

Modelling the future evolution of international migration for Belgium

March 2015

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Federal Planning Bureau

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Abstract – This Working Paper presents the methodological progress made in projecting international migration. The new methodology is notably based on an analysis of migration flows per nationality and on statistics on reasons for migrating, in order to assess whether economic variables constitute relevant determinants of migration. If they do, the impact of economic determinants on immigration is estimated using econometric methods. The methodology also takes into account increasing globalisation and mobility, as well as the expected growth in the global population, all of which boost international migration flows (immigration and emigration). Finally, it gives more stability to the long-term migration projections and, therefore, to the population projections, as the annual revisions of long-term migration depend less on the short-term evolution of migration flows.

Jel Classification – J11, C51

Keywords – International migrations, Population projections

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Executive summary

Although many theoretical models have been developed to understand the reasons behind international migration, the methods used to project long-term migrations are often mechanistic. In general, projecting migration flows often comes down to either defining a level (or a rate for emigration) that is equal to recently observed values and kept constant over the whole projection period or assuming long-term convergence towards zero net migration.

The approach that has been followed by the Federal Planning Bureau for several years aims to introduce a link between specific economic determinants of migration and the long-term evolution of immigration of individuals of foreign nationality. In particular, for some groups of countries, the current immigration level is assumed to evolve, over the projection period, in line with the expected development of the economic attractiveness of Belgium. However, this taking into account the relative economic attractiveness of Belgium has led in the long term – given the economic growth scenarios selected – to giving substantially lower immigration levels than those currently observed.

In a continuous effort to improve its models, the FPB has carried out fundamental work to enhance its current methodology for determining the future evolution of international migration flows on the basis of different elements. In particular these are: a more detailed analysis of the reasons for migrating; the use of econometric approaches for estimating, when relevant, the impact of relative economic attractiveness on international immigration; the taking into account of a context of increased globalisation and mobility; and finally, the need to make annual adjustments of long-term immigration less dependent on short-term variations in migration flows.

To better understand the differences in reasons for migrating according to individuals' nationality, assumptions about the future evolution of international immigration of foreign people have been specified for three separate groups of countries: the old Member States of the European Union (EU15), the new Member States of the European Union since 2004 (EU13) and third countries (or non-EU countries).

The projection of immigration from EU15 countries is based on constant emigration rates to Belgium rather than on a constant number of immigrants (as it was the case in the previous version of the model). Nevertheless, for the EU15 countries that have been particularly hit by the economic and financial crisis, there seems to be a link in the short term with economic determinants, in particular with the unemployment rate. This link is estimated using an econometric approach and is only taken into account in the short-term projections. In the long term, international organisations expect, assuming no change in policy and societal organisation, a gradual exit from the crisis.

For several years, the assumption on immigration from EU13 countries has taken into account a relative economic attractiveness index of Belgium compared to the EU13 countries. This index is based on the GDP differential per capita between Belgium and the EU13 countries. The model assumed a unit elasticity between the evolution of the relative economic attractiveness index and the evolution of immigration from the EU13. In order to fine-tune this approach, an econometric model has been specified to estimate the relationship between relative economic attractiveness and immigration. Modelling efforts

focused on three countries: Romania, Bulgaria and Poland. Indeed, immigration from EU13 countries to Belgium mainly comes from these three countries.

Concerning non-EU countries, we certainly have to pay attention to the fact that migrants from these countries partly seek a higher ‘well-being’, which is to some extent expressed by the relative economic position of Belgium, but this concept of well-being is much more comprehensive than that of relative economic attractiveness. Moreover, one can assume that the disparities in GDP are so great that a small narrowing should not influence immigration levels significantly. Finally, immigration from these countries mainly happens in the context of family reunification or a request for refugee status. Immigration for these two reasons depends, among other factors, on the (political, healthcare and economic) conditions in the countries of origin, and on the conditions (and procedures) for access to these statuses set out by Belgium.

In these circumstances, determining a long-term path of immigration from third countries on the basis of a past trend by possibly integrating economic determinants does not seem easy or relevant. An alternative might be to determine an emigration rate to Belgium. This rate is defined by an average calculated over the whole available observation period. Taking into account the longest available observation period allows us to capture the average combined impact during the projection period of the different “unpredictable” elements that particularly influence immigration from third countries (geopolitical context, which impacts asylum applications; migratory policies, which influence family reunifications; etc.) and that should affect this immigration in the future. When and to what extent these elements will impact the expected evolution of long-term immigration is unpredictable. Using an average based on previous observations thus seems to be justified.

On the previously mentioned grounds of growing mobility and globalisation and on the basis of the historical development of the emigration rates of Belgium to foreign countries in line with the evolution of immigration, the projection of emigration also has been adjusted.

1. Introduction

The difficulties faced by demographers when developing the 'international migration' component of the population projections are well known. They concern methodological choices as well as assumption setting.

In particular, these difficulties arise from the complex factors determining migrations, for which many theories have been put forward², from the difficulties involved in measuring these determinants and in assessing their impact or even from the lack of reliable projections for some of these determinants. These determinants are various in nature and include the economic situation in the countries of immigration and emigration, the (geographical, linguistic and historical) links between these countries, and demographic developments, policies and regulations.

The most classical approaches either apply recently observed (or similar) values for the international migration flows to the whole projection period (levels or sometimes rates for emigration) or apply a long-term – or very long-term – convergence towards zero net migration. These two options are not only opposed in principle, they also yield very different projection results provided that recent migration flows, and more particularly the external migration balance, are significant. This is largely the case for Belgium, certainly since the 2000s.

Since the 2007-2060³ edition of the national population projections, a somewhat intermediate approach between the first and the second option has been adopted. In the methodology used, the long-term evolution of immigration from the new EU Member States and non-EU countries (third countries) was based on the relative economic attractiveness of Belgium. The reasoning for this approach was based on the immigration surge from the new EU Member States during the 2000s, which was largely attributable to the relative economic attractiveness of Belgium (standard of living, salaries and employment opportunities), since the EU enlargement process had progressively led to free movement of people and workers. It did not exclude the possibility that the immigration surge should go on or even increase in the short term. Nevertheless, looking further ahead, it was reasonable to project a trend reversal in the event that the economic attractiveness of Belgium in comparison to these countries should deteriorate in the long term. The same logic of comparing living standards was applied to the expected evolution of immigration from third countries. For the immigration from old EU Member States, the expected evolution relied more on a logic of proximity with Belgium rather than on a logic of attractiveness based on the gap between standards of living.

In the 2013-2060 population projections, some ad hoc assumptions were integrated in order to take into account the impact of the economic and financial crisis and of significant legislative changes (in particular the amendment in 2011 to the act on family reunification).

² For a general overview of immigration theories and common practices applied in projection models, see N. Howe and R. Joackson, 2004, Projecting immigration: A survey of the current state of practice and theory, Center for Retirement Research Working Paper, CRR WP 2004-32.

³ Perspectives de population 2007-2060, FPB and DGSIE, Planning Paper 105, May 2008.

However, the past has shown that many migration flows – especially from third countries – are not explained solely by economic attractiveness but are also caused by determinants that are hard or impossible to 'forecast'. Examples for Belgium include regularisation campaigns (1999, 2010) or the geopolitical situation in some parts of the world (the Kosovo crisis at the end of the '90s that generated large flows of asylum seekers) that led to a sudden and temporary increase in immigration. Conversely, the establishment in 2011 of a more restrictive policy on family reunification has led to a fall in migration flows over the past three years. From a more global perspective and going back further in time, the fall of the Berlin Wall in 1989 also caused unexpected migration flows to Western Europe.

Looking backward, projecting future developments of migration flows is a delicate exercise. If a trend over a five-year horizon can be anticipated, yet without being able to assess its scale properly, projecting the long-term evolution (2060 in this case) of international migration is a difficult exercise, subject to significant uncertainties about the date, duration and intensity of phenomena. Consequently, as for any other projection exercise, but probably all the more for international migration, it is necessary to emphasise that projections are founded on a set of assumptions based on current knowledge, taking into account a specific institutional and global context. Should the current context change significantly, the reality would be different from the assumptions.

In a continuous effort to improve its models, the FPB has carried out groundwork for improving its current methodology for determining the future evolution of international migration on the basis of different elements:

- more detailed analysis of the reasons for migration, using statistics for first permits of residence;
- use of FPB expertise in the econometric approaches for estimating, when relevant, the impact of economic attractiveness on international immigration and use of these estimates in the projections;
- improving the long-term projection method to make it more stable; the annual reviews of long-term immigration should not depend on the short-term variations in immigration;
- taking into account a context of increased globalisation that fosters international migration flows.

The results of this work were used for the first time in the 2014-2060 population projections⁴. It should be noted that the methodology presented in this document only applies to the migration flows to/from Belgium of individuals of foreign nationality. Immigration and emigration of Belgians are treated separately (for more details, see the 2014-2060 population projections).

⁴ Perspectives démographiques 2014-2060, Population, ménages et quotients de mortalité prospectifs, FPB and DGS, March 2015.

2. Immigration of foreigners

2.1. Reasons for immigrating

The evolution of immigration flows to Belgium can be explained in terms of various reasons: work, family reunification, student mobility, asylum applications, residence permits on humanitarian and medical grounds, etc. The breakdown per reason (between 2010 and 2013) for the first permits of residence in Belgium is presented in graph 1, in which a distinction is made between EU citizens and non-EU citizens⁵ (from third countries). For EU citizens, work represents more than 40% of the first permits of residence, followed by family reunification (37%). Given the large proportion of first permits of residence granted on the grounds of work, we can assume that immigration from EU countries can partly be explained by economic factors (GDP per capita differentials, unemployment rate, employment rate, tax regime, etc.), but also by the presence of European and international institutions on Belgian territory and, as the case may be, by proximity with Belgium. Regarding non-EU citizens, the residence permits for family reunification represent 50% of permits granted, while permits granted for 'other reasons' also make up a significant proportion (more than 20% in 2013). In particular, this category includes recognised refugees⁶ and the beneficiaries of subsidiary protection⁷. Together, the immigration of non-EU citizens for reasons of 'family reunification' and for 'other reasons' represent close to 80% of the first permits of residence. For these two reasons, the evolution of 'purely' economic variables as determinants of the evolution of immigration seems a priori less relevant.

