CBMM Project

Capacity Building of Institutions Involved
in Migration Management and Reintegration
of Returnees in the Republic of Serbia

International Organization for Migration

THE IMPACT OF DEMOGRAPHIC AND MIGRATION FLOWS ON SERBIA

IOM - OIM

COMMISARIAT FOR REFUGEES OF THE REPUBLIC OF SERBIA

EUROPEAN UNION

The project is funded by the European Union through the Delegation of the European Union to the Republic of Serbia

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Abbreviations

GDP – Gross Domestic Product
CIA – Central Intelligence Agency
EFTA – European Free Trade Association
EU – European Union
GRS – The Government of the Republic of Serbia
GUS – Główny Urząd Statystyczny (*Central Statistical Office of Poland*)
IDP – Internally Displaced Persons
CCSKM – Coordination Centre of Serbia for Kosovo and Metohija
CRS – Commissariat for Refugees of the Republic of Serbia
LMDR – Labour Market Dependency Ratio
ODR – Old-age Dependency Ratio
IOM – International Organization for Migration
NATO – North Atlantic Treaty Organization
NSE – National Service for Employment
NUTS – Nomenclature des unités territoriales statistiques
SORS – Statistical Office of the Republic of Serbia
TFR – Total Fertility Rate
UNHCR – United Nations High Commissioner for Refugees

1. Introduction

Like almost all the European countries, Serbia is experiencing population ageing as a result of low fertility and increasing life expectancy. At the same time, economic activity rates there are lower than in many other countries. Negative natural change and emigration mean that Serbia's overall population is declining. Will these processes continue into the future? How might fertility, mortality and economic activity develop and what impact will this have on population and labour force size and structures? What effect might Serbia's potential membership of the European Union have? What, in particular, are the potential migration scenarios and their possible consequences? Which policies might be the most effective in counter-balancing population ageing and the potential labour deficit?

To answer these questions, demographic experts from the Central European Forum for Migration and Population Research, IOM Warsaw and the Institute of Social Sciences in Belgrade conducted an impact study in order to provide a better understanding of the consequences of demographic and migratory trends for Serbia in the medium term, which is to say, thirty years. This publication gives an account of both the research conducted within that study and its results. In Chapter 2, the research methods adopted are described and the basic indicators defined. Chapter 3 contains an overview of past demographic, migratory and economic activity trends and a description of the assumptions for the future adopted in the forecasts. The forecast results, including a discussion of the impact of migration, are presented in Chapter 4. Chapter 5 considers various policy developments, while the Annex discusses selected issues in respect of data.

2. Overview of the research method and indicators

The question of the future development of an economy or population is an essential one for any institution formulating economic and demographic policies. Obviously, we do not know what the future will bring and must therefore resort to various forecasting techniques, either expert-based and heuristic or model-based, statistical and mathematical. The latter is indispensable in demographic forecasting, given the usual requirement for predictions not only of a population's overall size, but also of its various characteristics, such as location, which is to say, population by region, as well as age, sex, education, economic activity and so forth. The models used in population dynamics modelling consider components of change, namely, variables measuring the intensity of migration, fertility or mortality, as well as economic activity rates in estimations of the labour force supply, and calculate the population and its structure for consecutive points in time.

For the purpose of this study, we have prepared a forecast of the population and labour force in Serbia in disaggregation by sex and five-year age groups. The forecast was prepared in two variants; the *Optimistic* and the *Pessimistic*. The variants for both forecasts share the same fertility, mortality and labour force participation assumptions, but differ in international migration assumptions. Thus, while different alternatives for fertility levels, namely low, medium and high, were investigated in the official 2002–2052 projections published by the Statistical Office of the Republic of Serbia (SORS) in 2011 (Sekulić, 2011), here we are looking at the possible impact of various developments in international migration.

One very useful feature of population dynamics models is that we can assume varied and not necessarily realistic future values for components of change. We do this either to test the consequences of various policy developments or to assess the sensitivity of the population system to the evolution of selected components of change. For this study, we ran two simulations, which were then used for analytical purposes; a *No Migration* simulation and a *Status Quo* simulation with all the parameters fixed at the level observed at the start of the

projection. In addition, in order to investigate which policy might be the most effective in counter-balancing population ageing we prepared four other 'what-if' simulations, which we will also subsequently be referring to as policy scenarios. In these policy scenarios, we tested the potential impact of three types of policies; those aiming at increasing fertility increase, pro-immigration policies and policies intended to increase economic activity. All the forecasts and simulations prepared within the current study are listed in Table 1.

Table 1 List of forecasts, simulations and their assumptions

Forecast/simulation	Component			
	Fertility	Mortality	Migration	Economic activity
Reference scenarios				
Status Quo	status quo	status quo	status quo	status quo
No Migration	foreseen	foreseen	none	foreseen
Forecasts				
Optimistic	foreseen	foreseen	optimistic	foreseen
Pessimistic	foreseen	foreseen	pessimistic	foreseen
Policy simulations				
High Fertility	increased	foreseen	optimistic	foreseen
Increased Net Migration	foreseen	foreseen	increased	foreseen
High Economic Activity	foreseen	foreseen	optimistic	increased
Combined Policies (high fertility, increased net migration and high economic activity)	increased	foreseen	increased	increased

Source: Authors' elaboration

There were five main steps to our research. The first was the collection of time series of demographic and migration data, including the necessary estimations. As SORS has no data on international migration to and from Serbia, it was essential to estimate this on the basis

of data from the destination countries. In the second step, the trends observed for fertility, mortality, migration and economic activity were investigated. Taking into account both the current trends in Serbia and other European countries and the evidence presented in the subject literature, the assumptions as to possible future developments were prepared in the third step. Two variants of international migration scenarios were compiled, the *Optimistic,* related to the accession of Serbia to the European Union and the *Pessimistic*, in which we speculate on what may happen if Serbia does not join the EU. The subsequent steps involved the preparation of the population and labour force simulations assuming various hypothetical future developments as regards fertility, migration and/or economic activity. Finally, the results of all the forecasts and simulations were analyzed and interpreted.

The forecasts and simulations were prepared using a modification of the cohort-component MULTIPOLES population dynamics model. In these types of model, the size of the cohorts, which is to say, groups of people born during the same period, evolve owing to three components of population change; births, deaths and migration. MULTIPOLES (Kupiszewska and. Kupiszewski, 2010a, 2013) has previously been used in a number of European projects, the most recent being *DEMIFER – Demographic and Migratory Flows Affecting European Regions and Cities*, a study which covered thirty-one European countries at the regional level (Kupiszewska, Kupiszewski, 2010a). A detailed specification of the model, including the formulae used, can be found in Kupiszewska and Kupiszewski (2010a, 2013).

Ideally, we would have liked to conduct this investigation at the regional level, as per the recently adopted NUTS2 regions[1]. However, this was not possible owing to the lack of data at this level. Moreover, the data for Serbia since 1998 does not include Kosovo/UNSCR 1244[2].

