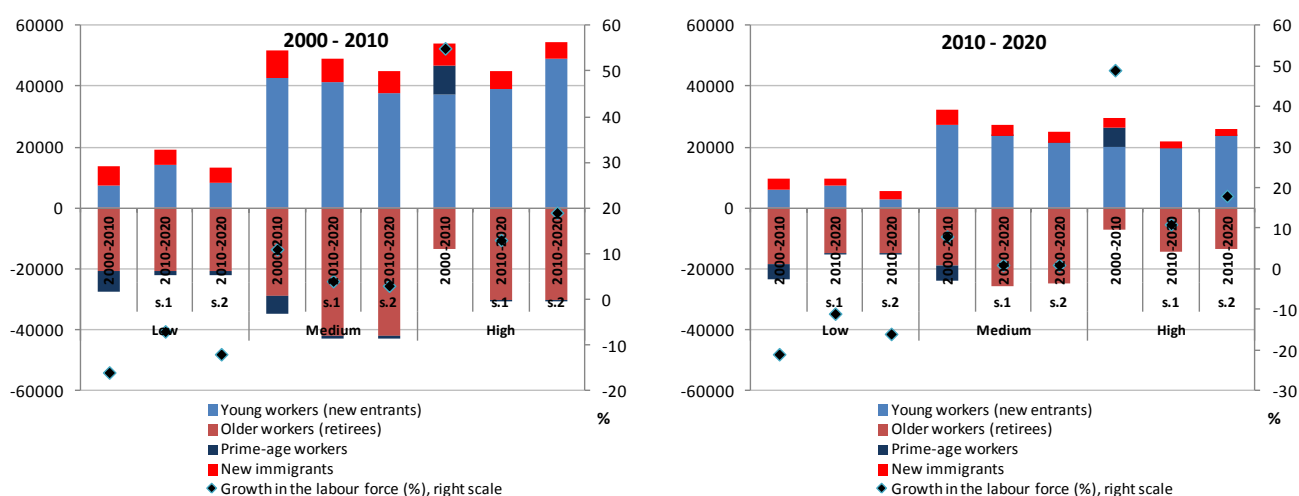
Source: Own elaboration based on Mestres 2014: 104.

As shown above the impact of migration on the changes in educational attainment of the labour force will not be decisive but still important: under assumptions taken migrants with tertiary education are expected to account for around 7-10% of the change in the total labour force between 2010 and 2020 (Mestres 2014). Nonetheless the impact of new immigrants on the average educational attainment will be higher in case of a few countries, including Luxembourg and Switzerland (typical immigration countries in Europe), Sweden, Belgium, Norway and the UK – see Figure 11.

Figure 11 - Contribution of migration to the new entries in the tertiary-educated labour force, 2000-2010 vs. 2010-2020 (in %)
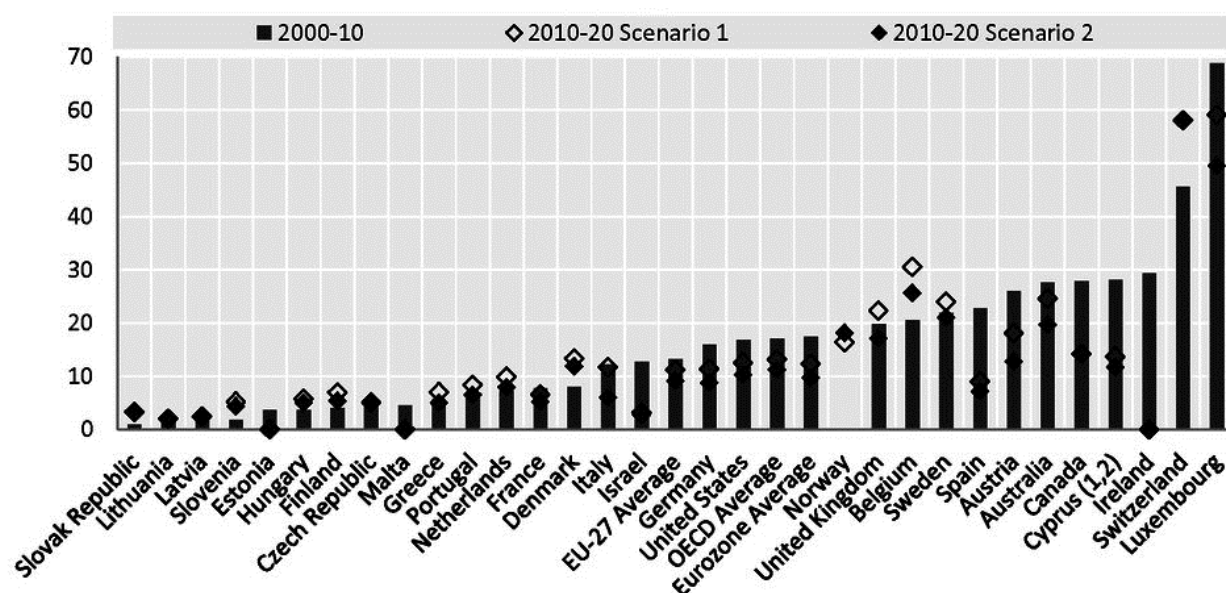
Source: Mestres 2014: 93.

The rest of this section is devoted to statistical exercise based on the EUROPOP2008 outcomes and looking particularly at the labour market impacts of future migrant inflows over the period 2010-2030. First, based on the EUROPOP2008 projection (and thus reflecting all the assumptions discussed in the section 1) the emigrant contribution (or loss) to the population at the active age has been calculated. Note that data discussed below refer to permanent migrants only and, additionally, exclusively to the new immigrants (post-2010 flows). Generally, estimates presented below represent the official evaluation of the future demographic trends as proposed by EUROSTAT.

According to the EUROPOP2008 over the period 2010-2020 (first part of the period considered) there is a total number of 10 million (new) immigrants aged 15-64 expected to (potentially) fill the gaps on the EU27 labour market. Estimates based on the projection's assumptions show that majority of them will constitute relatively young persons (82% aged 15-39 years).

Figure 12 - Projected new immigrants at productive age in the EU27 countries, 2010-2020, by age
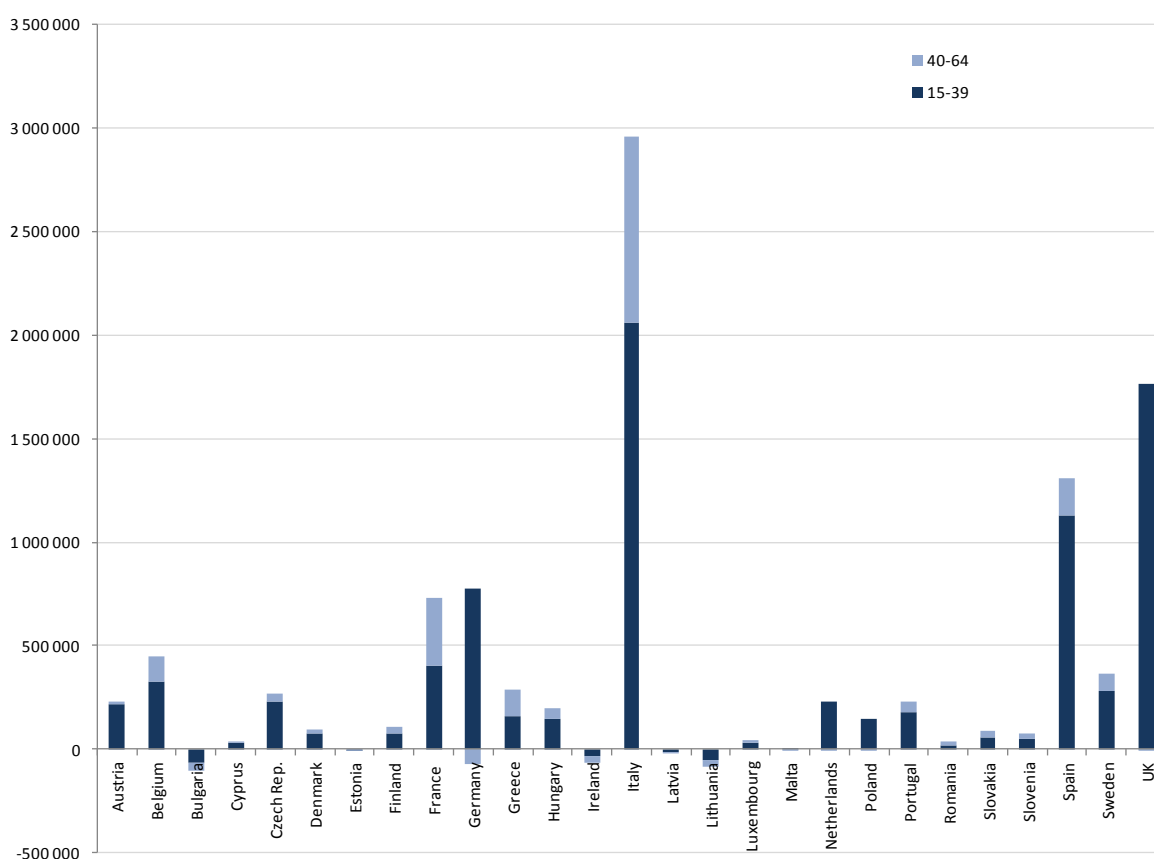
Source: ISMU 2013.

Figure 12 shows that in the first sub-period (2010-2020) migrants will concentrate in five major destinations: Italy, the UK, Spain, Germany and France. In some cases – the Baltic states, Bulgaria, Romania and Ireland – net outflow rather than inflow of the active age population is expected. Additionally structure of incoming migrants will differ with respect to the destination which reflects predominantly past migration trends (in terms of scale and structure of mobility). The UK is expected to "gain" the youngest immigrants (similar situation is projected for Germany), while Italy and France will pull relatively large numbers of persons aged 40-64. Note that according to the EUROPOP2008 Italy is expected to be the main destination over the next decade.

Picture changes slightly when the overall projection period is considered (2010-2030). For the EU27 a total number of 22.2 million of new immigrants is projected. This new inflow will be extremely important in labour market terms because new immigrants are expected to contribute between 0.3-0.5% (Poland, Romania) to 9% (Italy) of the total labour force, see Figure 13.