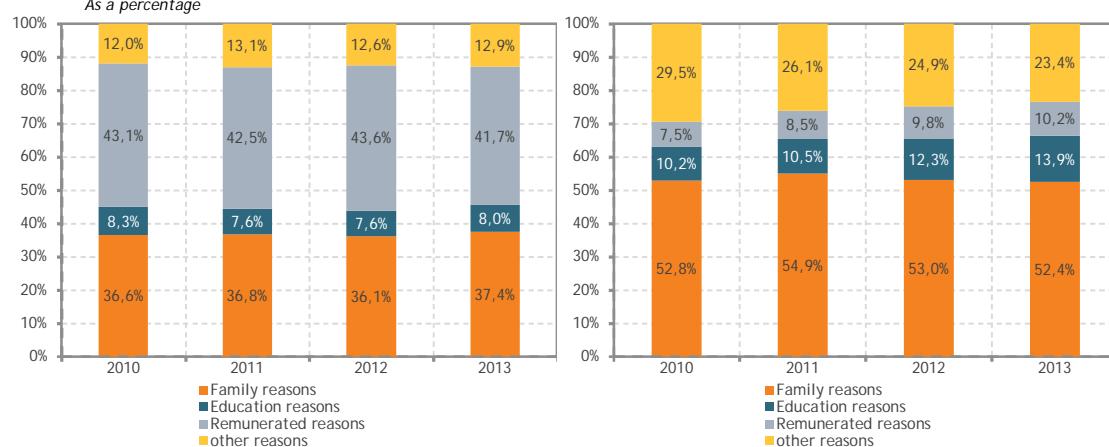
These statistics are based on the legal reason for authorising residence on Belgian territory. In fact, the reasons why a person migrates are often numerous and complex. There is considerable interaction between push and pull factors, which has led in particular to the development of many theories on international migration. Consequently, the statistics on residence permits based on the (legal) reason for issuing the permit should be considered as one of the indicators of the reason for migration and not as the only reason. The reality is much more complicated.

⁵ On the basis of nationality and not of the country of origin.

⁶ According to the definition laid out in the Geneva convention, a refugee is someone who "owing to well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion, is outside the country of his nationality and is unable or, owing to such fear, is unwilling to avail himself of the protection of that country; or who, not having a nationality and being outside the country of his former habitual residence as a result of such events, is unable or, owing to such fear, is unwilling to return to it."

⁷ A beneficiary of subsidiary protection is a person who has been granted subsidiary protection status. This person is a foreigner who does not fulfil the requirements for obtaining refugee status but who faces the real risk of being subjected to serious harm if he/she returns to the country of origin.

Graph 1 Breakdown of first permits of residence by reason for issuing them to EU citizens (left) and non-EU citizens (right)
As a percentage



Source: FPS Home Affairs - Immigration Office

Box 1 Statistics on the first permits of residence according to reasons

The statistics by reason included in this paper are produced by the Immigration Office (the statistics on third countries are transmitted to Eurostat). These statistics are based on the European definition of first permits of residence by reason for issuing them.

The annual statistics refer to the year the permit was issued and not to the year the issuing decision was taken. In some cases, there is a delay of several months between the decision to grant a permit and the permit issue itself.

As from 2008, the statistics on first permits of residence by reason for issue are available for the third countries on the Eurostat website. Since the definition changed in 2013, the statistics for the 2010-2012 period have been recalculated by the Immigration Office. The statistics for 2008 and 2009 could not be recalculated. Consequently, neither of these years can be used to analyse the development in first permits of residence by reason for issue.

To have a better understanding of the reasons for migration according to nationality, assumptions about the future evolution of international immigration of foreign people have been specified for several years for three separate groups:

- the old Member States of the European Union (EU15 apart from Belgium), for which the migration flows are influenced in particular by proximity, a more attractive housing market (for the border countries), the presence of European and international institutions or else tax reasons.
- the new Member States of the European Union (EU13), for which the migration flows are influenced in particular by the standard of living differential with Belgium, with an acceleration effect upon accession to the European Union.
- third countries (or non-EU countries), for which the migration flows are influenced in particular by the desire to find better living conditions but also by migration policies or else by unstable geopolitical conditions in certain countries.

Box 2 Immigration according to migrant nationality

The statistics by nationality included in this document are based on the individual's current nationality. It is therefore not the nationality of origin.

The rest of the document often refers to immigration 'from'. Therefore, it refers to the current nationality of the individual (which could differ from the last country of residence).

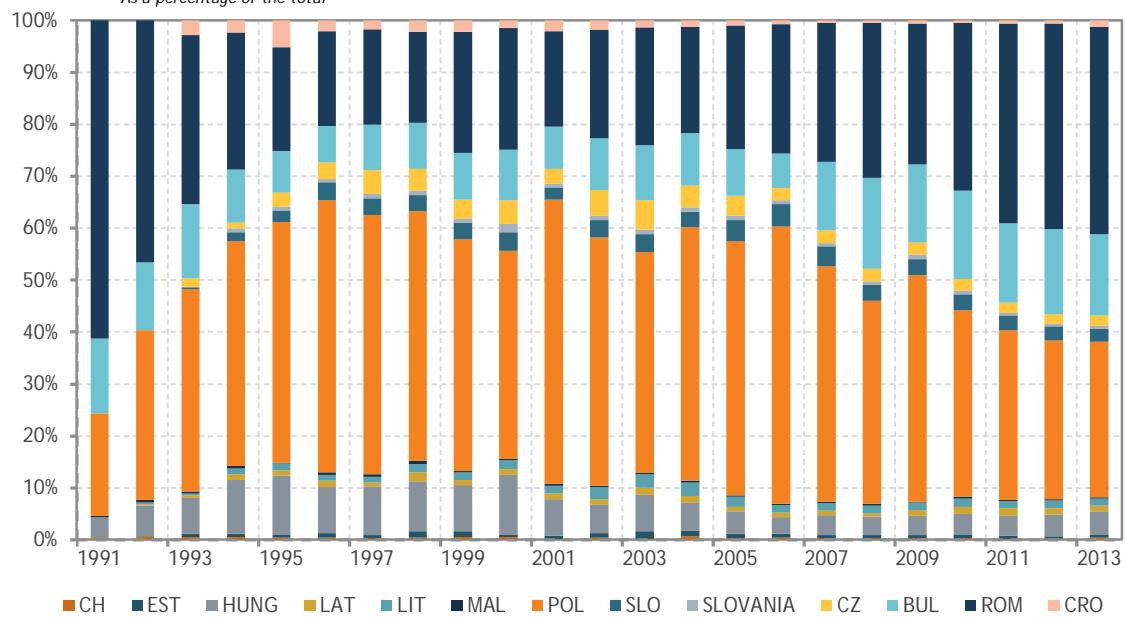
2.2. Immigration from the EU13

As a reminder, modelling immigration from EU13 countries until now took into account a relative economic attractiveness index of Belgium compared to the EU13 countries. This index was based on the GDP differential per capita between Belgium and the EU13 countries. The model assumed a unit elasticity between the expected evolution of the economic attractiveness index and the expected evolution of immigration from the EU13.

2.2.1. Analysis of observations

Over the period 1991-2013 (data available from the National Register), immigration from EU13 countries was mainly limited to three countries. In 2013, more than 85% of immigration from EU13 countries (graph 2) originated from Romania (39%), Poland (30%) and Bulgaria (16%).

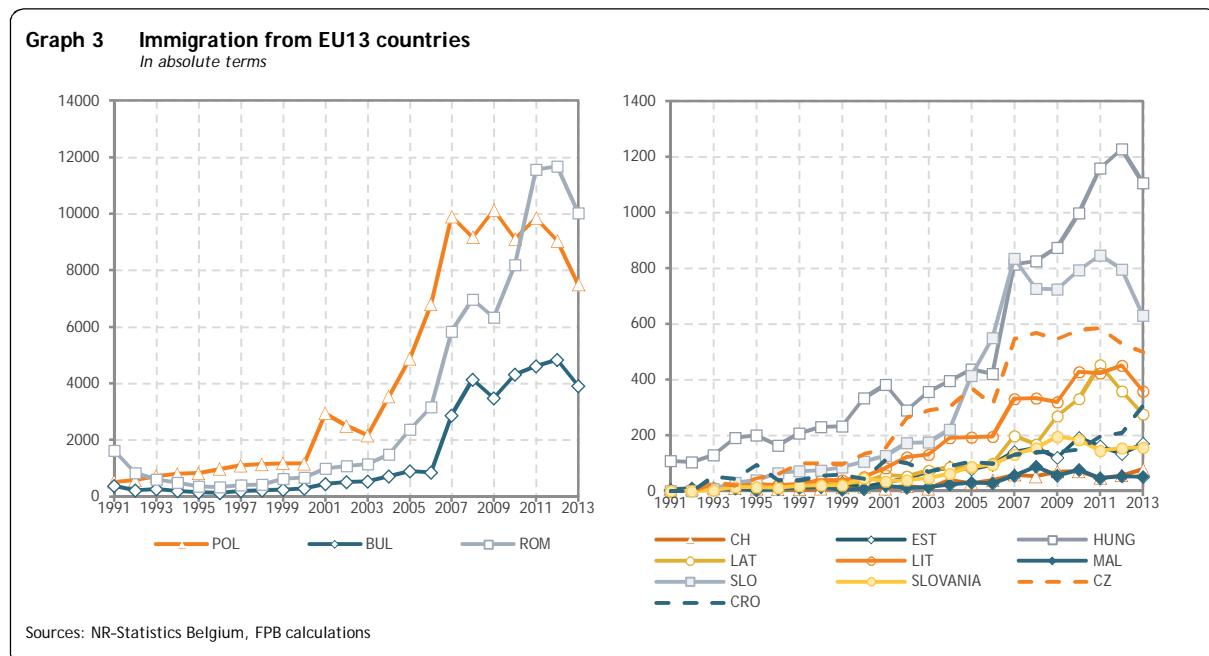
Graph 2 Breakdown of immigration from the EU13 countries
As a percentage of the total



As concerns the evolution of migration flows from the EU13, emigration to Belgium has risen significantly in each of these countries since their accession to the European Union⁸ in 2004 or 2007 (graph 3).

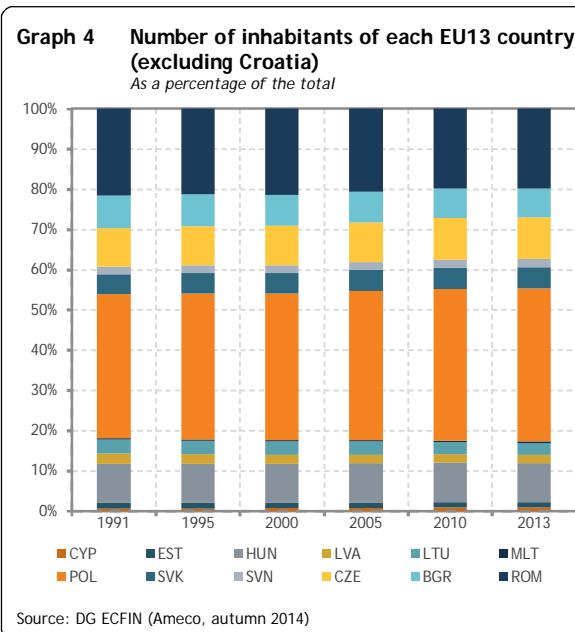
⁸ Their adherence to the European Union was subject to temporary restrictions regarding the free movement of workers (advance application for a work permit), which did not prevent the rise in immigration to Belgium. These restrictions were in

The regularisation campaign launched in 1999 also had an (upward) effect on the immigration observed in 2001.