1 NUTS stands for the Nomenclature des unités territoriales statistiques. In mid-2010, a division of Serbia into two NUTS 1 regions was adopted. The divisions were RS1 Serbia – North, consisting of two NUTS2 regions, namely, RS11 – Belgrade and RS12 – Vojvodina, and RS2 Serbia – South, consisting of three NUTS 2 regions, namely RS21 Šumadija and Western Serbia, RS22 Southern and Eastern Serbia and RS23 Kosovo and Metohija

2 In line with UN recommendations, we have used the name Kosovo/UNSCR 1244. However, when we quote from, or refer to, third-party sources, we have used the name as it appears in the source document. We use the appellation Kosovo when referring to the situation prior to the adoption of UNSC Resolution 1244 in 1999 Throughout the report, neither the terms and designations

In consequence, the study was conducted at the national level for Serbia, excluding Kosovo and thus covering Central Serbia and Vojvodina, considered together[3]. Therefore, when we discuss Serbia in this report, which we will do with considerable frequency, what we have in mind is Serbia excluding Kosovo/UNSCR 1244 unless another meaning is clear from the context.

The starting point for the forecast and simulations was set as 1 January 2011. The population of Serbia on that day was estimated using the latest available SORS data on population by sex and five-year age group, adjusted downwards to reflect the results of the 2011 Census of Population, Households and Dwellings in the Republic of Serbia covering the total population thereof[4].

Indicators

Demography has developed a set of indicators characterising the various components of population change. Assessment of population and labour force evolution may be carried out by means of an examination of the total number of people and of the economically active, respectively. Similarly, there exists a synthetic, one-number measure of fertility, known as the Total Fertility Rate (TFR). This denotes the average number of children born per woman. It is based on the assumption that the fertility intensity (age-specific rates) observed in a given period will not change during the women's procreative life. There is also a one-number measure of mortality, namely, life expectancy at birth (e_0). This is the average expected lifetime, usually reported separately for men and women and calculated on the basis of the assumption that the observed age-specific mortality rates will not change. The overall effect of population change through births and deaths is reported as natural

used nor the presentation of material imply the expression of any opinion whatsoever on the part of IOM in respect of the legal status of the territories, their authorities or their frontiers or boundaries.

3 Populations and labour force projections for Central Serbia and Vojvodina were published by the Statistical Office of the Republic of Serbia in 2005 and 2011.

4 When this study was being carried out, only the first results of the 2011 Census were available, with no data on the population of Serbia broken down by age and sex. The details of our estimations of the population of Serbia on 01.01.2011 by sex and five-year age group are given in the Annex.

change, in other words, the difference between births and deaths. The effect of migration gains and losses is measured using net migration, which is the difference between immigration and emigration.

An assessment of structural changes is equally as important, if not more so. For this assessment, we have used a set of dependency ratios, which relate certain categories of population and/or labour force. The first is the *old-age dependency ratio* (ODR), defined as the ratio of population aged 65+ to population in the 15–64 age group, multiplied by 100. This indicator gives us the number of individuals in the retirement age group per 100 persons in the economic activity age range. It does not, however, take into account the population's economic activity, being a strictly demographic measure. An increase in the ODR indicates that more people in the retirement age group will have to be supported by the same number of people in the economic activity age range.

Apart from the structural changes of a demographic nature, we also investigated an indicator characterising the relations between the labour force and population. The *labour market dependency ratio* (LMDR) has been defined as the ratio of the entire economically inactive population to the entire active population, showing the overall economic burden of the inactive population on the labour market. Importantly, the LMDR value depends on both the population's age structure and the pattern of its economic activity, measuring the burden of the economically inactive on the economically active. In respect of the future sustainability of pension schemes, this is a key indicator.

We used the indicators based on age structure, as defined above, for the analysis of the forecast and simulation results. The detailed scenarios required in order to generate the results include the specification of age-specific rates, in particular, age-specific fertility rates, which are defined as the number of live births for women at a given age, during a calendar year, per 1000 women of that age. Similarly, age-specific mortality rates, calculated separately for men and women, are defined as the number of deaths of people at a given age and of a given sex, per 1000 people of that age and sex.

3. Past demographic, migratory and economic activity trends and scenarios for the future

Europe has witnessed a slow population increase of 0.5% per year since 2000. This has mostly been fuelled by international migration, which is an increasingly important component of population change. Low fertility, accompanied by decreasing mortality, has resulted in the ageing the population. Both fertility and mortality converge in the European countries.

Unlike Europe as a whole, Serbia has been losing population in the last decade, mainly through natural change, which ranged between –31.9 thousand and –34.7 thousand per year for the 2006–2010 period (Table 2). According to official statistics, net migration, including correction, has been positive, at around 4.3 thousand per year from 2008 to2010, but emigration was highly underestimated. The figures cover migration from/to Kosovo/UNSCR 1244, considered as internal migration; however, as mentioned earlier, there are no official statistics covering international migration. Our estimates based on the statistics of the partner countries indicate that, in reality, net migration has been negative, at around –15 thousand annually from 2008 to 2010 (see Section 3.3).

Fertility levels are among the lowest in Europe, despite a relatively high mortality, which has led to fast population ageing.

Table 2 Population and population change components in Serbia, 2005–2011

	Population on 1 January	Live births	Deaths	Natural change	Net migration plus statistical adjustment	Total population change
1995	7 625 488	86 236	93 933	–7 697		
2000	7 528 374	73 764	104 042	–30 278		
2005	7 456 050	72 180	106 771	–34 591	4 028	–30 563
2006	7 425 487	70 997	102 884	–31 887	4 051	–27 836
2007	7 397 651	68 102	102 805	–34 703	2 559	–32 144
2008	7 365 507	69 083	102 711	–33 628	3 058	–30 570
2009	7 334 937	70 299	104 000	–33 701	5 441	–28 260
2010	7 306 677	68 304	103 211	-34 907	4 425	–30 482
2011	7 276 195	65 598	102 935	-37 337		

Source: Eurostat database, 2012; SORS, 2011a.

An overview of the development of components of change and labour force participation is presented below. It covers the post-war period, but emphasises the last decade. Premises of future changes for these components are discussed and, finally, assumptions are made in respect of those changes.

3.1 Fertility

Trends observed

Some general determinants of fertility decline, such as the adoption of new norms and values, growing levels of female labour force participation and birth control, are as valid in Serbia as they are elsewhere. However, in the past, the decline of fertility in Serbia was faster and ran deeper than in other European countries. This may be attributed to the processes inherently linked with what is termed 'socialist development'. The most important demographic consequences of this included the model of accelerated modernization typical of that form of development, abrupt migration from rural to urban areas and the associated difficulties in finding housing in urban areas, high, full-time

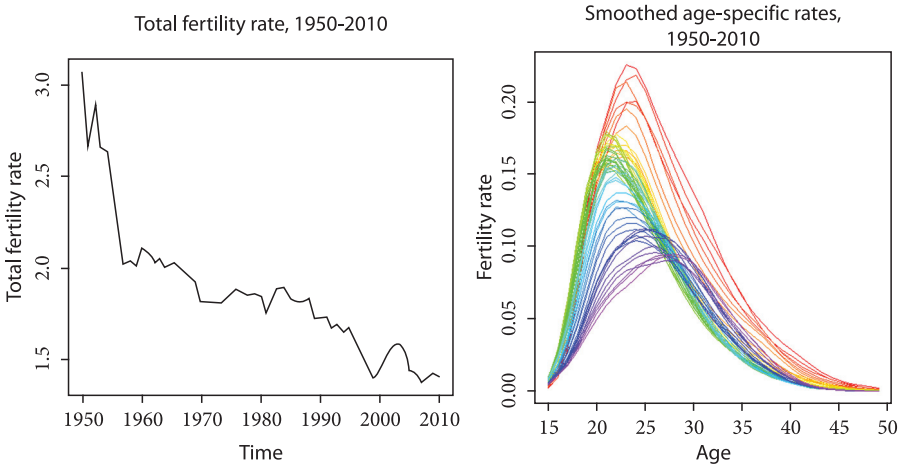
female labour force participation throughout the reproduction period, inadequate support in combining family and employment responsibilities and rapid secularization.