Figure 13 - Projected shares of new immigrants at the productive age to the labour force in the EU27 countries, 2030
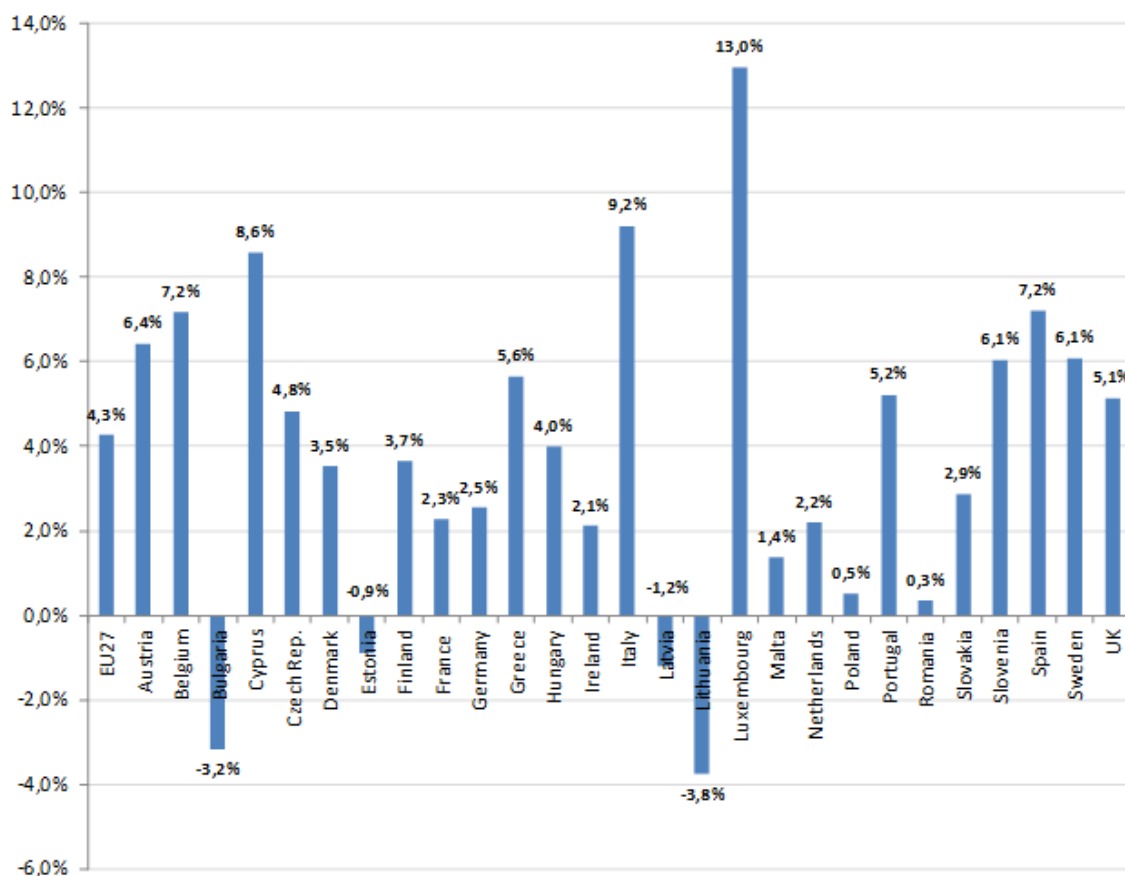
Source: Own elaboration based on EUROPOP2008.

Importantly, contrary to the first sub-period roughly 31% of the total number of the new immigrants will constitute relatively older persons, i.e. aged 40-64 (as compared to 18% over the period 2010-2020). This is also clearly identifiable when analyzing projection outcomes for particular countries, see Figure 14.

Figure 14 - Projected new immigrants at productive age in the EU27 countries, 2010-2030, by age
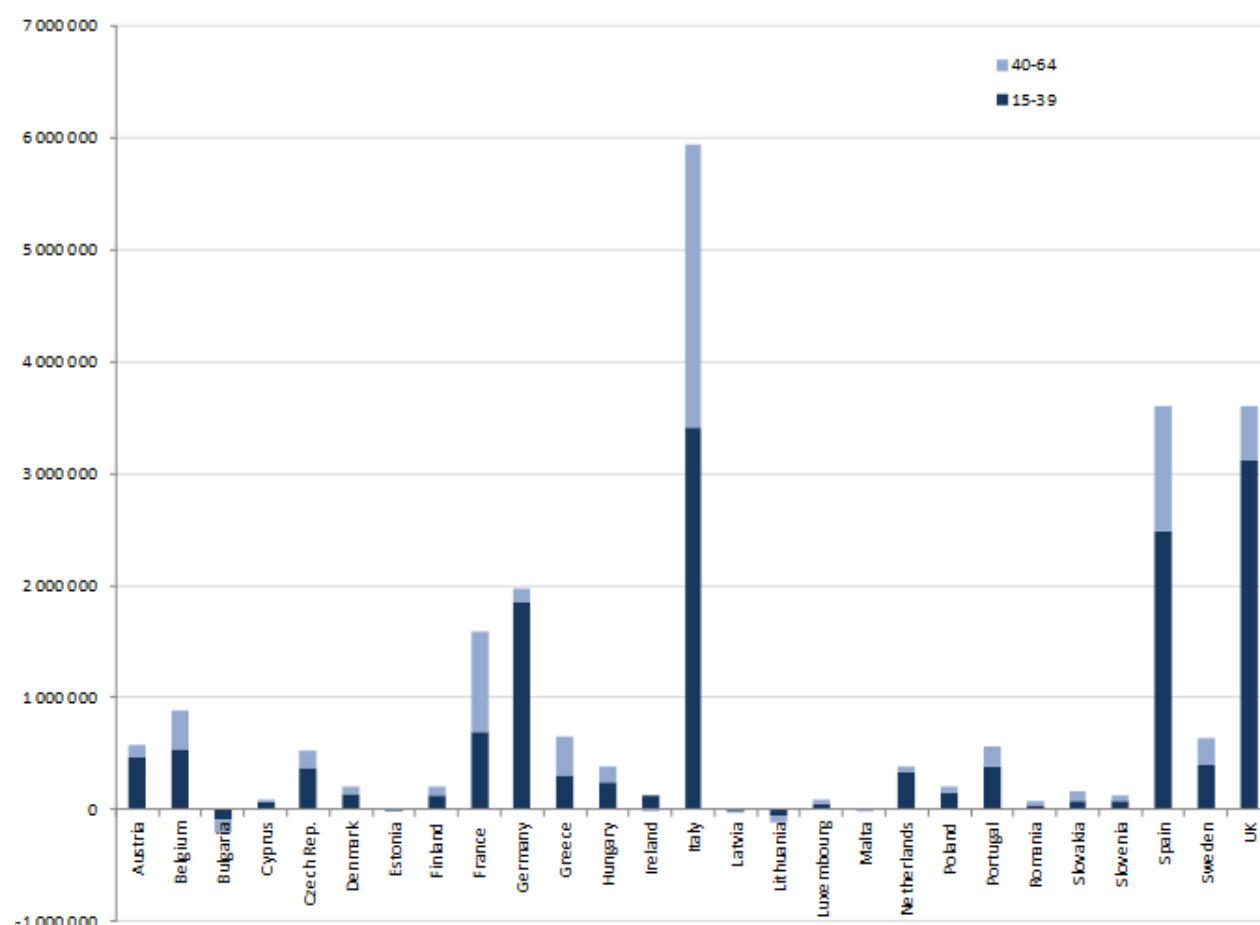
Source: ISMU 2013.

In the perspective of the next two decades the EUROPOP2008 predicts that almost all countries will experience net inflow of new immigrants. In this case, however, the share of older migrants rises significantly (see also Box on the imported ageing below). The most important labour importer will remain Italy (almost 6 million of new immigrants) followed by Spain and the UK (around 3.6 million), Germany (2 million) and France (1.6 million).

Figure 15 - Projected new immigrants at productive age in selected EU countries, 2010-2030, by age brackets
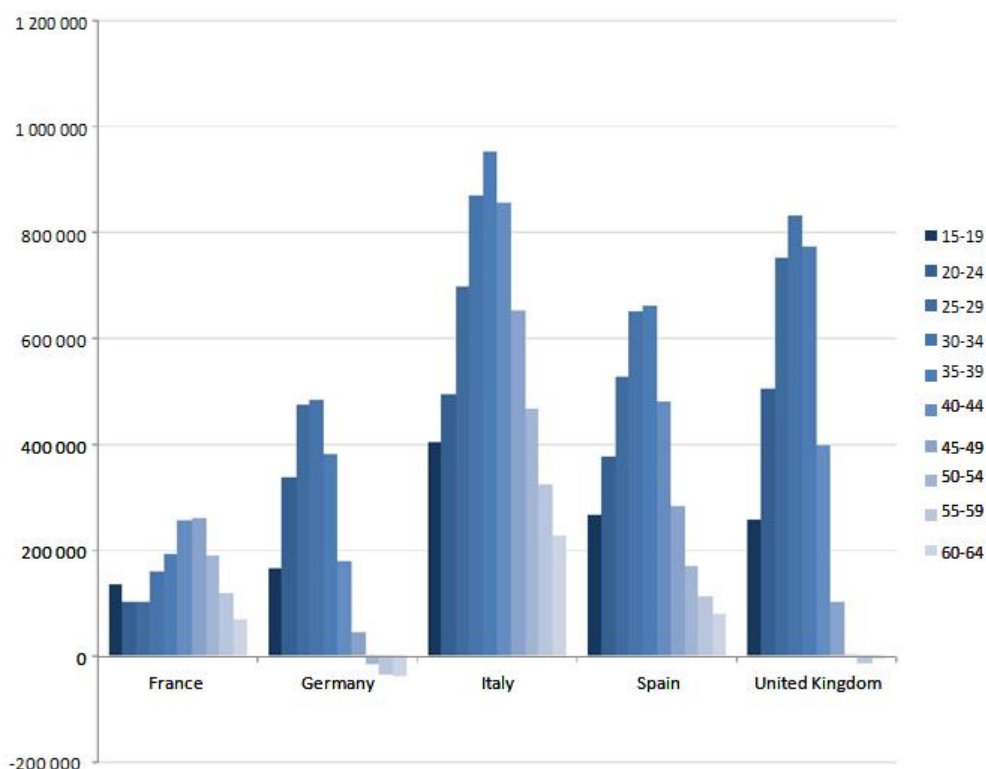
Source: ISMU 2013.

Figure 15 presents the age distribution of the new immigrants in the most important receiving countries of the EU. In all cases inflow of persons at the most mobile age (15-34) dominates. This feature would pose a serious relief in terms of labour market equilibrium. Notwithstanding, except for France and Germany, EUROPOP2008 projects an inflow of significant numbers of persons in older age brackets as well – see Box 1. Relatively high shares of "older" migrants are to be expected particularly in case of the southern European countries, namely for Italy and Spain. Considering continuous difficulties on their labour markets this structural characteristics could pose a serious economic and social challenge.