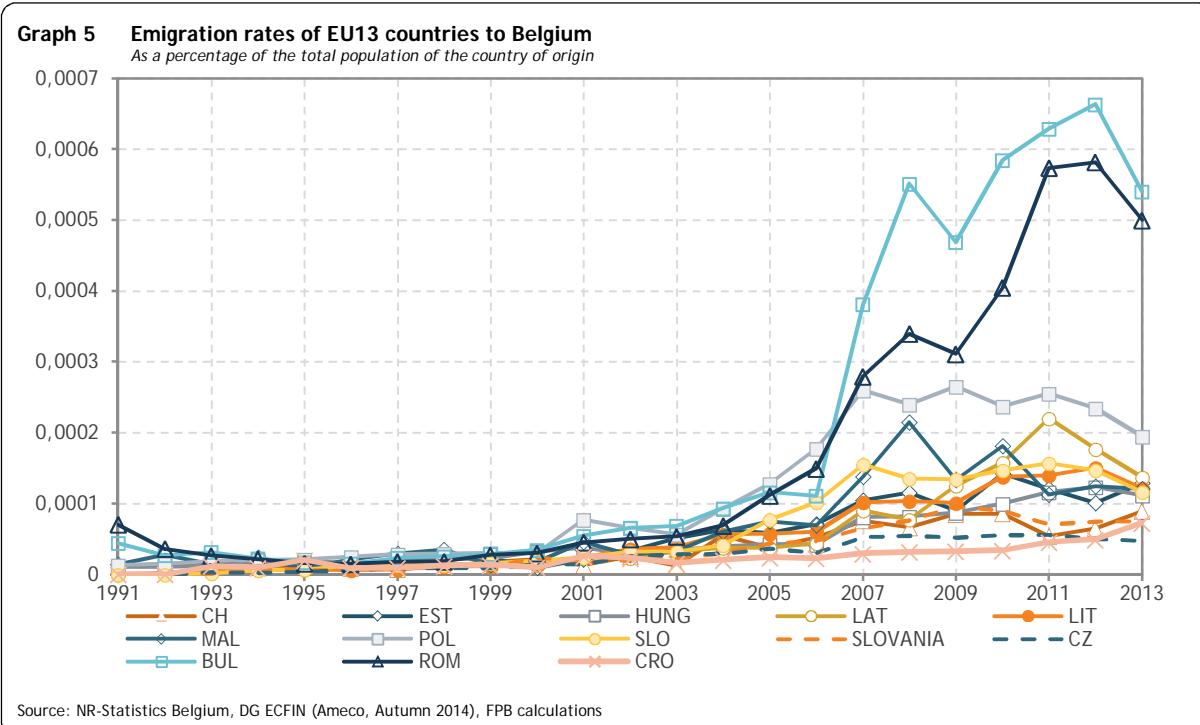


In total, immigration from Poland, Romania and Bulgaria (in absolute terms) is ten times higher than that from the other 10 EU13 countries together. This is partly due to the population size of these three countries, which represent the majority of the EU13 population: on average, over the period 1991-2013, the Polish, Romanian and Bulgarian populations respectively represented 35%, 19% and 7% of the EU13 population.

force until 2009 for countries that joined the EU in 2004 and until 1 January 2014 for Romania and Bulgaria. They still apply for Croatia.



However, some countries have a larger population than Bulgaria, but a lower immigration level (the Czech Republic and Hungary, both of which have a share of around 9% of the EU13 population). Thus, the population size is not the only explanatory variable in the number of immigration flows from EU13, which is not surprising. This is confirmed by the analysis of the emigration rates⁹ from EU13 countries to Belgium: since their accession to the EU, the emigration rates of Bulgarians, Romanians and, to a lesser extent, Poles have been higher than those of the other EU13 countries (graph 5).



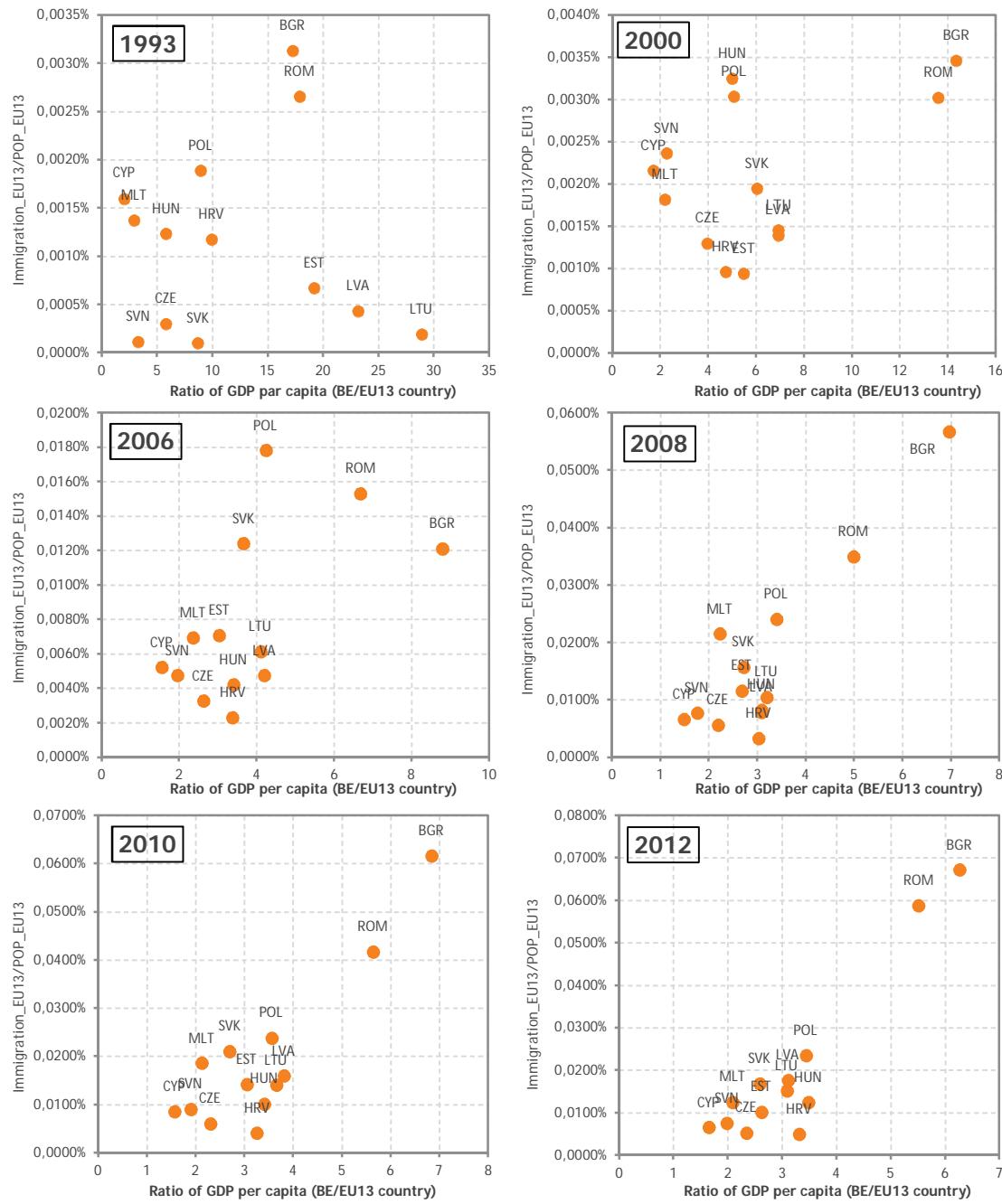
The charts in graph 6 show the relationship between emigration rates from the EU13 countries to Belgium and the ratio of (nominal) GDPs per capita between Belgium and the different EU13 countries, for different years. For all years observed, Bulgaria, Romania and, once again to a lesser extent, Poland show an emigration rate to Belgium and a relative attractiveness indicator that are higher than those of the other countries. The difference is even more striking after their adherence to the European Union. This graphic analysis suggests a relationship between the immigration level and the relative economic

⁹ The number of immigration flows from the departure country to Belgium divided by the departure country population.

attractiveness of Belgium that is all the more significant since the regulatory barriers to intra-European immigration have been reduced. In particular, the relatively larger share of immigration from Bulgaria and Romania seems to be attributable, among other factors, to a relatively larger gap between the GDP per capita in Belgium and that of the country of origin.

From that perspective, it seemed relevant to use an econometric approach in order to estimate the relationship between the relative economic attractiveness of Belgium and immigration from EU13 countries. The modelling exercise focused on the three countries that show a high immigration level (Poland, Romania and Bulgaria).

Graph 6 Relationship between emigration rates to Belgium and the ratio of GDP per capita between Belgium and the EU13 countries



Sources: NR-Statistics Belgium, DG ECFIN (Ameco, Autumn 2014), FPB calculations

2.2.2. Model specification

The potential explanatory variables had to fulfil at least three conditions in order to be taken into account in an econometric model: observations available over a period that is long enough, availability for Belgium and the EU13 countries that were selected for the analysis (Poland, Romania, Bulgaria) and availability in projection. The different potential explanatory variables are:

- The nominal or real GDP (per capita) ;
- The population of the departure countries concerned (Romania, Poland, Bulgaria) ;

- The employment rate ;
- The unemployment rate.

The specification of the equation allowing us to estimate immigration from country i_{eu13} chooses as its dependent variable the emigration rate to Belgium¹⁰ ($IMMI_{ieu13}/POP_{ieu13}$) and as its explanatory variables:

- Immigration in t-1
- The ratio of real GDPs per capita (GDP_{BE}/GDP_{ieu13})
- Dummy variables ("indicative variables"), which allow specific (structural or temporary) events which have had an impact on immigration be taken into account (2001 - regularisation campaign started in 1999, D_REGUL ; 2004 or 2007 - accession to the European Union, D_ADH ; period of flow stabilisation several years after adherence, D_STAB).

$$\frac{IMMI_{ieu13}(t)}{POP_{ieu13}(t)} = \beta_1 * IMMI_{ieu13}(t-1) + \beta_2 * \frac{PIB_{BE}}{PIB_{ieu13}} + \beta_3 * D_REGUL + \beta_4 * D_ADH + \beta_5 * D_STAB + \varepsilon_{ieu13}$$

Table 1 shows the estimation of equations for Poland, Bulgaria and Romania. All coefficients estimated have the expected sign. As concerns the relative economic attractiveness of Belgium, an increasing attractiveness (i.e. a rise of the real GDPs per capita ratio) leads to a higher emigration rate to Belgium (the inverse relationship is observed in the case of decreasing attractiveness). Immigration lagged by one year also has a positive impact on emigration rates in the following period, which is partly due to a network effect and specific links between these countries and Belgium and also to family reunification representing a significant share of immigration from the EU13 (see graph 1). Finally, "political events" also have an impact on immigration. In particular, the accession to the European Union is a key variable to explain the evolution of immigration from EU13 countries over the estimated period. For Poland, the indicative variable aiming to take into account a certain stability of flows after the post-accession years has a negative coefficient. The fast-growing immigration from Poland as soon as it became member of the EU was indeed followed by a period of stability, if not a decrease in the flows. It is too early to estimate this impact on the flows from Romania and Bulgaria. In the model, the estimated effect for Poland is applied in projection to Romania and Bulgaria, which could indeed follow the same trend.