The general pattern of fertility changes in Serbia over the last sixty years was quite similar to the patterns observed in most European countries; a post-war baby boom was followed by a decrease in fertility, first to the replacement level and then to the sub-replacement. The main difference between Serbia and other countries was that the baby boom was much shorter than elsewhere in Europe and was succeeded by a steep decline in the TFR level, which occurred some ten to fifteen years earlier than in most other European countries. The period from the mid-1960s to the mid-1990s was characterised by TFR fluctuations around a moderately decreasing trend (Figure 1), quite similar to the decline evinced in the countries of East and South Europe.

The 1990s was an unsettled period in Serbia, witnessing the break-up of the former Yugoslavia, armed conflicts, international economic sanctions, a deep economic crisis, an institutional crisis and NATO military intervention. Living either in deprivation or at the subsistence level was the main characteristic of the economic cost sustained by the majority of the population. At the individual, psychological level, maladaptation to the changed system of values and norms, a lower level of personal attainment, a sense of insecurity and permanent stress were the main features of life. These dramatic changes obviously affected decisions as to whether or not to have children (Rašević, 2004).

The right-hand panel of Figure 1 demonstrates the transition in fertility patterns which has occurred over the last sixty years. In the 1950s, Serbia experienced very high rates at all ages during the short baby-boom period referred to above. A rapid decline in fertility ensued in all age groups during the late 1950s and early 1960s. The next two decades saw an increase of fertility in the higher age groups, which to some extent compensated for the decrease in the younger age groups. The 1990s witnessed a further drop in the TFR, mostly owing to a reduction in fertility in the younger age groups, with a small increase in higher ones. In the last decade, the decrease in the TFR has stopped, but the transition to a lower fertility in the young age groups and a higher in the older ones has continued. Between 1991 and 2010, the share of births in women under thirty declined from 81% to 62.7%. At the same time, an increase was recorded in the average age of childbearing, from 25.9 in 1991 to 28.4 in 2010.

Figure 1 Fertility rates in Serbia, 1950–2010



Note: The curves of the smoothed age-specific rates are ordered chronologically in accordance with the colours of the rainbow; the oldest are shown in red and the most recent, in violet.

Source: Nikitović 2012a.

An international comparison of the TFR over the last few years shows that, at a TFR of 1.4 in 2010, Serbia has a fertility which is lower than the EU–27 average of 1.6 in 2009, but above the lowest low observed in Europe, namely, 1.18 in Latvia and 1.26 in Hungary in 2010 (Eurostat database, 2012). More significant, perhaps, is the fact that, in the last decade, a small increase in the TFR of the EU–27 has been observed, which has occurred owing to the realisation of the deferred demand for children (Goldstein, Sobotka and Jasilioniene 2009); Serbian fertility, however, has continued to decline. It should be also noted that fertility in the European countries has been converging and that, in the long-term perspective, this process has been fairly universal. Djurdjev (2006) noted that Serbia experienced a fertility pattern which is typical for European countries with a much higher level of general development.

Assumptions regarding future fertility

The assumptions regarding future fertility concern both the target TFR at the end of forecast period and the evolution of the age-specific fertility rates. In the long-term perspective (Figure 1), the TRF has been falling, with what is sometimes a quite considerable oscillation

around the trend. There is little evidence to suggest that there will be a significant increase in fertility. Despite recent moderate increases in many European countries, neither the European trends nor the expected economic situation in Serbia and Europe or the existing local fertility factors allow a hypothesis of fertility increase to be put forward.

There are, perhaps, more grounds for considering whether Serbia is falling into the "low fertility trap" hypothesised by Lutz, Skirbekk and Testa (2006). This hypothesis states that, in populations which experience a lengthy period of low fertility, defined by McDonald (2005) as being a TFR of below 1.5, there will be three mutually interleaved factors which will result in fertility remaining at a low level. They are demographic momentum, the negative impact on the economy of ever smaller cohorts and the proliferation of fertility patterns into subsequent generations.

In Serbia, the effect of the demographic momentum, enhanced by persistent, negative net migration, most likely constitutes a factor limiting population growth. It is quite probable that the economic cycle has a more significant impact on population development than the cohort size does. The economic decline in the country at the end of the last century, the consequences of which are still visible, as well as the rather dire perspectives for the European and, therefore, for the Serbian economy will, no doubt, enhance the economic cohort effect in Serbia.

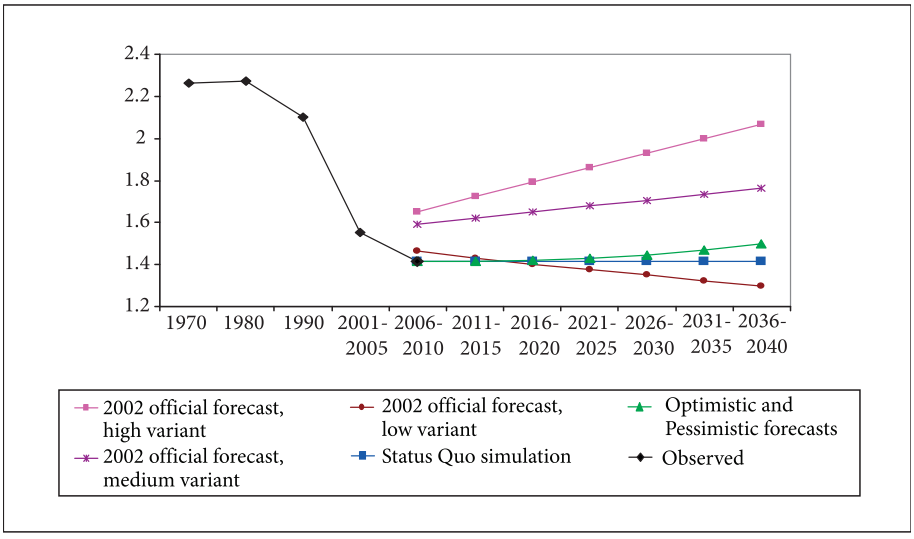
There are, however, arguments against the hypothesis that Serbia is falling into the low fertility trap. The sociological research summarised by Nikitović (2012a) clearly shows both a wide acceptance of marriage by women in Serbia and their emphasis of family life and children as the most important aspiration in life and an aim in itself (86% of women), while materialistic and post-materialistic values, professional and personal attainment and living by religious rules were much less frequently considered as important (Rašević, 1995). The most recent research findings confirmed that changes in marital behaviour and family organization in Serbia are slow (Petrović, 2011). Bobić and Vukelić, (2011) noted that the vast majority of the population belongs to the group whose value system represents a mixture of traditionalism and some modern traits. Thus the transmission of the low fertility pattern may not occur or may be limited if economic conditions improve and a sense of safety and security prevails. It should also be noted that Serbia has not been experiencing a TFR of below 1.5 for very long, given that it emerged in the period between 2005 and

2010[5]; therefore the mechanisms of the low fertility trap may not yet have started to function.