BOX 1. Imported ageing

It is commonly acknowledged that migration is highly selective and given the strong overrepresentation of the youth involved, tend to produce immediately aging into the sending populations and rejuvenation in those of destination. Thus immigration is commonly perceived as a solution to population ageing. Notwithstanding it has not to be forgotten that it poses a transitional contribution only (except for the cases when we experience a massive circular flows of young immigrants). It is a factor often intended to be transformed over time – in the presence of settlement projects in receiving countries or final abandonment of the origin ones – in what might be labeled "imported / exported ageing". This term describes the accentuation (in countries of destination) or the attenuation (in origin countries) of the number of those who, over the years, gradually reach the age-threshold that identifies to become elderly.

Figure 1B - "Imported / Exported Ageing" – Percentage of surplus/deficit of people aged 65-69: selected countries
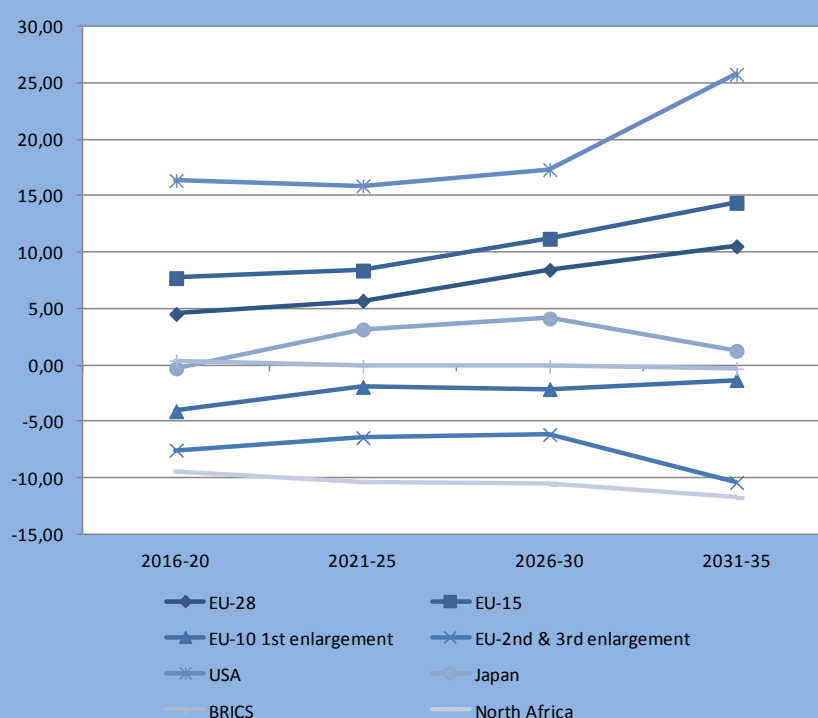
NOTE: The Imported/Exported Ageing can be estimated considering the difference between the number of individuals going over the threshold of old age (conventionally: 65 years), and the corresponding amount of registered births (in the country in question) 65 years ago, appropriately adjusted for the effects of mortality. *Source: ISMU 2013.*

Figure 1B shows that since 2030 onwards immigration to such countries as the US or EU15 has to be considered in more nuanced way and migration policies should pay attention to such aspects as "imported ageing" to countries that are already aged (Blangiardo, Loi 2013).

Second, based on the method proposed by Blangiardo et al. (2013) an estimate of migration flows from abroad by countries of origin has been calculated. The method relies on the local labour markets' equilibriums. If in case of any given country there is a forecasted surplus (deficit) in the labour force, it indicates the need to enhance the number of jobs (to create a supply of workers). Assuming no structural changes in economies under consideration, migration outflows (inflows) will be necessary to re-gain the labour market equilibrium. The choice of destination countries reflects past migration trends[15]. Table 4 as well as Table 3 in the Annex present the main outcomes of this statistical exercise.

---

[15] Note that data presented below are not fully comparable with the EUROPOP2008 data. The main idea in this part is to focus more on potential sources of labour.

Table 4 - Main origin countries – top 5 EU destinations, 2011-2030

	Migration flow				Main countries of origin and corresponding % of the migration flow								Total % of 5
	(thousands)	1° country	%	2° country	%	3° country	%	4° country	%	5° country	%		
						2011-2015							
France	604	Morocco	16,7	Algeria	5,9	Turkey	5,3	Tunisia	5,1	Senegal	4,0		37,0
Germany	901	Turkey	17,0	Poland	6,2	India	5,2	United States	5,1	Iraq	4,4		38,0
Italy	769	Morocco	14,4	Romania	6,4	India	5,4	Bangladesh	4,9	China	4,5		35,6
Spain	1 624	Morocco	14,7	Ecuador	10,8	Bolivia	8,5	Colombia	8,1	Argentina	5,1		47,1
UK	1 124	India	19,2	Pakistan	8,3	South Africa	6,6	China	5,5	Australia	4,7		44,2
						2016-2020							
France	522	Morocco	17,4	Senegal	5,4	Turkey	5,4	Cameroon	5,3	Côte d'Ivoire	4,4		37,8
Germany	625	Turkey	21,4	Iraq	7,2	India	7,2	Philippines	4,0	United States	3,0		42,8
Italy	635	Morocco	15,7	India	6,3	Senegal	5,9	Bangladesh	5,7	Ecuador	5,3		38,9
Spain	1 449	Morocco	14,8	Ecuador	12,1	Bolivia	10,0	Colombia	8,5	Peru	5,4		50,8
UK	900	India	23,1	Pakistan	10,2	South Africa	7,4	Nigeria	6,6	Philippines	5,8		53,0
						2021-2025							
France	475	Morocco	16,0	Senegal	6,7	Cameroon	6,6	Côte d'Ivoire	5,3	Mali	5,0		39,5
Germany	539	Turkey	19,9	Iraq	9,1	India	7,7	Philippines	4,5	Afghanistan	3,7		44,8
Italy	578	Morocco	14,4	Senegal	7,4	India	6,3	Ecuador	5,6	Pakistan	5,5		39,2
Spain	1 339	Morocco	13,4	Ecuador	12,5	Bolivia	10,9	Colombia	8,3	Peru	5,4		50,4
UK	839	India	22,7	Pakistan	11,0	Nigeria	8,2	South Africa	7,9	Philippines	6,0		55,9
						2026-2030							
France	480	Morocco	16,6	Senegal	7,6	Cameroon	7,2	Mali	5,9	Côte d'Ivoire	5,8		43,2
Germany	510	Turkey	15,6	Iraq	10,1	India	7,5	Philippines	4,8	Nigeria	4,0		42,1
Italy	568	Morocco	15,4	Senegal	8,5	India	5,9	Egypt	5,6	Philippines	5,6		41,0
Spain	1 299	Morocco	14,5	Ecuador	12,0	Bolivia	11,2	Colombia	7,3	Peru	5,0		50,1
UK	818	India	21,5	Pakistan	11,0	Nigeria	9,8	South Africa	8,6	Philippines	6,2		57,1
						2011-2030							
France	2 082	Morocco	16,7	Senegal	5,8	Cameroon	5,6	Turkey	4,8	Côte d'Ivoire	4,6		37,5
Germany	2 575	Turkey	18,4	Iraq	7,2	India	6,6	Philippines	3,8	United States	3,1		39,1
Italy	2 550	Morocco	15,0	Senegal	6,3	India	5,9	Bangladesh	5,2	Ecuador	5,1		37,4
Spain	5 711	Morocco	14,4	Ecuador	11,8	Bolivia	10,1	Colombia	8,1	Peru	5,2		49,5
UK	3 682	India	21,5	Pakistan	10,0	South Africa	7,5	Nigeria	7,0	Philippines	5,6		51,5

Source: ISMU 2013.

In case of all countries presented in Table 4 the new immigrants are expected to be strongly clustered in terms of origin which reflects the set of assumptions taken – between 36% and 57% of the total constitute immigrants from five most important sending countries (whereas the highest shares are noted in case of the "new" immigration countries – see Table 3 in the Annex).

The structure of countries of origin reflects the changing demographic situation in Europe. While in the first period considered (2011-2015) there are some important European sending countries (namely Poland and Romania), in the later periods migrants targeting EU27 countries are expected to originate (almost) exclusively from the third countries. In terms of numbers as the most important

labour sources will serve:
- African countries (with notable position of North Africa and particularly Morocco);
- Turkey (in case of Germany and France);
- Asian countries (particularly India, Pakistan and Bangladesh); and
- Southern American countries (in case of Spain which is the most important destination in this case considering that immigrants of all ages are included).

This picture seems to be an inescapable consequence of growing demographic disparities between South and North countries (including Central and Eastern European latecomers).

4. MIGRANT CONTRIBUTION TO THE FUTURE DEMOGRAPHIC ASSET OF THE EU – BEYOND THE CONCEPT OF REPLACEMENT MIGRATION

In 1990s and 2000s the concept of replacement migration became one of the main demographic phenomena commonly discussed by scientists and policy makers. Interestingly in this case the focus was completely different than in previous decades (risk of overpopulation, Malthusian trap etc.). The concept as such became extremely popular since the United Nations report "Replacement Migration: Is It a Solution to Declining and Ageing Populations?" (UN 2000) was published however the idea that increasing migration would be necessary to offset decline in natural increase appeared much earlier and was clearly associated with the idea of second demographic transition (e.g. Lesthaege et al. 1988)[16]. Nonetheless, the UN report was the first so commonly acknowledged document sharing light on the population ageing and potential solutions (feasible or not).

The unusual attention paid to the UN report (2000) resulted from very strong and convincing outcomes of the study. First, based on the 1998 Revision of the UN World Population Prospects it presented a future of much smaller and older populations in several countries under consideration. Second, it estimated the number of incoming migrants needed to offset the population ageing (and to keep the number of people or support ratios at constant level). In fact, those numbers appeared to be extremely large – e.g. as it was in commonly quoted case of South Korea – so large that difficult to imagine under recent political circumstances. This would mean an end to the concept of replacement migration, particularly that authors suggested other – more efficient – solutions like changes in the age of retirement, reforms of pension and health systems, labour force participation etc.

The UN report on replacement migration has been widely criticized. The most important points included its narrowness, arbitrariness in assumptions taken and, the most important, focus on purely demographic perspective. Moreover, Saczuk (2013) claims that the idea to use the concept of replacement migration as a basis for formulate any population or migration policy is not well grounded. This follows from demographic premises (Coleman 2002) but first of all from economic ones: in fact, purely demographic approach does not consider potential changes in the economy (labour/capital ratios, technological change), reserves on the labour market present in most well developed economies (young persons, handicapped persons, elderly – as discussed in the previous section) or the quality of the labour force (and its productiveness). Additionally, mechanical approach to migration as a replacement strategy misses severe political and social problems related with increasing presence of immigrants in the society (also mentioned in UN 2000) (Saczuk 2013).