Table 1 Estimation of the regression parameters

Explanatory variables	Poland Est. (t-value)	Romania Est. (t-value)	Bulgaria Est. (t-value)
IMMI(t-1)	0.0002 (6.5)	0.0004 (6.5)	0.001(4.9)
Attractiveness	0.02(1.0)	0.02 (1.0)	0.03 (2.2)
D_REGUL	0.49 (2.3)	0.13 (0.3)	0.26 (0.6)
D_ADH	0.64(3.7)	1.37 (3.0)	3.22(6.9)
D_STAB	-0.17 (-0.92)	--	--
Durbin-Watson	2.6	1.52	1.97
Estimation period	1993-2013	1993-2013	1993-2013

This specification has been selected for the following reasons:

1. The signs of the coefficients are consistent.

¹⁰ Per 10 000

2. The signs and the statistical significance of coefficients are weakly sensitive to the choice of the economic attractiveness indicator: real or nominal GDP, GDPs' ratio or difference in level or in percentage.
3. The specification seems to be valid no matter which sample is selected:
 - the significance of the variable linked to attractiveness becomes stronger when the estimation is limited to the period 2004-2013.
 - by deleting years at the beginning and/or at the end of the period, the estimated coefficients are stable and the immigration projection is barely modified.

However, it has some drawbacks:

1. A potential stationarity problem, i.e. the risk of getting spurious regression (high R² due to similar tendencies between the dependent variable and the explanatory variables, without causal link).
2. The immigration observed before adherence to the European Union is relatively stable and does not seem or barely seems to be influenced by economic variables. Therefore, the estimation could be limited to the period 2004-2012. However, the adherence to the European Union also has an impact on immigration, irrespective of the economic variables. In order to estimate this impact and take it into account in the immigration projection, it appeared necessary to integrate the pre-adherence period in the estimation.

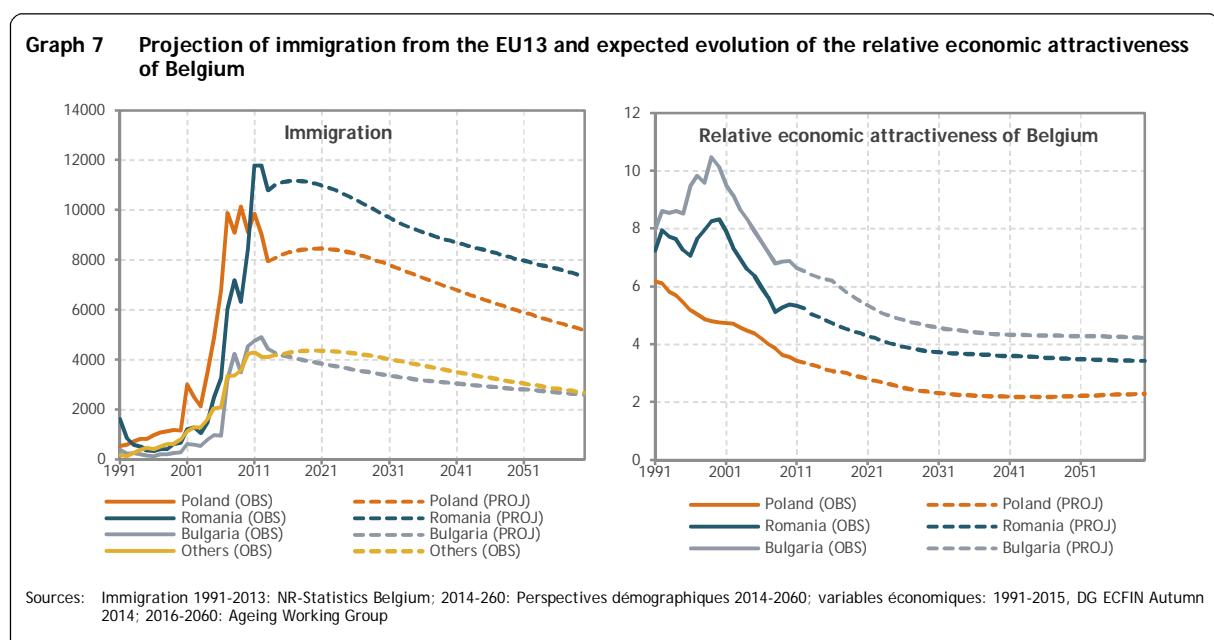
Other specifications have been examined but not selected:

1. The evolution of immigration by level: stationarity problem.
2. The evolution of immigration in first difference and in first difference in logarithmic form: problem for interpreting the estimated parameters; lack of stability of the parameters.
3. Evolution in first difference in logarithmic form with an error correction term concerning the long-term economic attractiveness:
 - by estimating the equation over the whole observed period (1991-2013), the resulting specification and projection give consistent results in function of the relative economic attractiveness indicator selected (signs are different depending on whether attractiveness is defined in function of real or nominal GDPs or on the basis of a ratio or a difference). Therefore, estimations are not stable.
 - by estimating the equation over a subperiod (2004-2012), the long-term coefficient becomes positive, which cannot be interpreted from an economic perspective (the long-term balance cannot be achieved). Moreover, we should intuitively have a better estimation for that period because the "economic" variable has at first sight a more significant impact when the country joins the EU.
 - this specification needs to make an additional hypothesis : the evolution of the long-term attractiveness level.
4. Evolution in first difference in logarithmic form with an error correction term concerning immigration:
 - Difficulty in setting a long-term immigration level.

- When a stable immigration level is set for the long term, the error correction term decreases in time. It should be stable.

2.2.3. Projection of immigration from the EU13

The projections of immigration from Poland, Romania and Bulgaria, on the basis of the estimation of the equation regarding the emigration rate of these countries to Belgium, are shown in graph 7. As regards the other EU13 countries, the expected evolution is based on the projected evolution of Poland: except for Croatia, the countries which are not explicitly taken into account in the model joined the EU in 2004, like Poland.



The immigration decline from EU13 countries expected in the long term is attributable to the expected decrease in the economic attractiveness of Belgium (on the basis of the Ageing Working Group projections¹¹) and of the population in the EU13 countries (on the basis of EUROSTAT's population projections¹²).

2.3. Immigration from the EU15 (except Belgians)

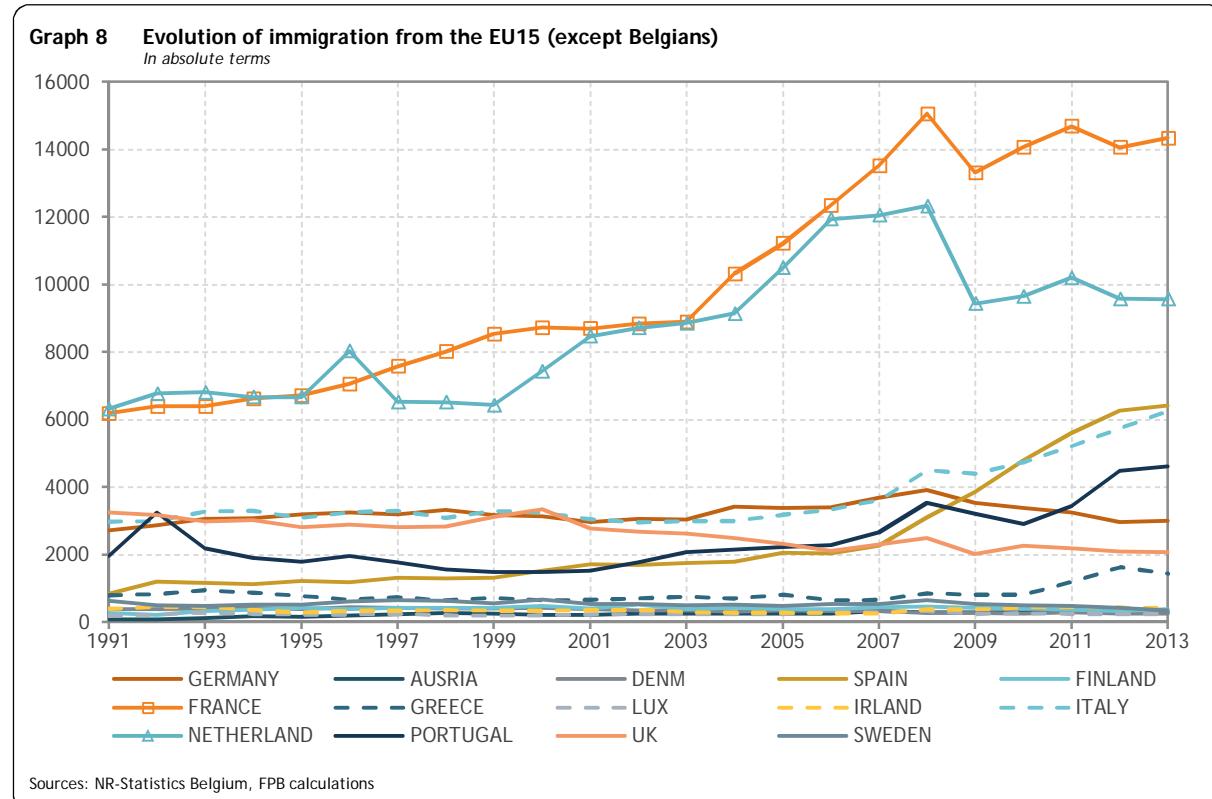
As a reminder, long-term immigration from the EU15 (except Belgians) was until now based on a constant number of immigrants: in the long term, the number of immigrants per year corresponded to the average of the last three years observed. In the 2013-2060 projections, a specific assumption has been made in order to take into account, in the short term, the increasing immigration from the EU15 countries that have been particularly hit by the economic and financial crisis, i.e. Spain, Italy, Portugal and Greece.

¹¹ European Commission, The 2015 Ageing Report, Underlying Assumptions and Projection Methodology, European Economy 8/2014.

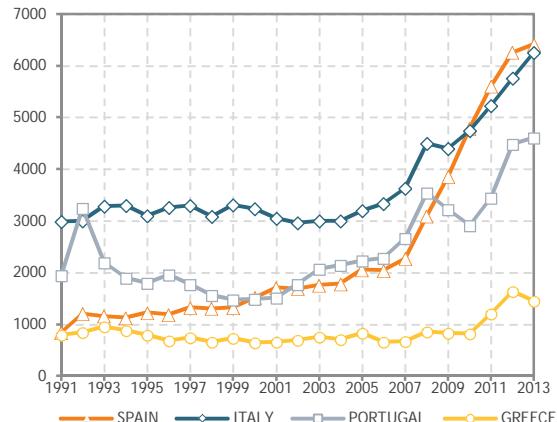
¹² EUROPOP2013.

2.3.1. Analysis of observations

The historical evolution (since 1991) of immigration from the EU15 is shown for each country in graph 8. Immigrants from the EU15 mainly originate from France (14 328 immigrants in 2013) and the Netherlands (9 568 immigrants in 2013), which represent 48% of immigration coming from the EU15 in 2013. And immigration from all four neighbouring countries (France, Germany, the Netherlands and Luxembourg) accounts for 60% of immigration from the EU15.