Finally, we took into account the postponement effect, which has been perceptible in Serbian women for at least the last decade. There is no doubt that postponement results in the loss of a fraction of the births which would otherwise have taken place. It initially decreases the TFR, but allows for a partial recuperation when the postponed births take place. It is reasonable to assume that the recuperation of postponed births may begin in the coming decade and that the shift of maximum birth intensity towards older ages will continue.

Weighing up these arguments, we thus assumed that the TFR in Serbia will not drop to the lowest low level observed in Europe, but will follow the current, favourable European trend, with a modest increase at a rate of 0.2% per annum, reaching a TFR equal to 1.5 in the years 2036 to 2040 (Figure 2).

Figure 2 Total fertility rate (TFR), as observed and forecasted



Source: SORS and authors' calculations.

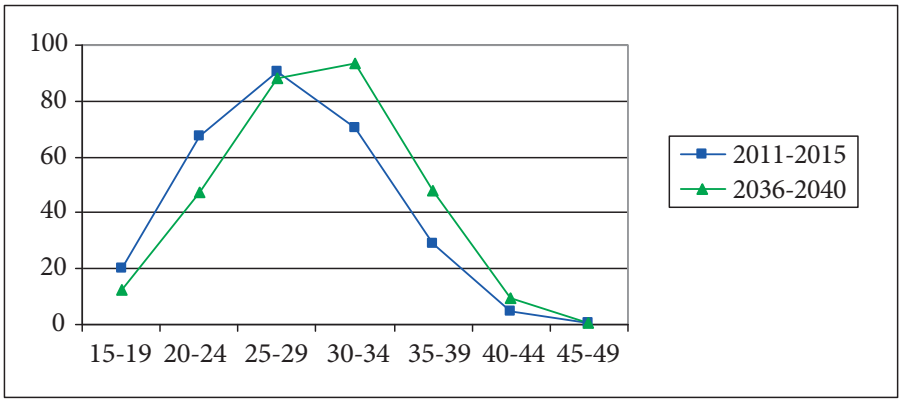
5 According to SORS and the Demographic Research Centre, there was a short-term fall in the TFR to below the 1.5 threshold in 1999 and 2000, but this was a short-run reaction to the war and the unfavourable economic and social situation which occurred after the NATO intervention and the ensuing crisis in 1999-2000.

In order to forecast the future age profiles for fertility, we looked at the developments in both Serbia and other European countries. In the EU–27, the average age of a mother at childbearing increased from 29.25 to 29.83 over the period 2003 to 2010. In Serbia, the increase over the same period was slightly more rapid, from 27.12 to 28.4, but the mean age of childbearing was still below the average EU level. The result of postponement in terms of the age-specific fertility rates is a decline in fertility rates in the young age groups, especially among 20–24-year-olds, and an increase in the middle groups, aged 30 to 39. To model this change, we assumed that the age distribution observed in the EU–27 in 2009, with a peak for the 30–34-year-old group, rescaled to meet the constraint of a TFR equalling 1.5, may be a reasonable target for Serbia in the period from 2036 to 2040 (see Figure 3).

It is always useful both to compare one's own forecast assumptions with those produced by other forecasters and to see how good their forecasts were. The primary source of population forecasts for Serbia is the Statistical Office of the Serbian Republic. An analysis of the errors in the assumptions of past official forecasts shows that the majority of those analyzed overestimated fertility (Nikitović, 2004). The TFR assumed in this study is somewhat higher than the low variant of the most recent official forecast, but much lower than the medium variant and is very close to the low variant for the 2011-2025 period (Figure 2). Given Nikitović's (2004) observation that "low and constant variants of official projections are closer to the actual value of fertility rather than the medium and high" (Nikitović, 2004: 118), which was confirmed in his study of 2010 (Nikitović, 2010), selecting target values close to the ones specified in the low SORS forecast might well be the way to obtain the most realistic forecast.

In his forecast of Balkan state populations, Lanzieri (2010) assumed a target TFR of 1.56 for Serbia in 2060. We estimated that his 2040 value was slightly lower than ours, but similar. The TFR of 2.16 assumed by Attané and Courbage (2001) for Serbia and Montenegro in 2025 seems to be somewhat out of touch with reality.

Figure 3 Age-specific fertility rates per 1000, as forecasted for 2011–2015 and 2036–2040



Source: Authors' calculations.

3.2 Mortality

Trends observed

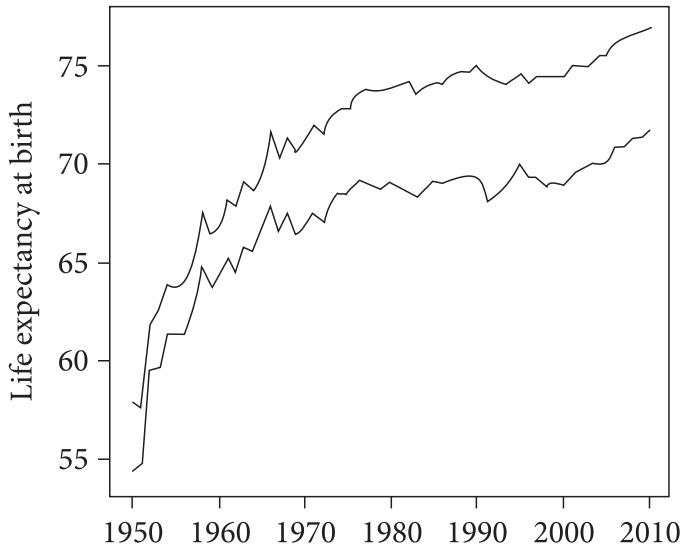
As of 1950, the Serbian population experienced a marked increase in life expectancy, which has continued to this day. According to the abridged life tables, life expectancy at birth (e_0) in 2010 was 76.6 years for females and 71.4 for males, which represents a marked improvement on the 57.9 and 54.4 years, respectively, which applied in 1950 (Figure 4). The strongest increase was observed during the first decade of the period from 1950 to 2010. The 1970s were characterized by small improvements in the e_0, followed by stagnation of the indicator during the 1980s. The next decade witnessed a decrease in life expectancy, particularly in males, which was caused by wars and the collapse of the socio-economic system. Mortality for males aged 45 to 60 has bounced back to the levels experienced in the 1960s, with the negative tendencies being reversed in the last decade (Figure 4).