---

[16] Saczuk (2013) discusses several studies published around that time and preceding the UN report.

Notwithstanding, migration is and can be a serious relief for recent and future socio-economic systems of the EU countries. This is clearly visible in case of France: from 1946 to 2014 the population in France increased by around 30 million (in absolute terms) and the change was attributable to changes in life expectancy (9.5 million), changes in fertility (10.5 million) and immigration (10 million) (Heran 2014). Thus the remaining part of this paper aims at showing potential contribution of future immigration in economic and demographic terms.

First, OECD studies on migration and mobility (e.g. OECD 2012, 2014) report that even now – under the conditions of ageing but (still) relatively young populations – immigration can contribute significantly to the overall population dynamics of a given country, see Figure 16.

Figure 16 - Components of population growth in OECD countries, 2000-2010
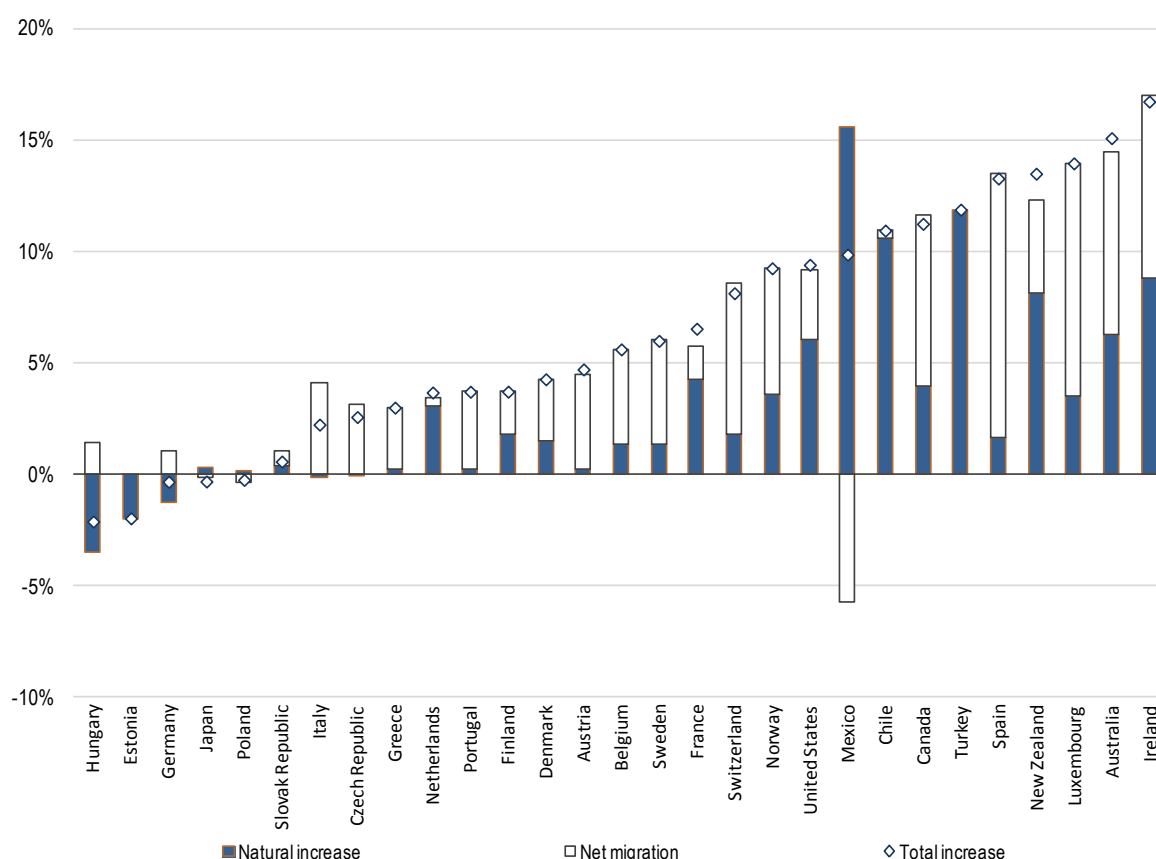
Figure 16 presents the components of the total population growth in OECD countries. In most cases where positive tendencies were noted it was mainly due to inflow of immigrants. This point is particularly well taken in the case of Spain, Switzerland, Austria, Italy, Czech Republic , Greece and Germany. In case of countries with low (or very low) immigration the population changes were mostly negative (Poland, Romania, Estonia). Nonetheless in aggregate terms immigration presents a series demographic relief in case of both OECD and EU27 countries (and it is projected to continue) – see Figure 17.

Figure 17 - Components of total population growth in EU27 and OECD countries, 1960-2020
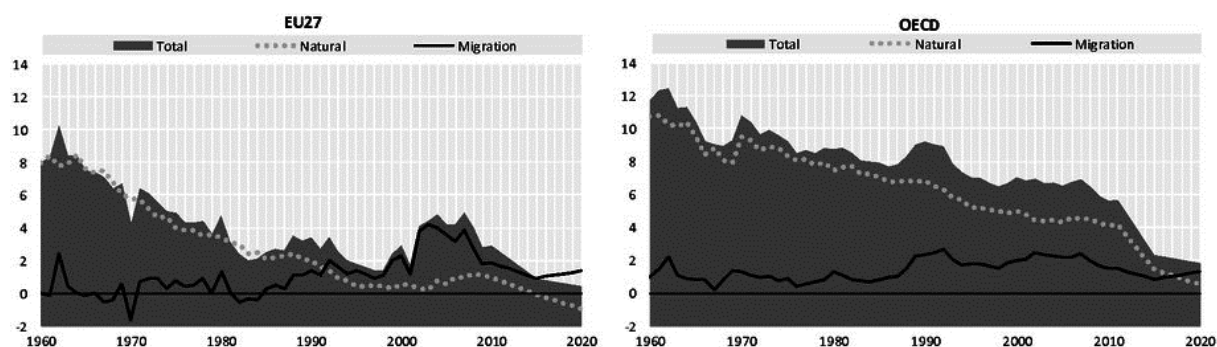
Source: Gagnon 2014: 51.

Second, going back to the EUROPOP2008 it is possible to estimate the total immigrants' contribution expressed in terms of life-years acquired (or lost) by the EU as a whole and particular member states[17]. For the total EU27 an overall number of 73.2 million life-years is projected[18]. Based on the age structure of incoming new migrants this human capital contribution can be divided into three parts – education, labour market activity (theoretical or potential), and retirement. Thus it will be possible to identify potential opportunities or challenges related to immigration to the EU27 over the next decade.

The division of the expected contribution in case of the whole EU27 looks as follows: education – 6%, labour market activity – 61% and retirement – 33%. Note that this structure is very similar to the observed over the period 2001-2010 (respectively 4%, 62% and 34%). Figures 18-20 present the contribution of the new inflow for particular member states.

---

[17] In this case the analysis covers the period 2010-2020.

[18] The methodological approach is similar to that oriented to the assessment of the so called "Demographic asset" and "Demographic GDP" of a population (see Blangiardo 2012; Blangiardo and Rimoldi 2012).

Figure 18 - Life-years contribution of immigrants in terms of education, 2010-2020
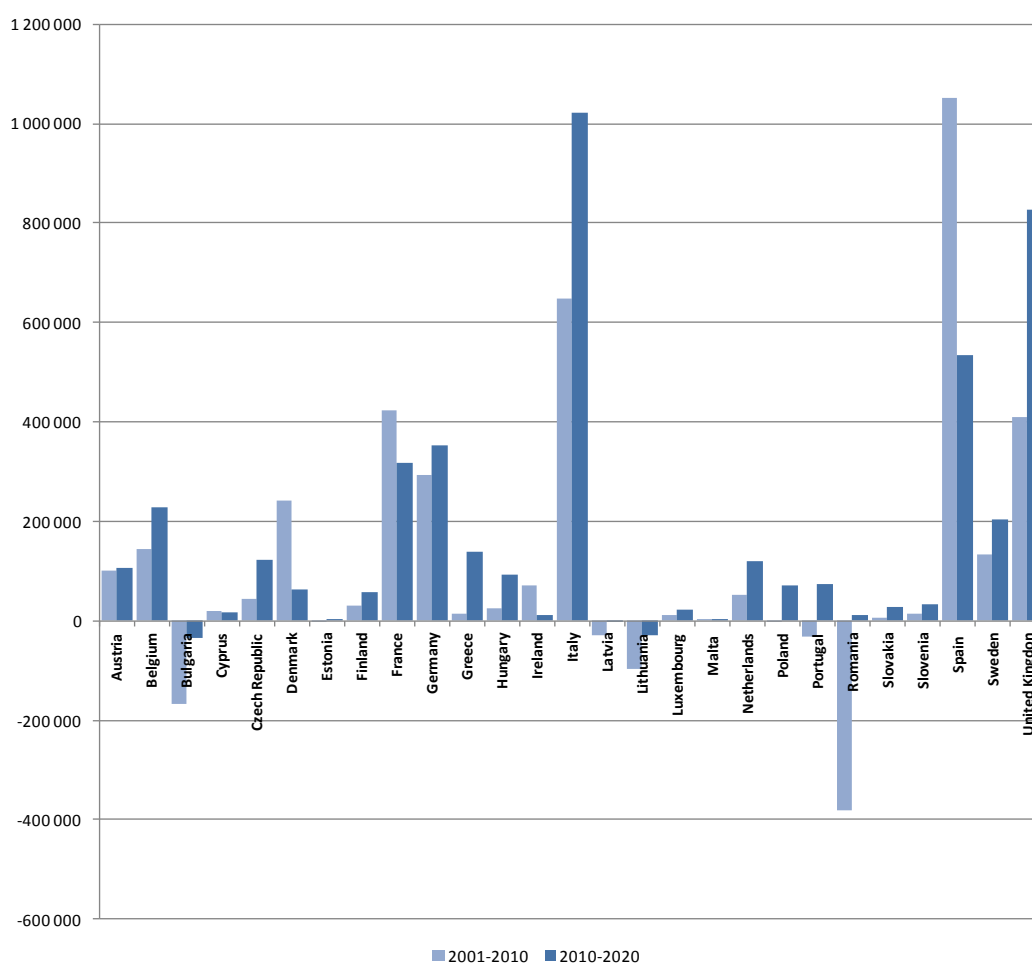
Source: ISMU 2013.