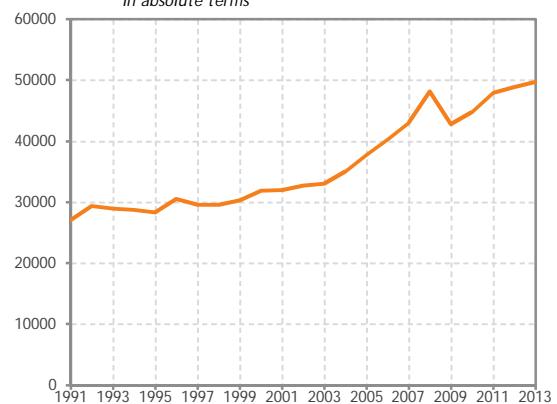


Graph 9 International immigration from Spain, Italy, Portugal and Greece
In absolute terms



Sources: NR-Statistics Belgium, FPB calculations

Graph 10 Total immigration from the EU15 (except Belgians)
In absolute terms

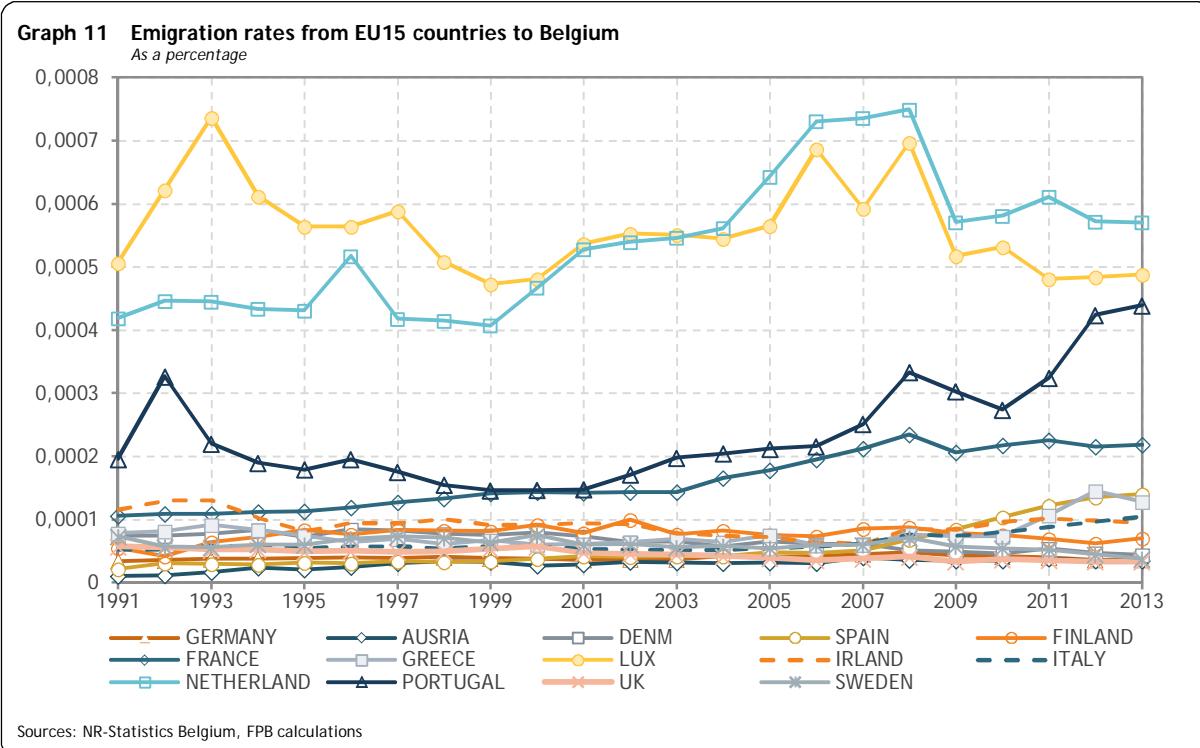


Sources: NR-Statistics Belgium, FPB calculations

The immigration rise – as a result of the economic and financial crisis – from Spain, Italy, Portugal and Greece is clearly shown in graph 9.

Albeit relatively stable during the 1990s, total immigration from the EU15 has been increasing considerably since the beginning of the 2000s¹³. However, emigration rates to Belgium are not as strong or are stable (graph 11). The Netherlands, Luxembourg, Portugal and France (neighbouring countries, except Portugal) show the highest emigration rates to Belgium.

¹³ The decrease in 2009 could be due to the economic and financial crisis (source: Annual Report on Migration and International Protection Statistics 2009, European Migration Network, 2012).



At least two elements argue for an in-depth analysis of the link between the relative economic attractiveness of Belgium and immigration from the EU15:

- the increase in immigration in Belgium as a result of the economic and financial crisis, which hit some EU15 countries more than others, in particular as regards the unemployment rate;
- the relatively significant share of first permits of residence that are in connection with paid work (see graph 1, although this concerns a distribution for all EU countries, and not only the EU15).

Nevertheless, migrants coming from the EU15 – except the four countries that were particularly hit by the crisis – do not migrate to have a better well-being, which could be more the case for the EU13 countries or the rest of the world. The attractiveness of Belgium for other EU15 countries is due to a larger extent to other factors, such as the presence of European and international institutions or the differences between tax regimes. Moreover, immigration from the EU15 mainly concerns neighbouring countries for which the housing market and the travel costs (in the broad sense) are more attractive in Belgium.

Given the observations and arguments mentioned above, a projection of immigration from EU15 countries on the basis of constant emigration rates seems more suitable than on the basis of an absolute number of immigrants per year.

However, for the EU15 countries that have been hard hit by the crisis, it seems in the short term that there is a link with the economic determinants, and in particular with the unemployment rate. But in the long term and assuming unchanged policy and societal organisation, international bodies predict a gradual exit from the crisis; emigration rates would then return to pre-crisis levels. Moreover, given the importance of population projections in the short/medium-term projections, it seems necessary to apply a specific short-term assumption for immigration from those countries, all the more so since immigration especially affects the working-age population, which is a key determinant of the labour market

situation. It should also be noted that the expected evolution of the population in the short/medium term has an impact on long-term projections.

2.3.2. Projection of immigration from the EU15

a. Countries in crisis

For countries in crisis, an econometric model has been estimated in order to measure the impact of economic determinants (employment rate, unemployment rate and GDP) on immigration from these countries. The unemployment rate (UR) seems to be the most relevant indicator to explain the immigration rise from these countries as a result of the economic and financial crisis. The dependent variable has been defined as the ratio between the number of immigrants (IMMI) and the population (POP) of the departure country, i.e. the emigration rate to Belgium. The equation is thus defined in a rather simple way:

$$\frac{IMMI_{ieu15crise}}{POP_{ieu15crise}} = \beta_1 + \beta_2 * UR_{ieu15crise} + \varepsilon_{ieu15crise}$$

By estimating this equation over the whole available period (1991-2013), we get a rather poor specification even when other available explanatory variables (GDP, employment rate) are integrated in the estimation. These results confirm what is mentioned above, i.e. that immigration from those countries in the pre-crisis period was more attributable to other factors than purely economic determinants such as employment, GDP differential or unemployment. By estimating the equation over the period 2005-2012, we have an acceptable specification¹⁴. The effect of the economic and financial crisis on the immigration of the last years seems to be well captured by the unemployment rate.

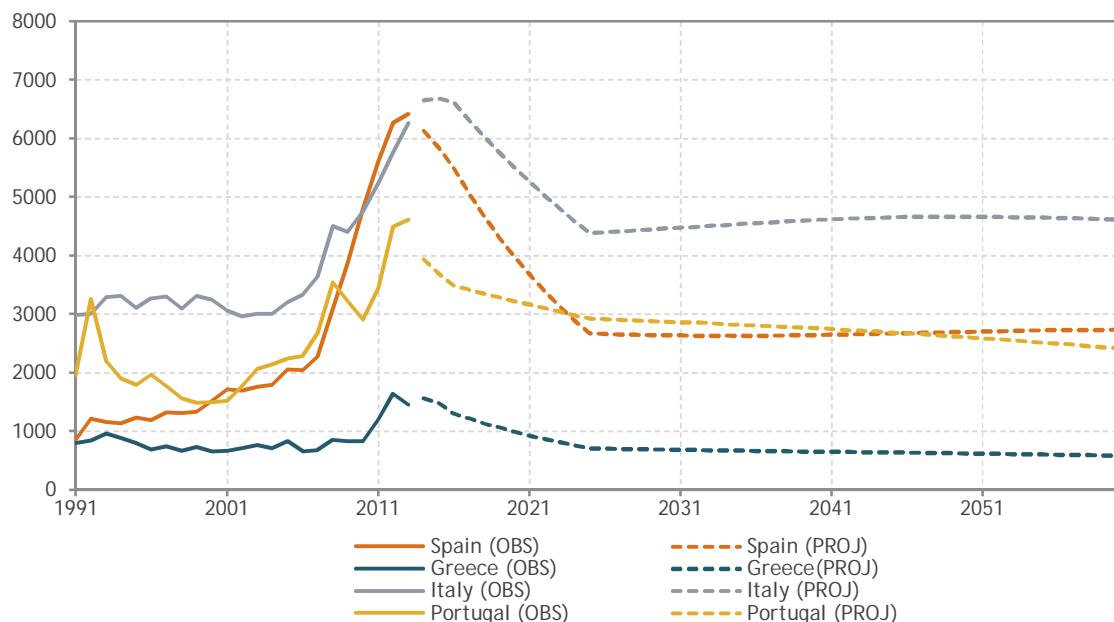
On that basis, it seems relevant to use the results of these estimations to determine the short-term evolution (until 2016) of immigration from the countries that have been particularly hit by the economic and financial crisis. In the long term (2025-2060), immigration from those countries follows the principle defined for the other EU15 countries, using a constant average emigration rate. For countries in crisis, this rate is defined on the basis of the most recent pre-crisis years. The period covering the years 2017 to 2025 has to be seen as a transition period back to a balanced economic situation of the countries in crisis. The return to balance in 2025 is based among other factors on the medium-term projections of the European Commission¹⁵ that predict an output gap closure¹⁶ as from 2019, but also on a further decrease in the unemployment rates over the period 2020-2024 for some countries currently in crisis.

The projections of immigration from Spain, Italy, Portugal and Greece are shown in graph 12.

¹⁴ The coefficient relating to the unemployment rate is significant and has the appropriate sign and the value of the Durbin-Watson test is near two (except for Italy).

¹⁵ Working papers of the European Commission that are not published.

¹⁶ The output gap is defined as the gap between the real GDP level and its potential level.