During the sixteen-year period from 1950 to 1966, the e_0 increased by 13.7 years for females and 13.5 years for males. Over the next thirty-four years, between 1967 and 2000, the increase was only 2.8 years for females and 1.0 years for males. The mortality developments observed in the 1990s may be explained by the highly unfavourable economic situation at that time, which was brought about by an

abrupt decrease in the gross domestic product (GDP), the massive impoverishment of the majority of the population and, during a number of those years, the collapse of the public health system. The situation was also considerably aggravated by environmental issues, with a frequent incidence of pollution which occasionally assumed the proportions of an ecological disaster. All of these factors inevitably led to the deterioration of the population's state of health.

As compared to the European average and, in particular, to the EU level, Serbia is lagging behind as regards life expectancy at birth for both sexes. In 2008[6], the difference between Serbian and average EU–27 life expectancies amounted to 6.2 years for females and 5.4 for males. However, the differences are considerably greater if one makes a comparison with the countries which have achieved the best results in decreasing mortality. Hence, in 2008, for example, the life expectancy

Figure 4 Life expectancy at birth in Serbia, 1950–2010



Note: The solid and dashed lines represent female and male e_0, respectively

Source: Nikitović 2012a.

6 According to the EUROSTAT database.

at birth for males was over 79 years in Italy, Sweden, Switzerland and Iceland, while for females, it even exceeded 84 years in Spain, France and Italy. Nevertheless, the life expectancy for Serbian males is higher than for Belarus, Moldova, Russia, Ukraine, Bulgaria, Estonia, Latvia, Lithuania, Hungary, and Romania and close to that observed in Slovakia and Poland. As for the life expectancy for females, there are only a few countries, namely, Russia, Ukraine, Belarus, and Moldova, which trail behind Serbia (UN, 2011). Thus, in terms of life expectancy at birth, Serbia is much closer to the ex-communist countries than it is to others in Europe.

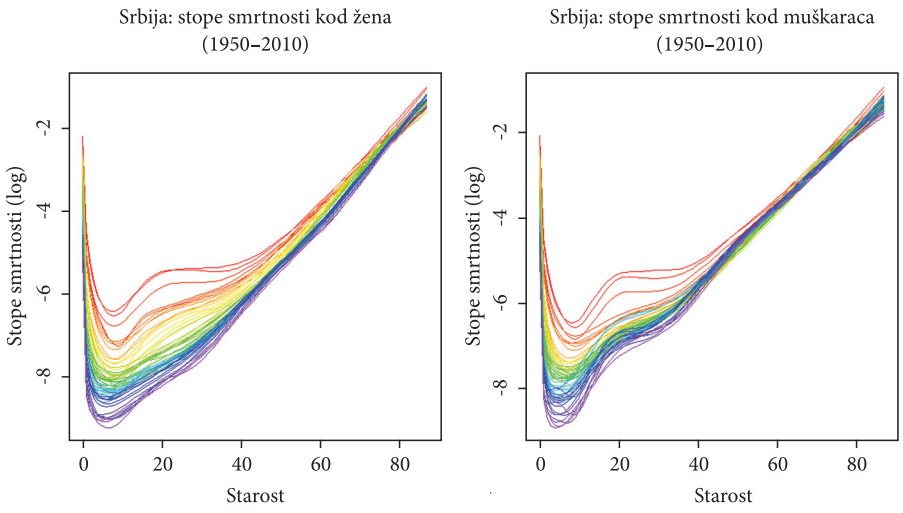
Serbia differs from most European countries not only in the level of mortality, but also in the dynamics of mortality changes. During the 1990s, when life expectancy stagnated in Serbia, it increased by around 3 years for both the male and female populations of Europe taken as a whole.

Even if the mortality trends of the 1990s worsen the position of Serbia in the European context, the periods of distinctly unfavourable trends were relatively short and considerably less intensive than in the many other transition countries, especially the former Soviet republics, such as, for instance, Russia, Ukraine, Belarus, and Moldova. Indeed, these unfavourable trends might seem unexpectedly moderate, especially if the proportions and duration of the general social crisis in Serbia during the 1990s are considered. This crisis emerged relatively gradually, since the former Socialist Federal Republic of Yugoslavia (SFRY) was characterized by socialist self-management, which featured many elements of a market-based system. As a result, the transition shock was considerably less for the majority of the citizens there than it was in other ex-communist countries (Penev, 2003).

To understand the changes in mortality in Serbia better, it is important to look at the age-specific mortality rates. The improvements in life expectancy at birth since 1950, especially during the initial decades, mainly came about as a result of the development of the public health care system, particularly as regards primary health protection, which mostly affected infants and the very young. Consequently, the life expectancy increase was achieved primarily on account of mortality decrease in the young age groups, the under-forties, with approximately two-thirds of the increase representing a drop in the mortality for infants and the under-fives (Penev, 2003). A more detailed analysis

of age-sex specific death rates (Figure 5) points to a relatively high, yet steadily declining infant mortality, a low mortality for children and the under-twenties and a steadily declining mortality for younger adults. As far as infant mortality is concerned, despite the outstanding results achieved in the post-war period, with 6.7 deaths per 1000 live births in 2010, Serbia is still lagging behind many European countries, where infant mortality has been reduced to a very low level, at less than 5 per 1000 live births (UN, 2011).

Figure 5 Smoothed age-specific mortality rates f or the Serbian population, 1950–2010



Note: The curves of the smoothed age-specific rates are ordered chronologically in accordance with the colours of the rainbow; the oldest are shown in red and the most recent, in violet.

Source: Nikitović 2012a.

Reducing the mortality of middle-aged and older people requires significant lifestyle changes, which appears to have been a much more difficult challenge for the Serbian population. In comparison to the affluent countries of Europe, Serbia noted very small improvements in the reduction of the mortality rates for the over-forties and, especially, for the over-sixties (Radivojević, 2002; Penev, 2003). This is the main reason why, after the rapid increase in life expectancy obtained during the 1950s and 1960s, Serbia failed to achieve more significant gains in

the level of e_0, unlike other European countries, where the decrease in the mortality of the old population was very significant (Radivojević, 2002). Yet, over the last decade, the trend towards decreasing mortality at younger ages has been restored in Serbia and some improvement for females in the over-forty age groups has finally been attained.

During more or less the entire period since 1950, all age-specific mortality rates for the male population have been higher than those for females. The difference in life expectancy between females and males increased continuously until the early 1990s; between the successive periods from 1970–1972 to 1990–1992, the difference rose by one year per every ten. The decades-long upward trend terminated during the 1990s[7]. Thereafter, the e_0 has been stable, resulting in an average difference of 5.3 years between the life expectancies of both sexes in 2001–2010. In 2010, the difference was 5.2. This was smaller than the average observed for the EU–27 countries, which was 6.1 years in 2008. It should, however, be noted that, in Europe, the difference between the sexes is either decreasing or remaining at the same level, especially in the West European countries, while the trend in the East European countries is just the reverse, specifically in Russia, Ukraine, Moldova, Belarus, and Lithuania, where the gap between the sexes is greater than 10 years.