In terms of education (Figure 18) the most serious potential gains are expected in case of Italy, Spain (but much smaller than in the previous decade), Germany and France. According to the projection the Balkans and the Baltic states will continue to lose their human capital over the next decade. Note that presented contribution poses both chances as well as challenges for educational systems. On the one hand the inflow of new young cohorts gives a relief for educational systems suffering shrinking numbers of native students (and additionally brings diversity important in terms of scholar performance). On the other, however, educational systems commonly fail to deliver high quality educational services to persons from diverse ethnic backgrounds. Moreover, the recent example of Southern European countries shows that educational boom can easily translate itself into under-employment and massive youth unemployment.

Figure 19 - Life-years contribution of immigrants in terms of labour market activity, 2010-2020
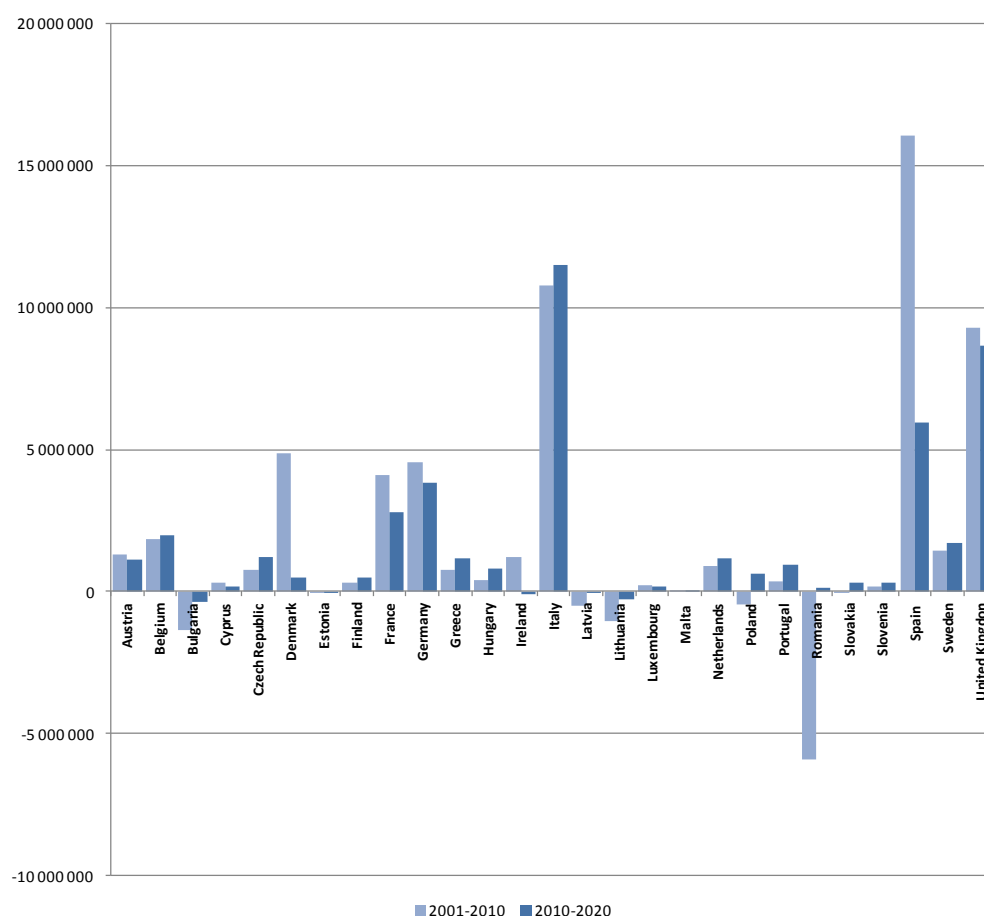
Source: ISMU 2013.

The most important contribution of immigrants refers to the labour market. Figure 19 shows that due to favorable age distribution immigration projected over the period 2010-2020 will significantly increase the supply of labour in such countries as Italy, the United Kingdom, Spain, Germany and France. Again, however, recent economic crisis shows that this "economic blessing" can easily turn into the "curse" – this is what happened in Spain where the economic development strategy relied heavily on imported (unskilled) labour in the previous decade. Nonetheless, according to the projection immigration will not contribute to labour markets of the Central and Eastern European countries which already suffer dramatically fast ageing accompanied by massive out-migration as commented before.

Figure 20 - Life-years contribution of immigrants in terms of retirement, 2010-2020
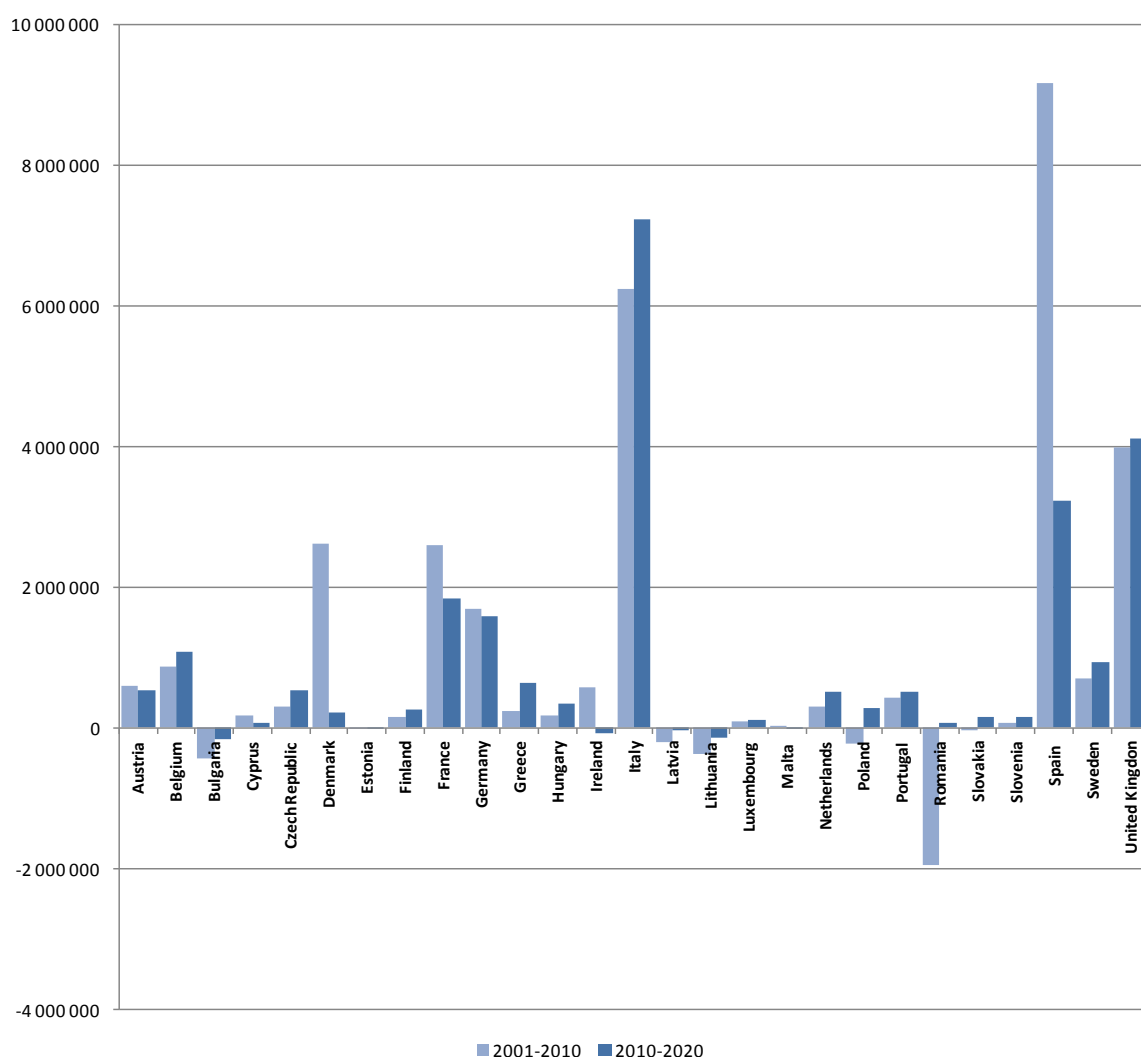
Source: ISMU 2013.

The most challenging issue remains the last group of immigrants who (potentially) will enter the group of retired people. Figure 20 clearly shows that this will be a major issue for three countries of the EU – Italy, Spain and the United Kingdom. All of them experienced in the past not only massive inflow of migrant workers but also the process of family reunification (similarly to the German experience of 1970s and 1980s), including persons in the older age brackets – see also Box 1.

Third, similar exercise was proposed by Bijak et al. (2013b) whose aim was to estimate the number of new migrants needed to sustain the overall population and several characteristics related to population ageing[19]. Simulation under the constant population assumption provides a number of the total population of EU27 countries of 532.6 million in 2052 out of which 117.9 million would constitute immigrants and their descendants (inflow of 32.8 million of immigrants - 6 pp. increase as compared to base scenario where replacement migration was set to zero by default), see Figure 21. However, even under such circumstances the ODR would be 51.1% which means – similarly to the UN report (UN 2000) that constant population scenario is not a solution to population ageing.

---

[19] Analysis refers exclusively to the inflow from outside the EU27.

Interestingly, contrary to other studies the highest number of replacement migrants have been estimated for countries as Romania (8.8 million), Poland (6.6 million) or Bulgaria (3.5 million) but also for Germany (4.7 million) and Italy (3.2 million)[20].

Figure 21 - Post-2002 immigrants and their descendants in EU27, 2052 (in %)[21]

	Original 2002 population	Post-2002 newcomers
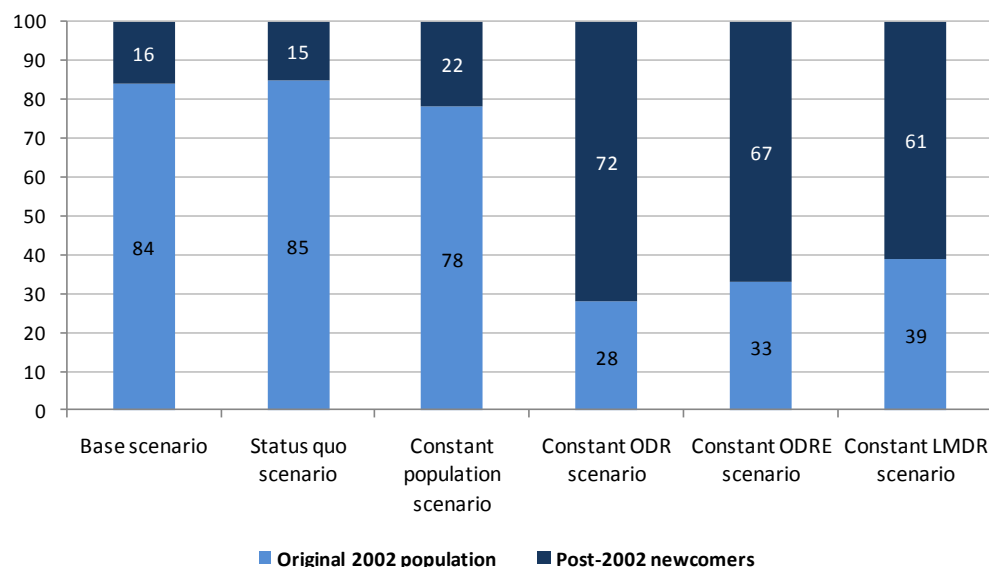
Source: Saczuk 2013: 257.