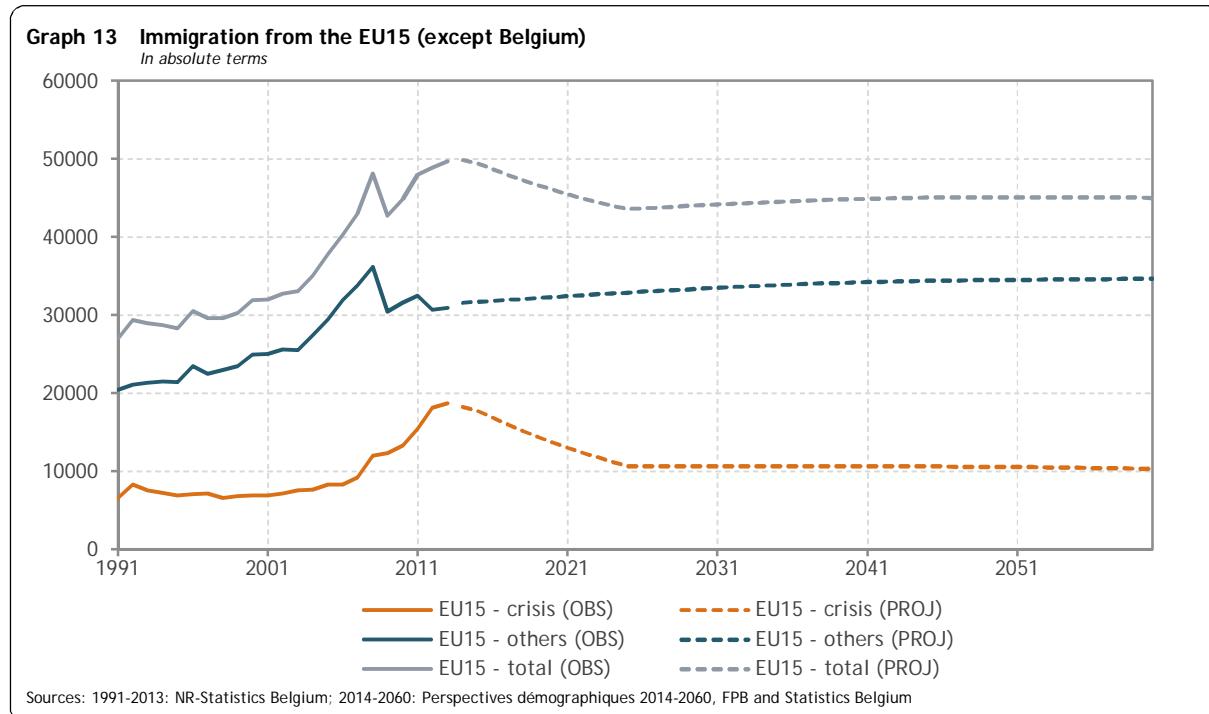
Graph 12 Immigration from Spain, Italy, Portugal and Greece

Sources: 1991-2013: NR-Statistics Belgium; 2014-2060: Perspectives démographiques 2014-2060, FPB and Statistics Belgium

b. The other EU15 countries

As concerns the other EU15 countries, it is assumed that the emigration rate is constant until 2016. The emigration rate to Belgium by country is obtained by calculating the average of the emigration rates over the last three years observed (2010-2012). The average emigration rate per country is then multiplied by the population projected in the country of origin on the basis of EUROSTAT's population projections (EUROPOP2013).

The projections of immigration from the "other countries" of the EU15 and EU15 countries in crisis are shown in graph 13. In projection, the number of immigrants from the "other countries" of the EU15 increases until 2060, but at a markedly slower pace than the increase of the last ten observed years. This is particularly due to the expected evolution of the population in these countries, which in the long term would grow slower than in the past or even decrease in some countries. Moreover, the emigration rates of some countries (France and the Netherlands) were also relatively high between 2005 and 2008.



2.4. Immigration from third countries

The hypothesis used up to now to determine the expected development in immigration from third countries (or outside the EU) was based solely on the expected evolution of GPD differential, not between Belgium and non-EU countries but between Belgium and other EU countries. This parameter alone was supposed to capture the motivation of non-EU foreigners to come and settle in Belgium rather than in other EU countries.

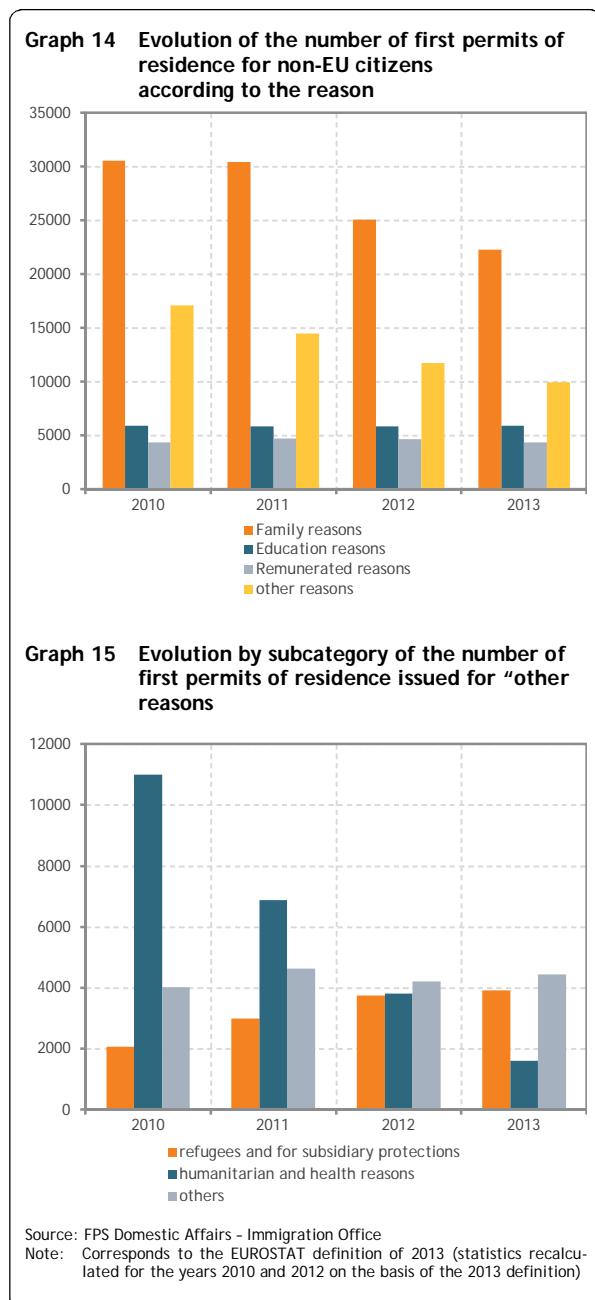
2.4.1. Analysis of observations

We certainly cannot deny that migrants from third countries partly seek higher ‘well-being’, which is to some extent expressed by the relative position of Belgium’s GDP, but this concept of well-being is much more comprehensive than relative economic attractiveness. Moreover, one can assume that the disparities in GDP are so great in some cases that a small narrowing should not influence significantly the immigration levels. Finally, several studies¹⁷ have already demonstrated that the relationship between economic development and migration flows is not linear but shows an inverted “U” curve. First, for low-income countries, increased income will lead to more emigration. Indeed, in order to migrate, migrants have to be able to pay the various travelling costs. It is only when a certain degree of wealth is achieved that an increase in income in the country of origin (or a decline in the relative economic attractiveness) will slow down emigration to more developed countries.

Family reunification, the primary legal reason for immigration for citizens from third countries, can be explained in particular by the number of immigrants on the Belgian territory and by the conditions for

¹⁷ See DE HAAS, H., 2010, “Migration transitions: a theoretical and empirical inquiry into the developmental drivers of international migration”, Working Paper 24, International Migration Institute, University of Oxford.

access to family reunification. The second category for which first residence permits are delivered (immigration reasons that are not related to family reunification, work or studies) includes the recognised refugees and the beneficiaries of subsidiary protection. Immigration for these two reasons depends on the (political, healthcare and economic) conditions in the countries of origin, and again, on the conditions for access (and procedures) to these statuses in Belgium.



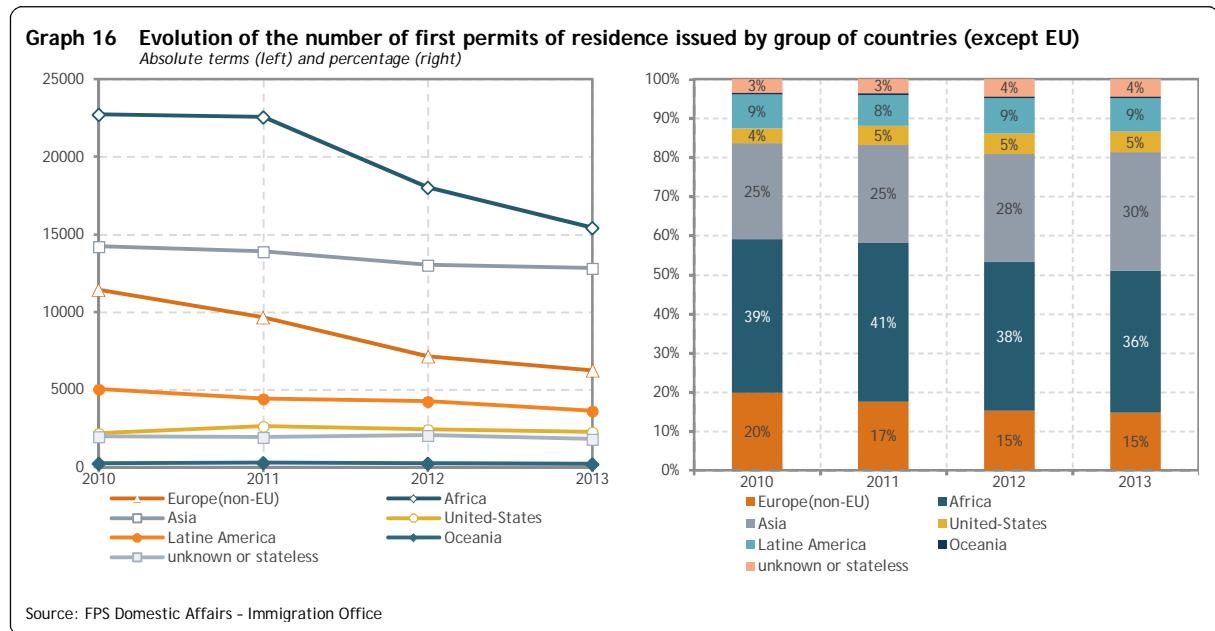
The development (2010-2013) in the number of first permits of residence issued for the non-EU citizens is presented by reason for issue in Graph 14. Since the law on family reunification was changed in 2011 (tightening the rules), the number of residence permits issued for that reason has decreased significantly. The decrease in the number of first residence permits issued for other reasons is mainly due to the regularisation campaign carried in 2010, which has had the effect of reducing the potential stock of applicants for humanitarian or medical reasons during the years following the regularisation. Graph 15 shows the evolution by subcategory of the number of first permits of residence issued for "other reasons". The regularisation campaign carried out in 2010 led that year to a significant number of first permits of residence issued for humanitarian and health reasons.

The number of first permits of residence issued for refugees and for subsidiary protection increased over the period 2010-2013. This development is due to difficult geopolitical conditions in some parts of the world (Syria, Irak, Palestine, etc.) and to improved processing times (leading thus, to some extent, to a catching up of the backlog).