Assumptions regarding future mortality

The key assumption to be made on future mortality in Serbia concerns the target life expectancy at birth, by sex, at the end of the forecast period. A commonly used method of defining target life expectancies is to consider what future changes are most probable per decade on this respect. In the countries that are most successful in terms of reducing mortality, life expectancy has increased by around 2.5 years per decade since the 1840s, which is when measurements began (Oeppen, Vaupel, 2002). In Serbia, the decennial changes varied

7 The halt in the increase of the gap in life expectancy between the sexes in the early 1990s is surprising if one bears in mind the frequency with which armed conflicts occurred in this territory in the 1990s. Yet the majority of the direct and indirect losses caused by the wars of the 1990s on the territory of the SFRY relate to the population beyond Serbia. It might thus be that the unfavourable conditions during the 1990s affected both sexes in Serbia almost equally. In any case, it deserves additional research.

from –0.5 to 9 years, but this variation was a consequence of Serbian history; high increases were observed after World War II and the decreases were the effect of the wars and all the ensuing miseries which occurred at the end of the last century. This being the case, we decided that, when taking the historical changes as a guideline for future changes, we would look solely at the last decade and no further back than that. The main argument for this is that it was during that period that Serbia entered a peaceful development path under 'normal' conditions, albeit from a relatively low level. According to the data from the Serbian Demographic Yearbook 2010, the increase in the e_0 over the eight-year period from 2002 to 2010 was 1.7 years, which is to say, from 69.7 to 71.4 for males and 1.6 years, namely, from 75.0 to 76.6, for females. This is equivalent to 2.1 years per decade for males and 2 years for females. However, these figures may be overestimated owing to the unreliable population estimates for the most recent years.

We also analyzed the increases in the e_0 in the countries of Europe for the decades from 1990 to 2000 and 2000 to 2010. In the post-socialist countries for which the data were available, without Estonia, which is an outlier, the average increase in the e_0, calculated as an average, across countries, of the averages across time for the individual countries, was 2.5 years per decade for males and 2.2 for females. Notably, the increases were generally higher in the most recent decades, demonstrating that European integration has had a positive impact on longevity. The key question here was to what extent the development in the post-communist countries in the past twenty years, which is to say, the period following the demise of communism, may be adopted as some sort of life expectancy growth pattern for Serbia in future.

The main argument against adopting such a rapid tempo of change is historical in nature. The historical pattern of mortality behaviour for the Serbian population is different from that in the majority of the post-communist countries. Unlike the majority of these, the economic indicators for Serbian development during the 1970s and 1980s, which is considered a 'golden age', were more favourable than during the 2000s. However, this was not reflected in the improvements in life expectancy; furthermore, mortality rates for the older population have either remained stagnant from the 1970s to the present day or achieved a minimal decrease in the last decade. Even if we exclude the 1990s, the life expectancy for males rose quite slowly. Indeed, there

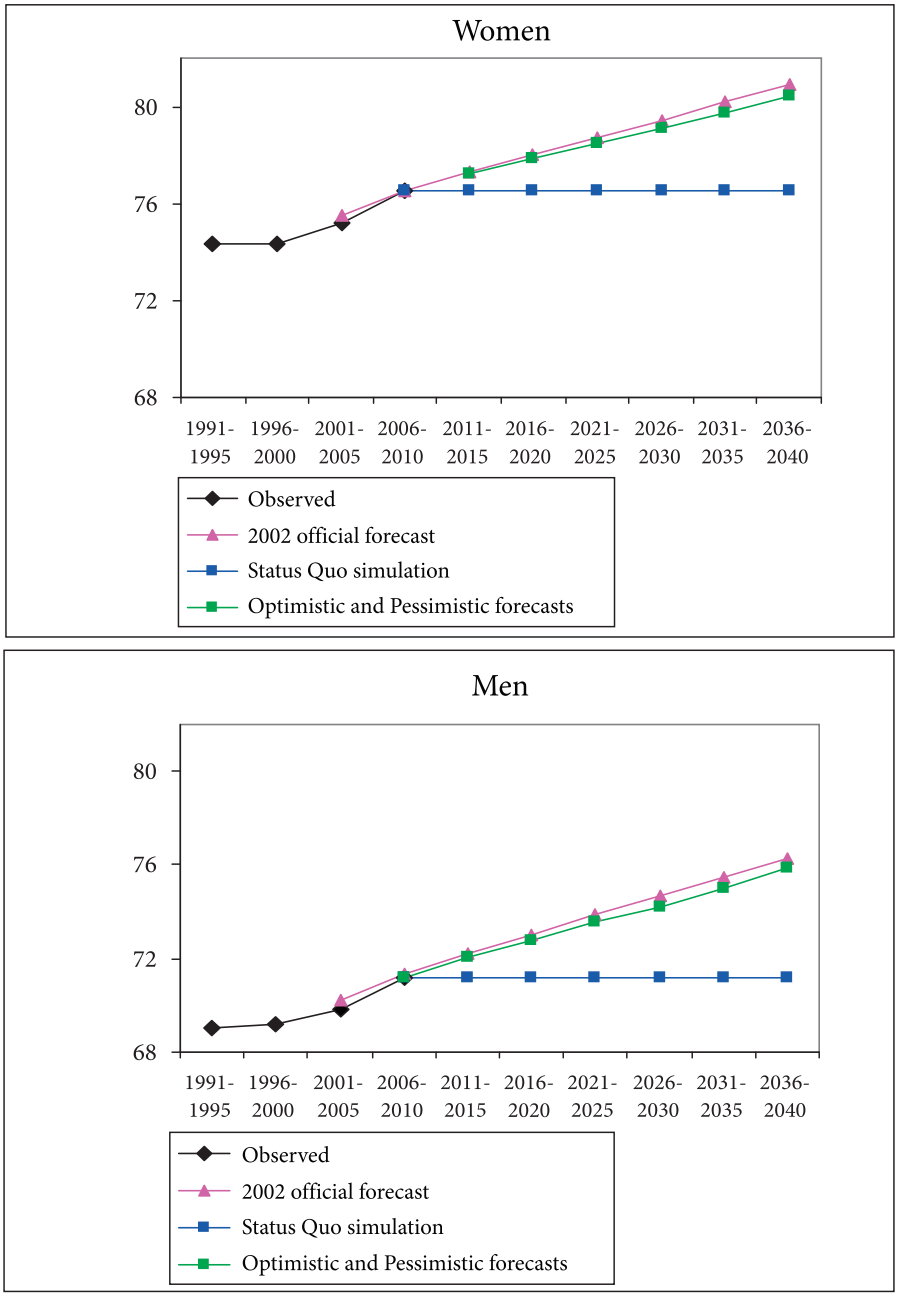
was a decrease during the 1960s, as well as a period of stabilization and decrease from the mid-1970s to 1990. Similarly, the e_0 for females increased only moderately if compared to the period before the 1970s.

It thus transpires that the only period of significant improvement in the e_0 took place during the first fifteen to twenty years after World War II, despite the fact that Serbia experienced quite a lengthy period of peaceful and stable development during the SFRY era. This historic evidence discouraged us from considering the last decade as the beginning of a new period of very fast growth in life expectancy. On the other hand, we were aware that future life expectancy had been underestimated in most forecasts for European countries and we had no wish to repeat this error.