Numbers of immigrants needed to contain the main support ratios at the constant level would be drastically higher. In order to keep the ODR at constant level (2002 level) the number of new immigrants should be as high as 827.8 million (or: additional as compared to the baseline scenario). Under such circumstances the post-2002 immigrants and their descendants would constitute around 72% of the total EU27 population (and age structure of the population would depend heavily on the age structure of the immigrant population). Figure 21 shows that estimates for the ODRE and LMDR provide similar values. Apparently, those inflows translate into similar – much higher in case of ODR and ODRE – shares of immigrants in the total labour force, Figure 22.

---

[20] And this is the main reason why this study is quoted here – in most of the other approaches migration projections are based mainly on past trends and thus CEE countries are (still) treated as predominantly net sending areas.

[21] ODR – old-age dependency ratio (ratio of the population aged 65 years and more to the population in the 15–64-year age group), ODRE – economic old-age dependency ratio (ratio of the economically inactive population of retirement age (i.e. persons aged 65 years or more) to the whole active population aged 15 years or more), LMDR – labour market dependency ratio (ratio of the whole economically inactive population to the whole active population, considering people aged 15 years or more).

Figure 22 - Post-2002 immigrants and their descendants in the labour force in EU27, 2052 (in %)
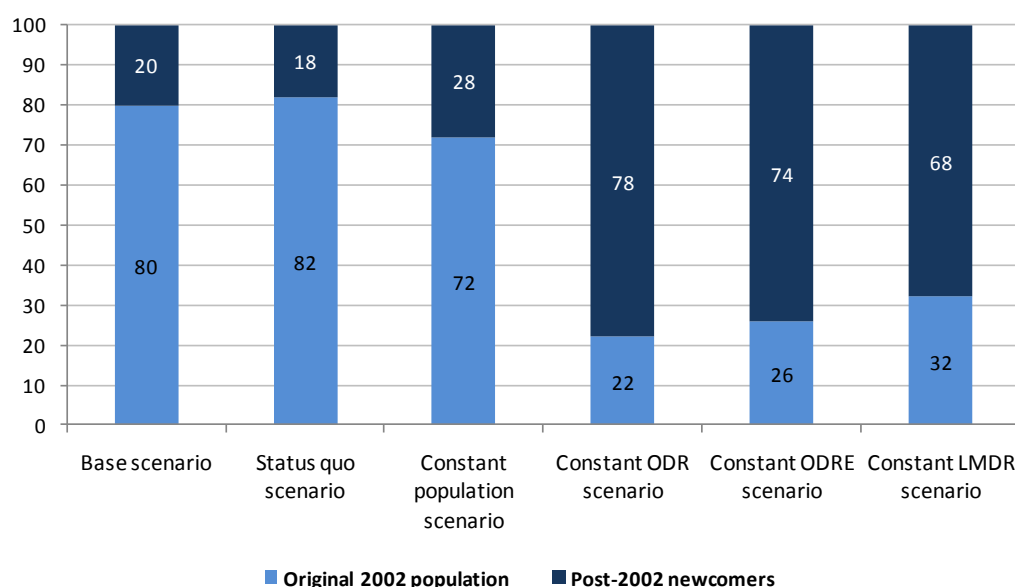
Source: Saczuk 2013: 257.

Estimates presented show that immigration is an inevitable phenomenon considering past migration trends and demographic future of the EU. Nonetheless, they also prove that it would be hardly realistic to expect that future immigration will be massive enough to offset declining labour market support ratios.

Last but not least, while assessing the future contribution of immigration it is possible to refer to a indirect argument related to links between migration and welfare systems. Impacts of immigration on the functioning of the welfare states of modern capitalism (to quote Esping-Andersen) lie in the very centre of recent debate on economic consequences of international mobility. Empirical evidence available does not provide a clear nor coherent picture of fiscal impacts of immigration. Generally, immigrants are using social welfare to a greater extent than natives but most of those differences disappear when accounting for structural characteristics of immigrants. Additionally, the welfare use by immigrants is strongly system dependent and depends on the rules and structural characteristics of the welfare system as such – in fact while assessing the negative impacts of immigrants on the welfare systems we should blame rather those systems than immigrants. In countries with more flexible labour markets and relatively less generous welfare systems immigration impacts the welfare system in a positive way (depending also on the structure of the inflow which, in turn, is somehow influence by the organization and structure of the welfare system – see welfare magnet hypothesis) (Kaczmarczyk 2013; Fargues 2014).

In the context of this paper the most important point refers to so-called dynamic approaches to welfare impacts of immigration. In this case the analysis goes beyond simple static comparison of welfare dependency and assesses also long-term consequences of past, recent and future migration. Several studies point that fiscal contribution of immigrants may be substantial in case of countries suffering (or expecting) rapid demographic decline (but mostly it is presented as transitory effect only). As shown by Bonin et al. 2000, Bonin 2001, Collado et al. 2003 the size of future changes (higher taxes or lower transfers) depends on the scale of immigration. Thus, immigration may be treated as a safety valve. This is clearly shown by two exemplary cases.

First, OECD estimates (2013) allow comparing static and dynamic approaches to welfare impacts of immigration, see Figure 23.

Figure 23 - Differences in the average net direct contributions between immigrant and native-born households, 2007-2009 averages (percentage of GDP)
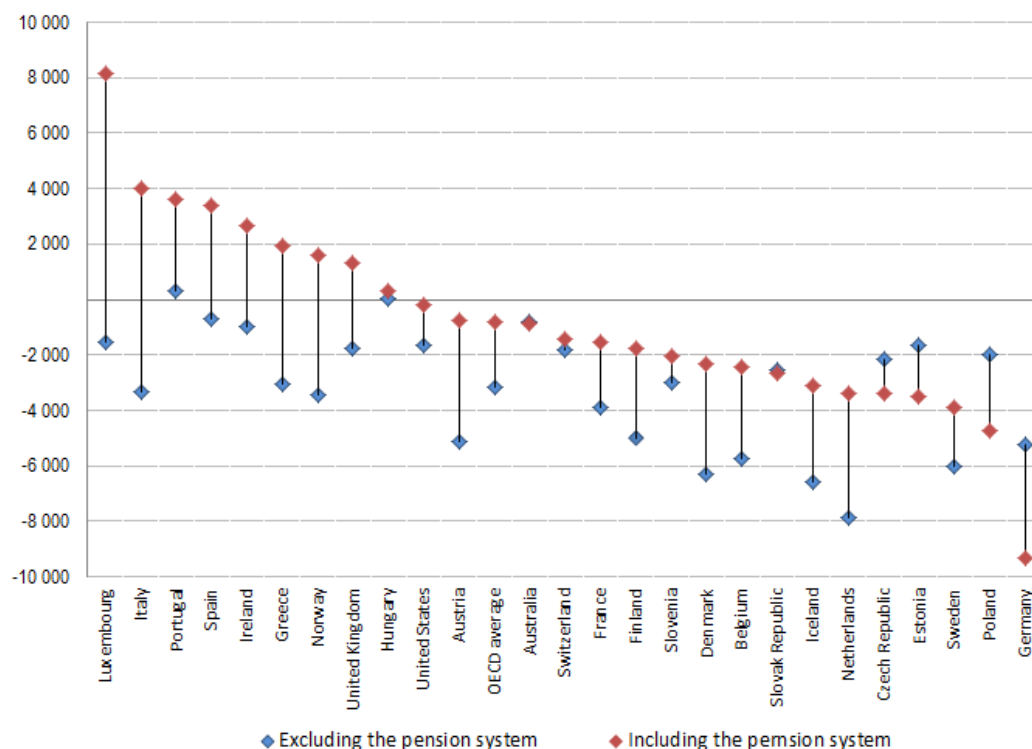
Source: Kaczmarczyk 2013.

Above presented data shows clearly that in case of most OECD countries under analysis, the inclusion of pension system contribution (i.e. dynamic accounting exercise) changes significantly the assessment of immigrants' presence in well developed countries and additionally it acts in a very positive way. This point is particularly well taken in those countries which already suffer population ageing and at the same time their immigrant populations are significantly younger than native populations (e.g. Southern European countries).

Second, the case of Spain as presented by Collado et al. (2004) shows that even if immigration is not an ultimate solution for recent welfare systems it may seriously improve the position of EU governments. Table 5 presents percentage changes in taxes and transfers (separately and combined) needed to keep the state budget balanced under three alternative scenarios: the benchmark one assuming net inflow of around 60 thousand immigrants annually, the second one comprises no immigration assumption and the third scenario assumes an increase in the scale of immigration (200 thousand annually). Additionally two options are available with regard to reforms of fiscal policies: immediate changes aiming to internalize (fully) demographic changes (e.g. changes in pension and/or tax system) and no change resulting in placing all burdens on future generations (with an assumption that future burdens will be higher than the recent ones).

Table 5 - Changes necessary to cover burdens of newborn and future generations

Fiscal policy changes	All burden on future generations	Immediate change
Benchmark scenario (60,000 immigrants per year)		
% change in taxes and transfers	20.4	4.7
% change in taxes only	34.5	7.9
% change in transfers only	49.8	11.3
No immigration after 2000		
% change in taxes and transfers	27.6	5.1
% change in taxes only	47.8	8.8
% change in transfers only	65.4	12.4
200,000 immigrants per year		
% change in taxes and transfers	12.0	3.8
% change in taxes only	19.8	6.3
% change in transfers only	30.3	9.2

Source: Collado *et al.* 2004: 347.