The available statistics also allow analysis of the reasons why the first permits of residence are issued. Graph 16 shows the evolution of initial residence permits granted by group of countries outside the EU. African countries represent the highest proportion of the first permits of residence but nevertheless show a decrease. Immigration from Asia is also significant. Countries from Europe but outside the EU come third. For all these groups, the reasons why the permits were granted can also be distinguished (Annex A). Taking the case of people from Africa, the first permits of residence issued for family reunification represent more than 60% of the total issues. The change in the law on family reunification thus has relatively more impact on people from those countries. Nevertheless, family reunification remains the main reason why first permits of

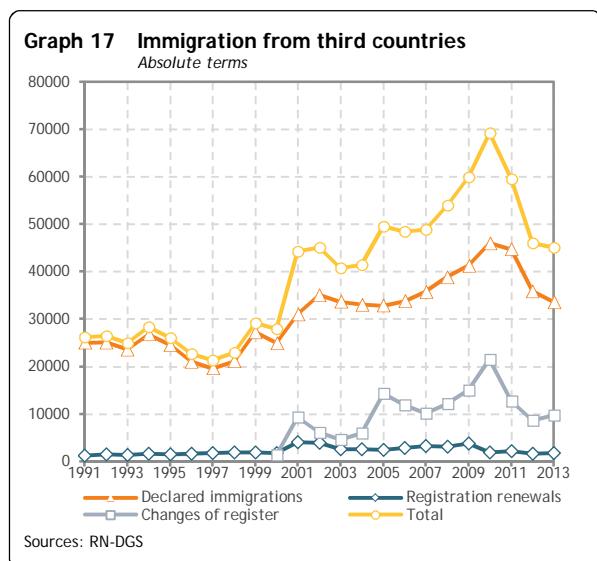
highest proportion of the first permits of residence but nevertheless show a decrease. Immigration from Asia is also significant. Countries from Europe but outside the EU come third. For all these groups, the reasons why the permits were granted can also be distinguished (Annex A). Taking the case of people from Africa, the first permits of residence issued for family reunification represent more than 60% of the total issues. The change in the law on family reunification thus has relatively more impact on people from those countries. Nevertheless, family reunification remains the main reason why first permits of

residence are issued for the groups of countries considered. Except for the United States and Oceania, the second reason for issue is “other reasons”, including refugees and beneficiaries of subsidiary protection.



The graphs above show that family reunification is the main reason why people emigrate from third countries, based on statistics on first permits of residence. The graphs also show how legislative changes (in this case, the tightening of the law on family reunification) can have an immediate impact on the evolution of immigration. Besides, some evolutions do not represent the current reality of immigration exactly. If we take the number of refugees and beneficiaries of subsidiary protection (the second most common reason for issuing first permits of residence for most countries outside EU), the increase (graph 15) is due to difficult geopolitical conditions in some countries but also to improved processing times (catching up effect), which make it possible to increase the number of decisions taken¹⁸ during the year.

¹⁸ The number of individuals who obtain refugee status.



Graph 17 shows immigration from countries outside the EU as defined by Statistics Belgium¹⁹ and used for population projections. During the '90s, immigration from third countries fluctuated up and down but remained rather stable. Since the early 2000s, this immigration has been increasing significantly, with a peak in 2010 followed by a sharp decrease. The analysis of the three immigration components, according to the official Belgian definition, reveals some interesting results:

- The *changes of register* (noticed as from the creation of the waiting register in 1995) reach high levels in 2001, 2005 and 2011. These three observations can be explained by the exceptional regularisation

campaigns carried out by the governments in office²⁰ at the time and by a peak in asylum applications at some of these periods (following the crisis in Kosovo in 1999 and 2000).

- *Declared immigration* goes upward until 2010. Nevertheless, the new regulations on family reunification have led to a decrease by 22% of declared immigration between 2010 and 2012. As already mentioned, this decrease is also due to a decline in immigration flows for health and humanitarian reasons after the 2010 campaign, which regularised a large number of people applying for this status.
- *The number of registration renewals* is relatively marginal compared to the two other categories. Nevertheless, the level depends on the definition of registration renewal (and removal), which has evolved over time. Since 2010, people who have been removed during the year and who have not been registered again during the same year are the only ones to be removed automatically from the population registers. As a consequence, only those who were automatically removed during previous years and registered again during the year concerned are included in the registration renewals, and are thus considered as immigrants. This adjusted definition leads to an artificial drop in immigration and emigration²¹ (without impacting the migration balance).

These different elements show that caution is advised when interpreting the evolution of migration flows, especially from third countries, in the light of the migratory policies, the evolution of the geopolitical context and even the definitions of migration components.

¹⁹ Declared immigration flows + renewed registration of people automatically removed from registers + change of register (from waiting register to another register).

²⁰ For more details, see the report *Migrations et populations issues de l'immigration en Belgique*, Rapport statistique et démographique 2013, Centre pour l'égalité des chances et la lutte contre le racisme (now : Interfederal Centre for Equal Opportunities).

²¹ This is all the more striking for immigration and emigration of non-Belgians (not covered in this paper).

Box 3 Interpreting statistics

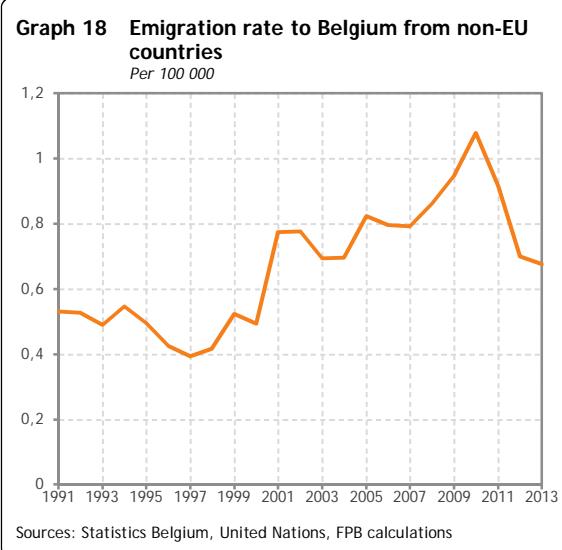
Immigration statistics as published by Statistics Belgium differ from those on the first permits of residence as published by the Immigration Office. These latter statistics:

- only include the permits that were actually issued, which is not the case in the statistics produced by Statistics Belgium (the latter include all people without checking a residence card or document was issued);
- only include the residence permits that have been valid for at least three months;
- are based on the date of issue of the residence permits, while Statistics Belgium compile them according to the date of decision;
- consider children born on the territory from mothers enjoying right of residence for family reunification as individuals entitled to right of residence by way of family reunification (since the child receives the same residence permit as his/her mother); as a consequence, these occurrences are considered as immigrations. In the statistics published by Statistics Belgium, children born on the territory from mothers enjoying right of residence for family reunification are registered as births.

2.4.2. Projection of immigration from third countries

Considering the various arguments presented in the previous section, determining the future path of immigration from third countries on the basis of a past trend and by possibly integrating economic determinants does not seem easy nor relevant.

An alternative might be to determine a long-term immigration level that would be reached progressively. This level would be defined by an average calculated over the whole available observation period. Taking into account the longest available observation period allows integration of the various "unpredictable" elements that influence in particular immigration from third countries (geopolitical context, which impacts asylum applications; migratory policies, which influence family reunifications; etc.) and that would affect this immigration in the future. When and to what extent these elements will impact the expected evolution of long-term immigration is unpredictable. Using an average based on previous observations may thus be justified.

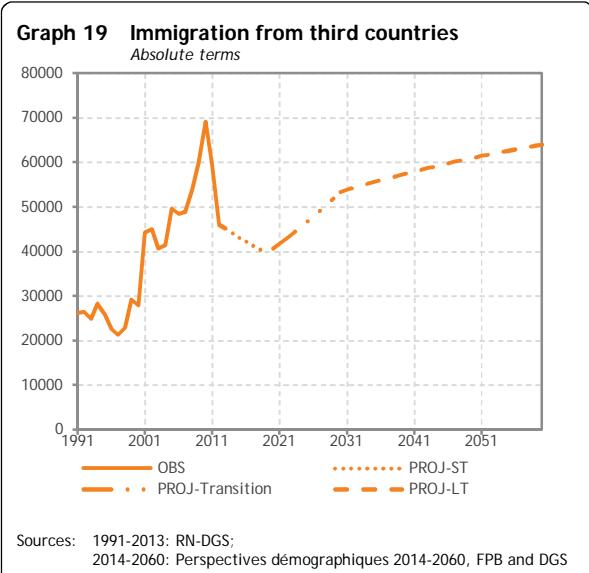


This level could be defined on the basis of an average number of migrants or average emigration rate. To be consistent with the assumptions on immigration from EU countries, the approach used is based on a long-term emigration rate to Belgium. The emigration rates recorded over the period 1991-2013 from non-EU countries are shown in Graph 18. The average emigration rate over that period is 0.7 per 100 000. Selecting the emigration rate to Belgium (although defined for all non-EU countries) allows – to some extent and implicitly – specific networks and links between Belgium and some non-EU countries to be taken into account (the level of rates is partly due to these close links).

We then assume that these specific profiles/networks are unchanged over the projection period. Finally, determining a long-term constant emigration rate to Belgium (rather than a constant number of immigrants) also makes it possible to take into account the long-term expected evolution of the population of third countries.

Therefore, the long-term immigration level from third countries corresponds to the long-term projected non-EU population (World Population Prospects 2012²²), multiplied by the long-term average emigration rate (to Belgium). This level is applied as from 2030. In the short term (2013-2019²³), the immigration evolution takes into account the recent developments, influenced in particular by the policies that are currently being implemented. However,

the additional difficulties in accessing the territory under family reunification could lead in the medium term to diversion strategies in order to be granted the right of residence on another ground, or could foster illegal immigration²⁴. The long-term level is progressively reached during the 2020-2029 transitory period. This assumption is summarised in Graph 19.



²² United Nations, Department of Economic and Social Affairs, Population Division (2013). World Population Prospects: The 2012 Revision.

²³ The short-term period for international immigration from third countries takes a whole legislative term into account, assuming that migratory policies remain unchanged during this legislative term.

²⁴ See the overview article published recently, Cris Beauchemin, 2014, Entraver les migrations : Pour qui, comment et pour quels résultats ?, Documents de Travail 211, Institut National d'Études Démographiques.

This method, which leads to a significant upward adjustment of immigration compared to the assumption used in the population projections published in recent years, allows the following elements to be taken into account in the long term:

- The growth in the world population (in third countries) up to 2060 and therefore a growth in the number of potential migrants;
- Globalisation and mobility, which foster international migration flows.

This method also yields more stable long-term projections: the annual revisions of long-term immigration should, from now on, be less dependent on short-term fluctuations in immigration (which was the case for the method used in the previous projections).