Taking into account the past trends in both Serbia and Europe and giving consideration to the arguments presented above, we have assumed that life expectancy will increase in Serbia, but that the rate of increase will be less than that observed in the post-communist countries which have joined the EU. Therefore, our premise was that the increase between the 2006 to 2010 period and the last five years of the forecasting period might be around 1.3 years per decade for females and around 1.6 years per decade for males. The target life expectancy posited for the 2036–2040 period was around 80.5 years for females, representing a 3.9-year increase when compared to 76.6 for 2006 to 2010 and 75.9 years for males, giving a 4.7-year increase when compared to 71.2 for 2006 to 2010. Thus, we also assumed that the sex gap would decrease, as observed in Europe. Our target figures are similar to those in the SORS' forecast published in 2011, though slightly lower (Figure 6).

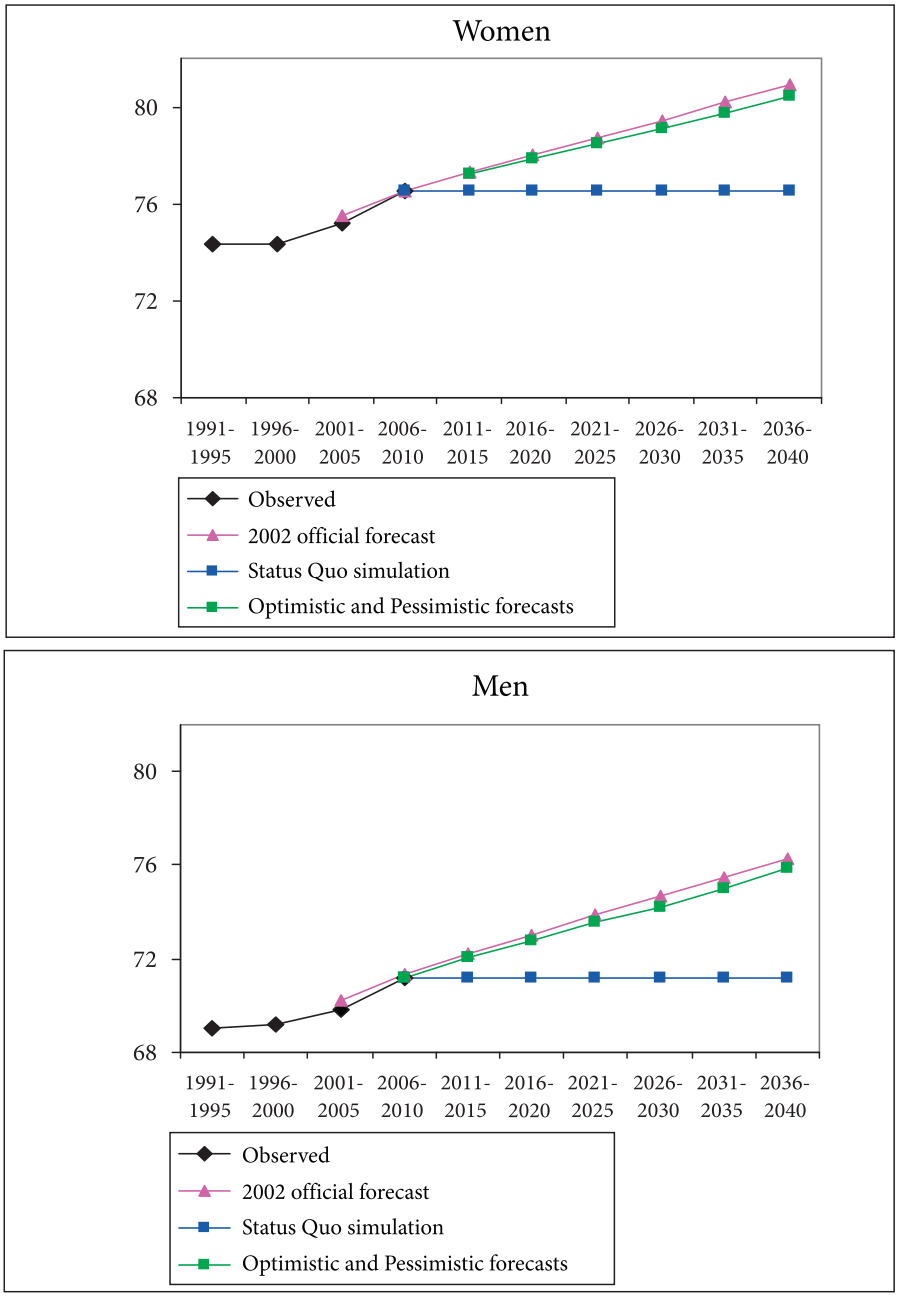
In defining the future age-specific mortality rates (see Figure 7), we assumed a slower decrease in the rates for the older age groups, namely the over-fifty-fives, than for the younger ones. One justification for this was it is more difficult for older people to adopt the lifestyle changes which might lead to lower mortality. It was also assumed that, in the first decade of the forecast period, the decreases in the oldest age groups will either be non-existent or very low. The purpose of this was to take account of the fact that the rates currently reported may be have been overestimated for these age groups.

Figure 6 Life expectancy at birth, as observed and forecasted



Source: SORS' data and authors' elaboration.

Figure 7 Age-specific mortality rates, per 1000, as observed and forecasted



Source: SORS' data and authors' elaboration.

3.3 Migration

A general overview of migration processes

Traditionally, the Republic of Serbia has been a country of economic emigration which has nevertheless experienced several inflows of immigrants consisting mainly of ethnic Serbs from the territory of the former SFRY.

Germany, Austria, Switzerland, France, Italy, USA, Sweden, Canada, Australia, Netherlands, Russia and the UK are the countries which have experienced the largest migration inflows from Serbia thus far. If we look at the period from the late 1960s onwards, the first four countries on this list represent the older destinations for Serbian emigrants, while most of the others represent either new destinations or those from earlier periods which have since experience a revival.

The emigration of Serbian nationals is driven by economic factors. In 1992, the sanctions imposed on Serbia by the UN Security Council brought about the termination or suspension of the bilateral agreements with the then major destination countries, namely Germany, Austria, Switzerland and France. In consequence, organized employment decreased by 59% in 1992, as compared to 1991 and by 48% in 1993, as compared to 1992. As a result of the reduction in opportunities for regular employment abroad, there was a sudden rise of asylum seekers who tried to use asylum or refugee status in order to find work for themselves in foreign countries (Grečić, 1998). Both the closure of the Western European markets and the UN sanctions influenced the significant rise in overseas emigration. The USA's and Canada's immigration quotas were considerably increased in 1993–1994, with preference being given to those aged 21–44, educated, well-qualified and with language skills. The flows were determined mostly by the governments of the immigration countries, namely the USA, Canada, Australia, New Zealand and South Africa, with no control or influence being wielded by the Serbian government (GRS, 2009).