Table 5 shows that in the case of Spain stopping immigration would seriously impact the fiscal system and force the government to make severe changes in taxes and transfers (assuming keeping the budget balance at constant level). In case of the no immigration scenario an aggregate change (increase in taxation and cuts on transfers) of around 30% could be necessary to secure a balanced budget. An alternative could be a significant increase in taxation (48%) or limiting scale of social transfers (65%). On contrary, increasing flows of immigrants can be helpful in terms of fiscal policies. The latter effect is particularly well visible when we assume that there are no immediate changes in terms of fiscal policies and all the effects of demographic changes are to be covered by future generations: in this case changes in taxation and social benefits are significantly lower than under the status quo scenario. Apparently this outcome is strongly dependent on the fiscal position of immigrants (which is rather beneficial in case of Spain) and thus cannot be presented as a universal feature. Notwithstanding, even if – as suggested by Coleman and Rowthorn (2004) – the fiscal impacts of immigration are not large enough to prevent structural changes in ageing societies most of the empirical studies at hand emphasize the positive role of immigration in the sustainability of European welfare systems (OECD 2013; Storesletten 2000).

5. CONCLUSIONS

Migration – contrary to other demographic processes – is extremely difficult to project. This is due to its very complex nature (migration as a social process), internal dynamics (due to the presence of migrant networks and transnational social spaces) and significant impact of migration policies. First and foremost, however, unlike births and deaths mobility is a multifaceted phenomenon (from circular to settlement migration) which is reflected in the poor quality and low reliability of migration data.

Difficulties with forecasting international migration are clearly visible while analyzing migration projections available. In most cases the presented outcomes are mainly product of (sometimes strict) assumptions taken. Those difficulties lead also to some "tensions" clearly identifiable in case of the EUROPOP2008 (and EUROPOP2010). On the one hand, it assumes that net migration will converge to zero in the long term. On the other, expected labour market needs are acknowledged as a factor

leading to increase in the scale of the inflow in the future. This aspect is even better visible when analyzing economic-based forecasts providing usually much higher number than "traditional" forecasts with rather conservative assumptions regarding international migration.

Considering our knowledge on mobility and migration, future large-scale immigration to the EU countries is inevitable. This is for many reasons including persistent wage and living conditions gaps between North and South countries, differences in the economic growth rates, structural demand for foreign labour as noted in most EU countries and presence of strong migrant networks. These factors can be mitigated by migration policies in force but this cannot change the picture significantly, as shown by most of the empirical evidence. These expectations are in line with forecasts discussed in this paper.

Moreover, immigration to Europe seems very important for the future of European economies and societies. Shrinking populations are expected to challenge economic situation in many EU countries. There are several solutions at hand, including increasing participation rates, changes in retirement age, utilization of labour market reserves, and immigration. The very idea of replacement migration has been widely criticized and according to many authors should not be used as a basis for formulate serious population or migration policies. This is due, among others, to the fact that purely demographic approach does not consider potential changes in the economy (labour/capital ratios, technological change), reserves on the labour market present in most well developed economies or the quality of the labour force (and its productiveness). Nonetheless immigration remains inescapable and, as shown in this paper, useful. This is shown by the data pointing to the importance of immigration for the contemporary population balances of well developed countries and will gain in importance in the future. Immigrants are expected to influence not only the age structures of European populations. According to the forecasts presented a significant inflow in labour market terms is expected – both in quantitative (life-years contribution in terms of the labour market activity) as well as qualitative terms (filling labour market gaps, providing certain skills). Last but not least, available studies show that even if immigration is not an ultimate solution it can become a serious relief for the sustainability of European welfare states.

REFERENCES

Abel G. et al. (2010). Developing Expert-Based Assumptions on Future Fertility, Mortality, and Migration. In: EUROSTAT, Work session on demographic projections Lisbon, 28-30 April 2010. Luxembourg: Eurostat.

de Beer J., and van Wissen, L. (eds). (1999). *Europe: One continent, different worlds. Population scenarios for the 21st century*. Dordrecht: Kluwer.

Bijak J. (2010). Dealing with uncertainty in international migration predictions: from probabilistic forecasting to decision analysis. In: EUROSTAT, Work session on demographic projections Lisbon, 28-30 April 2010. Luxembourg: Eurostat.

Bijak J., Kicinger A. and M. Kupiszewski (2013a). International Migration Scenarios for 27 European Countries, 2002-2052, in: Kupiszewski M. (ed.) *International Migration and the Future of Populations and Labour Force Resources in Europe*, Bonn: Springer.

Bijak J., Kupiszewska D., Kupiszewski M. and K. Saczuk (2013b). Population Ageing, Population Decline and Replacement Migration in Europe, in: Kupiszewski M. (ed.) *International Migration and the Future of Populations and Labour Force Resources in Europe*, Bonn: Springer.

Blangiardo G.C. (2012), Discovering the Demographic GDP, Rivista Internazionale di Scienze Sociali, 1, pp.45-58

Blangiardo G.C., Loi F. (2013) L'invecchiamento "importato" (o "esportato") nel panorama europeo, Statistica & Società, Anno 2, n.2, pp.14-17

Blangiardo G.C., Menonna A., Barbiano E., Forlani N. (2013). *Household projections and welfare*, Eurostat-UNECE-Istat, Work Session on Demographic Projections, Rome, 29-31 Oct. 2013

Blangiardo G.C., Rimoldi S. (2012), The potential demography: a tool for evaluating differences among countries in the European Union, Genus, 3, pp.63-81

Bonin H. (2002). Eine fiskalische Gesamtbilanz der Zuwanderung nach Deutschland. *IZA Discussion Paper No. 516.* Institute for the Study of Labor (IZA).

Bonin H. (2006). Der Finanzierungsbeitrag der Auslaender ze den deutschen Staatsfinanzen: Eine Bilanz fuer 2004. *IZA Discussion Paper No. 2444.* Institute for the Study of Labor (IZA).

Brunborg H. and A. Capellen (2010). Forecasting Migration Flows to and from Norway Using and Econometric Model. In: EUROSTAT, Work session on demographic projections Lisbon, 28-30 April 2010. Luxembourg: Eurostat.

Calian V. (2013). Dynamical models for migration projections. In: UNECE (2013). Joint Eurostat/UNECE Work Session on Demographic Projections 29-31 October 2013, Rome, Italy.

Castles S. and M. Miller (2011). The Age of Migration. London: Palgrave Macmillan.

Castles S., de Haas H. and M. Miller (2013). Age of Migration. Fifth Edition: International Population Movements in the Modern World. Houndmills, Basingstoke, Hampshire: Macmillan.

CEDEFOP (2008). Skill Needs in Europe. Focus on 2020. Luxembourg: European Centre for the Development of Vocational Training.

Coleman D. (2008). The demographic effects of international migration in Europe. *Oxford Review of Economic Policy* 24(3), 453–477.

Coleman D. and R.Rowthorn (2004). The Economic Effects of Immigration into the United Kingdom. *Population and Development Review* 30(4): 579-624.

Collado D., Iturbe-Ormaetxe I. and G.Valera (2004). Quantifying the Impact of Immigration on the Spanish Welfare State. *International Tax and Public Finance* 11: 335-353.

Dustmann C., Casanova M., Fertig M., Preston I. and Schmidt C. M. (2003) The impact of EU enlargement on migration flows. Home Office Report 25/03. Home Office, London.

EMN (2011). Satisfying Labour Demand through Migration, Brussels: European Migration Network.

EUROSTAT (2010). Work session on demographic projections Lisbon, 28-30 April 2010. Luxembourg: Eurostat.

EUROSTAT (2011). Immigrants in Europe. A statistical portrait of the first and second generation. Luxembourg: Eurostat.

Fargues P. and A. McCormick (2013). Ageing of skills and complementary immigration in the EU, 2010-2025. *RSCAS Working Paper* 2013/81.

Gagnon J. (2014). Demographic change and the future of the labour force in the EU27, other OECD countries and selected large economies. In: Matching Economic Migration with Labour Market Needs edited by OECD. Paris: OECD.

Gorbey S., James D., and J. Poot (2009). Population forecasting with endogenous migration: an application to trans-Tasman migration. *International Regional Scientific Review* 22(1).

Hammar T. *et al.* (eds) (1997). International migration, immobility and development: multidisciplinary perspectives. London: Berg.

Hansen, M.F. (2013). Introducing duration dependant emigration in the DREAM population projection model. In: UNECE (2013). Joint Eurostat/UNECE Work Session on Demographic Projections 29-31 October 2013, Rome, Italy.

Heran F. (2014). Demographic trends, labour market needs and migration. In: Matching Economic Migration with Labour Market Needs edited by OECD. Paris: OECD.

Herm, Anne and Michel Poulain (2010). International migration data as input for population projections. In: EUROSTAT, Work session on demographic projections Lisbon, 28-30 April 2010. Luxembourg: Eurostat.

Howe N. and R. Jackson (2006). Long-Term Immigration Projection Methods: Current Practice and How to Improve It. Center for Strategic and International Studies Working Paper.

ILO (2013). ILO Estimates and Projections of the Economically Active Population: 1990-2030 (2013 EDITION). Geneva: ILO.

ILO (2013). ILO Estimates and Projections of the Economically Active Population: 1990-2030 (2013 Edition), Geneva: ILO.

Kaczmarczyk P. (2013). Do immigrants pose a burden on the state budget? Review paper, *RSCAS Working Paper* 2013/79.

Keilman N., D. Q. Pham and A. Hetland (2001). Norway's Uncertain Demographic Future. Social and Economic Studies 105, Statistics Norway.

Lanzieri G. (2009). EUROPOP2008: A Set of Population Projectiosn for the European Union, Paper presented at the XXVI IUSSP International Population Conference .

Lanzieri G. (2011). Fewer, older and multicultural? Projections of the EU populations by foreign/national background. Luxembourg: Eurostat.

Lesthaeghe R., Page H. and J. Surkyn (1988). Are immigrants substitutes for births? (I.P.D. Working Paper 1988–3). Brussels: Free University of Brussels.

Massey D. (1999). Why does immigration occur? A theoretical synthesis. In: Handbook of International Migration: The American Experience edited by Hirschman Ch., Kasinitz P. and J. DeWind, New York: Russell Sage Foundation.

Massey D., Arango J., Hugo G., Kouaouci A., Pellegrino A. and J.E. Taylor (2005). *Worlds in Motion: Understanding International Migration at the End of the Millennium*. Oxford: Oxford University Press.

Mestres J. (2014). Current and future skills of the workforce: The demography of educational attainment and the role of migration. In: Matching Economic Migration with Labour Market Needs edited by OECD. Paris: OECD.

OECD (2003). Labour Shortages and the Need for Immigrants: A Review of Recent Studies. In: OECD. International Migration Outlook. Paris: OECD.

OECD (2012). International Migration Outlook 2012. Paris: OECD.

OECD (2013). The fiscal impact of immigration in OECD countries. In: OECD. *International Migration Outlook.* Paris: OECD.

OECD (2014). Matching Economic Migration with Labour Market Needs. Paris: OECD.

Pasteels J.-M. (2012). ILO Projections of the Economically Active Population Revised Methodology of the 2011 Edition, Geneva: ILO.