2.5. Projection of international immigration: synthesis

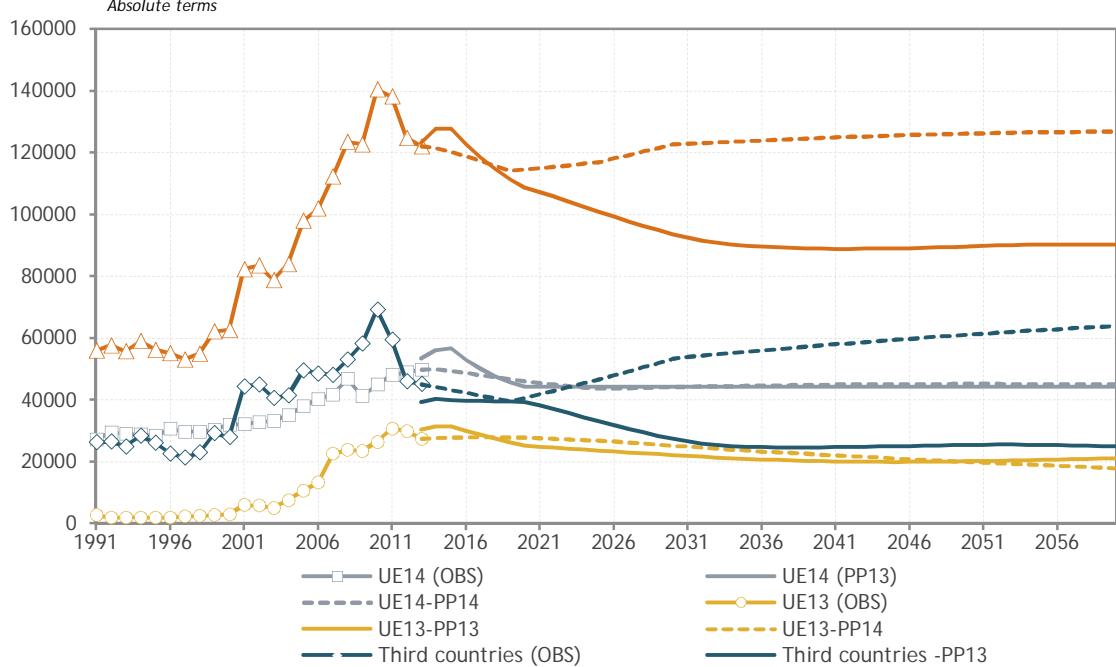
Graph 20 compares, for each group of countries (EU13, EU15 and third countries), the assumptions pertaining to the future evolution of international immigration made in the 2013-2060 population projections published in 2014 (PP13) and those made on the basis of the methodology presented in this document, which was used for the 2014-2060 population projections²⁵ (PP14). The present methodology leads to an upward adjustment of the international immigration of foreigners, in particular for immigration from third countries.

In total, while the immigration of foreigners amounted to 90 000 immigrants a year as from 2030 in the projections published in 2014, the new assumption shows a little more than 125 000 immigrants of foreign nationality per year in the long term. However, given the changes in the modelling of emigration (see Section 3), the adjustment of net migration is more limited (between 25 000 and 30 000 persons a year in the long term in the population projections 2014-2060, compared to 15 000 to 20 000 persons in the projections published in 2014).

In the short term, the downward trend of the international immigration of foreigners is attributable to the decreasing immigration from third countries (due to the current migration policies). In the long run, the world population growth (especially in third countries) – and therefore the growing number of potential migrants – as well as the backdrop of increased globalisation fostering international migration flows should generate additional migration flows.

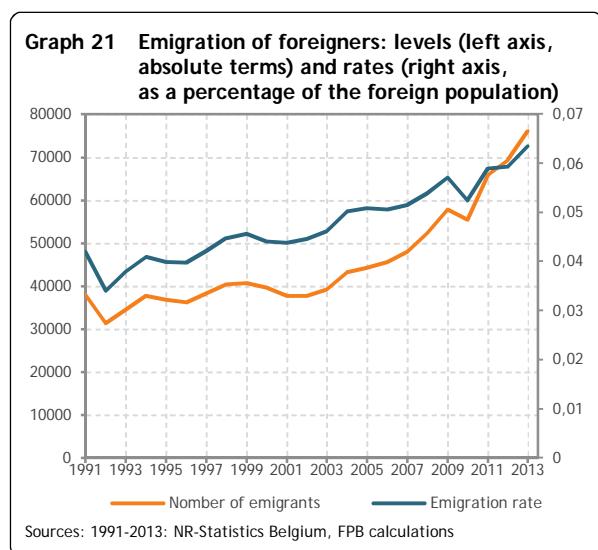
²⁵ Bureau fédéral du Plan et Direction générale Statistique, Perspectives démographiques 2014-2060, population, ménages et quotients de mortalité prospectifs, March 2015.

Graph 20 Synthesis of the assumption on the future evolution of international immigration of foreigners - comparison with the previous exercise
Absolute terms



Sources: 1991-2013: NR-Statistics Belgium, FPB calculations; 2014-2060: Perspectives démographiques 2013-2060 et 2014-2060, FPB and Statistics Belgium

3. Emigration of foreigners



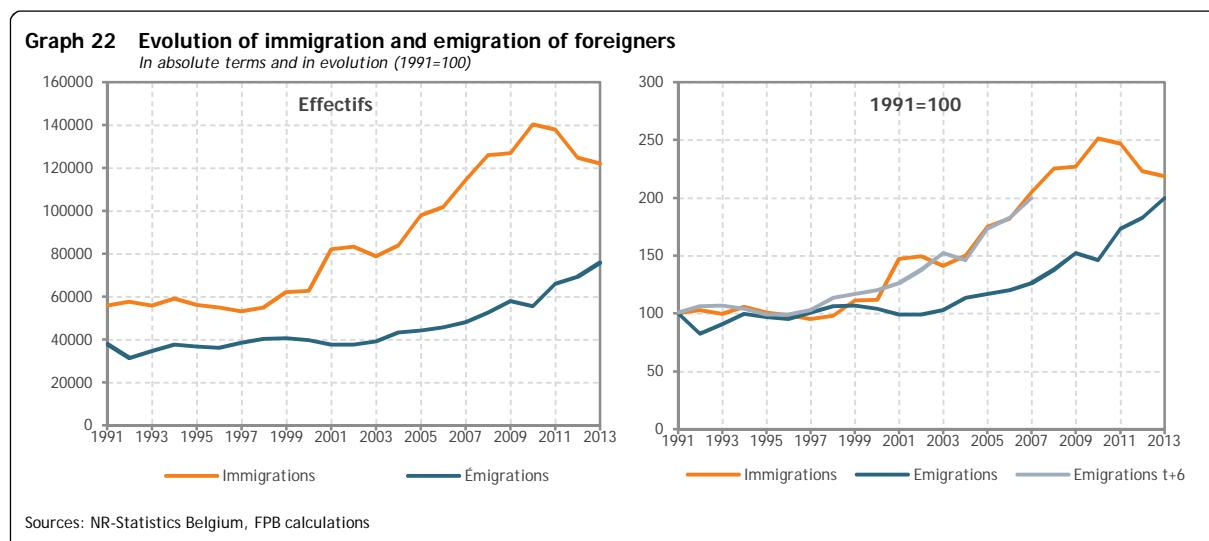
Until now, in the population projections published by the FPB and Statistics Belgium, the expected evolution of emigration was based on exit rates to other countries (by age, sex, nationality and district) estimated on the basis of the average of the last years observed. They were kept constant over the whole projection period. As regards nationality, for this assumption, the model only makes a distinction between Belgians and foreigners.

Emigration of foreigners from Belgium is shown in graph 21 for the period 1991-2013. It is going upward in both absolute terms and rates. Given the recent trends, using a constant emigration rate

tends to underestimate the expected evolution of emigration.

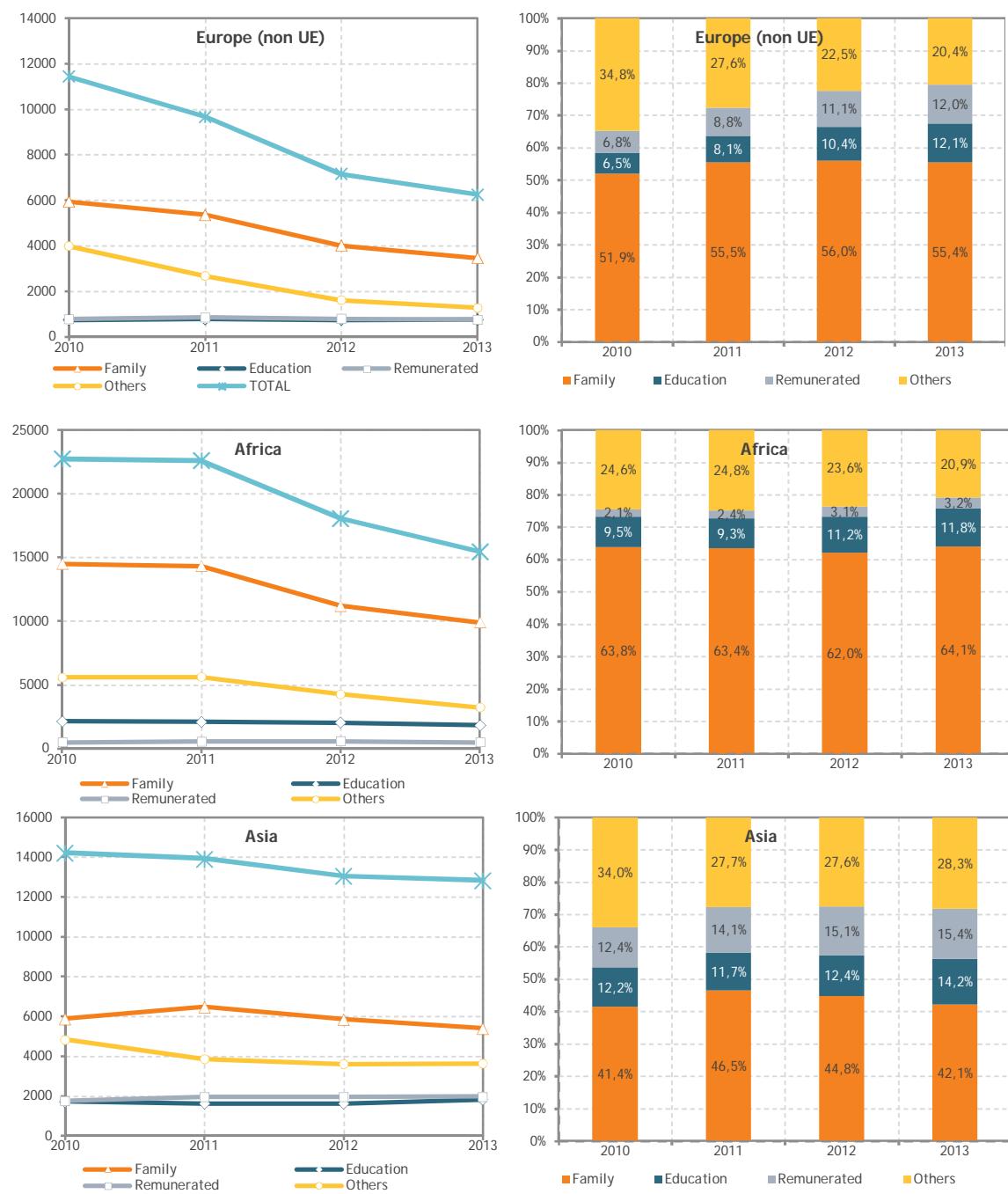
Graph 22 compares the evolutions of immigration and emigration of foreigners. Their paths are quite similar. There seems to be a 6-year lag between the evolution of immigration and that of emigration (Emigration t+6 in graph 22).

Given these observations and in the absence of in-depth studies concerning return migration flows, the assumption on the emigration rates of foreigners from the Belgian territory has been adjusted by taking into account the historical increase in emigration rates and the relationship between immigration and emigration. For the sake of consistency with the historical evolution, it seems logical to project an evolution of the emigration of foreigners that is consistent with the future evolution of immigration. More specifically, the observed emigration rates of foreigners follow, in projection, the future evolution of the immigration of foreigners, with a 6-year lag. Therefore, by integrating a link between immigration and emigration, the yearly adjustments of long-term net migration will be less dependent on the short-term net migration fluctuations.



Annex A

Graph 23 Reasons for migrating by groups of countries outside Europe (Non EU Europe, Africa, Asia)



Source: FPS Domestic affairs - Immigration Office