Piore M. (1979). *Birds of Passage: Migrant Labor and Industrial Societies*, Cambridge: Cambridge University Press.

Rallu J.L. (2013). Projections of ageing migrant populations in France: 2008-2028. In: UNECE (2013). Joint Eurostat/UNECE Work Session on Demographic Projections 29-31 October 2013, Rome, Italy.

Saczuk K. (2013). Development and Critique of the Concept of Replacement Migration, in: Kupiszewski M. (ed.) *International Migration and the Future of Populations and Labour Force Resources in Europe*, Bonn: Springer.

Stark O. and D. Bloom (1985). The New Economics of Labor Migration, *AEA Papers and Proceedings* 75(2).

Storesletten K. (2000). Sustaining Fiscal Policy through Immigration. *Journal of Political Economy* 108(2): 300–323.

Strzelecki P. (2013). Economic factors and net migration assumptions for EU countries – how to incorporate lessons from the recent economic crisis? In: UNECE (2013). Joint Eurostat/UNECE Work Session on Demographic Projections 29-31 October 2013, Rome, Italy.

Sumption M. (2011). Filling Labor Shortages through Immigration: An Overview of Shortage Lists and their Implications, London: MPI.

UN (2000). *Replacement migration: Is it a solution to declining and ageing populations?* New York: United Nations Population Division.

UN (2013). World Population Prospects. The 2012 Revision Highlights and Advance Tables, New York: United Nations.

APPENDIX

Table 1 - Outcomes of the EUROPOP2008, 2008-2060

thou.	Estimated population	Cumulative births	Cumulative deaths	Natural change	Cumulative net migration	Total change	Projected population
	1.1.2008	*2008-2060*					*1.1.2061*
EU27	495 394.0	255 417.8	305 254.1	-49 836.3	59 030.9	9 194.6	504 588.6
BE	10 656.2	6 578.0	6 610.3	-32.2	1 680.4	1 648.2	12 304.4
BG	7 642.2	2 779.4	5 026.6	-2 247.1	42.7	-2 204.4	5 437.8
CZ	10 345.9	4 434.9	6 568.7	-2 133.8	1 253.5	-880.3	9 465.7
DK	5 475.8	3 385.8	3 326.2	59.5	389.3	448.8	5 924.6
DE	82 179.1	32 770.0	52 730.2	-19 960.3	8 183.3	-11 777.0	70 402.2
EE	1 338.6	631.5	842.6	-211.1	-0.9	-212.1	1 126.6
IE	4 414.8	3 857.3	2 371.7	1 485.6	868.8	2 354.4	6 769.2
EL	11 216.7	5 086.7	7 099.5	-2 012.8	1 874.7	-138.1	11 078.6
ES	45 283.3	23 571.1	28 774.7	-5 203.6	11 655.3	6 451.7	51 735.0
FX	61 875.8	41 668.6	36 048.0	5 620.7	4 375.4	9 996.1	71 871.9
IT	59 529.0	25 910.1	38 261.3	-12 351.1	11 994.1	-357.1	59 171.9
CY	794.6	595.0	465.5	129.5	402.0	531.5	1 326.1
LV	2 269.1	882.8	1 478.0	-595.2	-4.9	-600.1	1 669.0
LT	3 365.4	1 350.3	2 184.4	-834.0	-4.1	-838.1	2 527.4
LU	482.2	361.0	296.5	64.5	188.4	252.9	735.1
HU	10 045.4	4 221.8	6 598.6	-2 376.8	1 008.5	-1 368.3	8 677.1
MT	410.5	190.6	247.9	-57.4	50.4	-7.0	403.5
NL	16 404.3	9 244.2	9 589.7	-345.5	512.1	166.5	16 570.8
AT	8 334.3	4 181.4	4 990.2	-808.8	1 501.5	692.6	9 027.0
PL	38 115.6	15 119.3	22 868.9	-7 749.6	538.2	-7 211.4	30 904.2
PT	10 617.4	5 028.6	6 752.3	-1 723.7	2 346.4	622.7	11 240.1
RO	21 423.4	8 329.6	13 329.9	-5 000.3	357.1	-4 643.2	16 780.1
SI	2 022.6	829.9	1 277.7	-447.8	193.2	-254.5	1 768.1
SK	5 398.8	2 146.7	3 292.1	-1 145.4	258.3	-887.1	4 511.7
FI	5 299.8	3 053.3	3 289.6	-236.3	334.4	98.0	5 397.8
SE	9 182.9	6 011.0	5 515.3	495.7	1 211.8	1 707.5	10 890.4
UK	61 270.3	43 199.1	35 418.0	7 781.1	7 821.1	15 602.2	76 872.5

Source: Lanzieri 2009: 18.

Table 2 - Timetable of demographic changes in the EU27, 2008-2060

Year of projection	Negative natural change without migration	Negative natural change	Decline total population
2008	BG, CZ, DE, EE, IT, LV, LT, HU, RO	BG, DE, EE, IT, LV, LT, HU, RO	BG, DE, EE, LV, LT, HU, PL, RO
2009	PT, SI	CZ, SI	
2010	EL, AT	PT	
2011		EL	
2012	EU-27, PL	PL	
2013	SK	SK	
2014			
2015	ES	EU-27	
2016		AT	
2017			
2018	BE, MT		
2019		ES	SI, SK
2020		MT	
2021			CZ
2022			
2023	FI		
2024			
2025		FI	
2026	LU, NL		EL
2027	SE		
2028	DK, CY		MT
2029			
2030	UK		
2031			FI
2032		NL	
2033			
2034			
2035		BE, DK	EU-27
2036		SE	EL, NL
2037			
2038			IT
2039			
2040			
2041	FX		
2042			
2043			
2044			
2045			ES, PT
2046			AT
2047			
2048			
2049			
2050			
2051			
2052			
2053	IE		
2054			
2055			
2056			
2057			
2058			
2059			
2060		CY, SE	
No until 2060		IE, FX, LU, UK	BE, DK, IE, FX, CY, LU, SE, UK

Source: Lanzieri 2009: 20.

Table 3 - Future inflow of migrants to the EU28 countries and the main countries of origin, 2011-2030

Country	Migration (thous.)	Main countries of origin and corresponding % of the migration flow										Total % of 5
		1° country	%	2°	%	3°	%	4°	%	5°	%	
Austria	362	Turkey	22,2	Nigeria	12,3	Afghanistan	7,1	India	5,0	Iran, Islamic Republic of	2,9	49,4
Belgium	670	Morocco	18,9	Turkey	7,2	Congo, Democratic Republic of	7,0	Cameroon	4,7	India	3,9	41,8
Bulgaria	0	Turkey	61,5	The former Yugoslav Republic of Macedonia	8,5	Lebanon	6,2	United Arab Emirates	4,9	Republic of Moldova	4,5	85,6
Croatia	1	Bosnia and Herzegovina	39,6	Serbia and Montenegro	21,9	The former Yugoslav Republic of Macedonia	14,7	China	8,4	United States	8,1	92,8
Cyprus	52	Philippines	30,8	Sri Lanka	16,6	India	6,3	Syrian Arab Republic	6,2	United Kingdom	4,4	64,3
Czech Republic	197	Viet Nam	32,3	Ukraine	13,7	Mongolia	7,5	Slovakia	4,0	Republic of Moldova	3,7	61,1
Denmark	192	Iraq	9,4	Afghanistan	9,0	Philippines	8,8	India	6,6	Somalia	5,8	39,6
Estonia	2	Russian Federation	14,5	Ukraine	8,4	Lithuania	7,9	India	6,6	United States	6,4	43,8
Finland	100	Somalia	14,0	Iraq	9,9	Afghanistan	7,2	India	6,7	Turkey	4,4	42,2
France	2 082	Morocco	16,7	Senegal	5,8	Cameroon	5,6	Turkey	4,8	Côte d'Ivoire	4,6	37,5
Germany	2 575	Turkey	18,4	Iraq	7,2	India	6,6	Philippines	3,8	United States	3,1	39,1
Greece	361	Albania	27,3	Egypt	17,7	Pakistan	8,2	Philippines	7,9	Syrian Arab Republic	5,1	66,1
Hungary	60	Israel	9,7	Romania	8,5	Turkey	7,2	Nigeria	6,8	Ukraine	5,8	38,0
Ireland	129	India	19,2	Philippines	9,3	Nigeria	8,8	Lithuania	6,8	Brazil	6,2	50,2
Italy	2 550	Morocco	15,0	Senegal	6,3	India	5,9	Bangladesh	5,2	Ecuador	5,1	37,4
Latvia	5	Lithuania	24,7	Russian Federation	10,6	Israel	10,1	United States	5,2	Uzbekistan	4,0	54,7
Lithuania	9	Israel	10,5	Russian Federation	7,9	United States	7,3	Turkey	7,3	Belarus	6,4	39,4
Luxembourg	27	Cape Verde	8,4	Nigeria	6,7	France	6,1	Brazil	5,6	United States	4,5	31,3
Malta	16	Somalia	36,6	Egypt	12,5	Libyan Arab Jamahiriya	6,7	United Kingdom	5,5	India	4,7	66,0
Netherlands	368	Turkey	12,0	India	7,8	Morocco	7,6	Indonesia	4,6	United States	3,6	35,6
Poland	21	Viet Nam	9,1	India	7,6	Turkey	7,5	Armenia	6,9	Ukraine	5,9	37,0
Portugal	205	Brazil	74,9	China	3,4	Romania	2,9	Nepal	2,4	Uzbekistan	1,6	85,1
Romania	5	Afghanistan	30,5	Syrian Arab Republic	17,2	Iraq	14,5	Jordan	10,9	Iran, Islamic Republic of	7,7	80,8
Slovakia	27	Viet Nam	16,5	Serbia and Montenegro	7,7	Korea, Republic of	7,6	Turkey	4,7	Ukraine	4,5	41,1
Slovenia	36	Bosnia and Herzegovina	37,8	Serbia and Montenegro	31,4	The former Yugoslav Republic of Macedonia	14,5	Dominican Republic	1,4	Turkey	1,2	86,3
Spain	5 711	Morocco	14,4	Ecuador	11,8	Bolivia	10,1	Colombia	8,1	Peru	5,2	49,5

Sweden	608	Iraq	29,5	Somalia	15,0	Afghanistan	5,4	India	3,2	Eritrea	3,1	56,2
United Kingdom	3 682	India	21,5	Pakistan	10,0	South Africa	7,5	Nigeria	7,0	Philippines	5,6	51,5
EU-28	20 053	Morocco	8,9	India	6,9	Pakistan	4,2	Ecuador	4,2	Turkey	4,2	28,3

Source: ISMU 2013.