In the period from 1960 to 1980, the majority of emigrants were poorly educated and mostly went abroad on the basis of international bilateral agreements on employment (Grečić, 1998). Since the beginning of the 1990s, the education level of Serbian emigrants has risen significantly. According to the data from the last two decades, the vast majority of immigrants from Serbia to the USA and Canada are highly

educated personnel and students. It could be claimed that the 'brain drain' is typically characteristic of Serbian emigration to those two countries (Predojević-Despić, 2008). In Europe, the recent emigration from Serbia of people with a higher education has mainly been focused on the UK, since English has been the most widely spoken foreign language among the Serbian youth for the last twenty years. However, Italy, the most popular new destination, still mainly attracts people with a secondary or primary education; in the case of the former, this is particularly true of medical staff.

Among the traditional emigration countries for Serbian nationals, Germany, Austria, Switzerland and Sweden still are very attractive. Owing to the existing, well-developed social networks from the earlier periods, these countries are chiefly of interest to people with a secondary education or lower, which is the general characteristic of Serbian emigrants in Europe, unlike those to the overseas states during the last two decades. The process of emigration to the EU countries has been facilitated since the beginning of 2010, when Serbia entered the White Schengen List, a list of the countries whose nationals do not require visas to travel to the Schengen Area.

Among the new Member States of the EU, the most important destination countries for Serbian citizens have been Slovenia and Hungary. Even during the period of the joint state, or SFRY, Slovenia was an attractive destination for Serbian nationals, given its constantly higher level of economic development and standard of living. Its attractiveness rose particularly after Slovenia joined the EU in 2004, placing it at the very top of new destination countries. However, the global economic crisis caused a large drop in the immigration of foreign nationals to Slovenia, including those from Serbia. Serbian immigrants are mostly engaged as craft and related trade workers and as plant and machine operators and assemblers. In the main, they have either an elementary or secondary education.

The relatively high migration outflows to Hungary consisted mainly of ethnic Hungarians. These flows were particularly intense during the 1990s, when a significant number of ethnic Hungarians left Vojvodina, the part of Serbia where almost all of the Serbian Hungarians are settled. The most intense outflows took place in 1993 and 1999 (Nagy, 2006). Since 2000, the tendency has been towards a steady rise in emigration to Hungary (Takač and Kincses, 2010). These flows consist primarily of ethnic Hungarian students from Vojvodina who attended primary and secondary schools in their mother tongue and

aim to acquire a university degree in Hungary. Some authors expect a further rise in these flows now that Serbian citizens have been granted visa-free travel to the Schengen countries (Takač and Kincses, 2010).

The volume of the flows to the main receiving countries may be estimated using those countries' statistics (see below). It can be concluded from the Serbian census data on the stock of people abroad, that Bulgaria, Romania, Greece, and Russia also receive migrants from Serbia, as do some countries in West Asia and Africa; however, we have no data on the size of the flows. According to the census of 2002, Serbian nationals who migrate to Russia, West Asia and the African countries are mostly engaged in the construction industry. The flows to African and Asian countries which started in the 1960s along with foundation of the Non-Aligned Countries Movement could be considered as being the traditional ones.

Immigration to Serbia in recent years mainly consists of Serbian nationals who, once their working careers abroad came to an end, returned either to enjoy their pension, in the case of the first large emigration waves of the late 1960s and early 1970s, or to find a new job in Serbia. These flows originate in the old destination countries for Serbs, such as Germany, Austria, Switzerland and France. In Serbia, there is no official estimate of the number of people who have returned annually in the recent period apart from the Republic Pension Fund estimate of the total number receiving a pension from abroad, which is around 114 thousand.

Foreigners constitute the minority of recent immigrants to Serbia. Most of them are not from the EU countries. The Serbian Ministry of Interior data give some indication of the size and origins of foreign immigrants. If those who received first-time residence permits for up to twelve months are considered as the category closest to the definition of an immigrant, in accordance with the EU regulation on migration, then, on average, 3.4 thousand foreigners immigrated to Serbia in 2009 to 2010 (GRS, 2011).

In those two years, the biggest inflows were from China, Russia and the former Yugoslav Republics, namely, Bosnia and Herzegovina, Croatia and Macedonia, as well as from Libya. The main reasons for immigration are family reunification (47%) and work (40%). The sex structure is rather unbalanced; those who came for work are predominantly men (81.5%), while the women came mostly for reasons of family reunification (64.3%). Residence permits for work are most often issued to those from the EU countries and China, while Russians, Chi-

nese and Macedonians are the most numerous among those who came from motives of family reunification in the years in question. There are numerous immigrants from Bosnia and Herzegovina and from Croatia in both categories (GRS, 2011).

According to the National Service for Employment (NSE), the educational structure of foreigners who are listed in the registers of employment is extremely unfavourable; about 62% of those recorded have no qualifications, although the chief reason for this is that these people have not had their diplomas validated (GRS, 2011). As regards the number of work permits issued by the NSE, there has been a slight increase since 2006. Foreign nationals who have obtained such permits are mostly men, at over 70%, and they are mainly professional workers employed in foreign representative offices, banks, construction, trade and so forth. Most of the permits are issued for work in Belgrade (73%). The largest number of permits was issued to citizens of the People's Republic of China, the Former Yugoslav Republic of Macedonia, Bosnia and Herzegovina, and the Russian Federation. An increase has been observed in the number of work permits for seasonal jobs in the construction and catering industries and in agriculture (GRS, 2011).

Since 1990, Serbia has hosted sizeable populations of **refugee and internally displaced persons** (IDPs), the former mostly consisting of Serbs coming from the other republics of the former SFRY and the latter from Kosovo. Considering the past migrations in the region, there have been no huge movements such as those which occurred during the last decade of the 20th century (Nikitović and Lukić, 2010). However, between 1996 and 2010, the official number of refugees within the Republic of Serbia fell by more than 85%, from 620 thousand in 1996 to around 86 thousand by 2010 (UNHCR, 2010). Since 2002, more than 200 thousand people have acquired citizenship of the Republic of Serbia, which represents the largest process of integration in Europe. Around 149 thousand people returned to their countries of origin and around 49 thousand found refuge in third countries (GRS, 2009; CRS, 2010).

According to the registrations held by the Commissariat for Refugees of the Republic of Serbia, which is responsible for keeping the records of IDPs and issuing certificates to them, there are currently around 210 thousand IDPs from Kosovo/UNSCR 1244 in the territory of Serbia excluding Kosovo/UNSCR 1244. Yet, a few years ago, the Serbian Government's Coordination Centre for Kosovo and Metohija (CCSKM, 2007) estimated the number of IDPs, including those who

have not been officially registered, as being as high as 257.5 thousand. The 2002 census shows the category of internally displaced people to consist of thirty-two ethnic groups; 75% Serbs, 10.87% Roma, 3.9% Montenegrins, 2.5% Muslims and Bosniaks, and 1.5% Gorani, with Albanians, Ashkali, Egyptians, Hungarians, Macedonians, Turks, Croats, and so forth at less than 1% (SORS, 2003).

The number of Serbian and other non-Albanian IDPs returning to Kosovo/UNSCR 1244 is extremely low, despite the projects implemented by the authorities of Serbia, in cooperation with the international community, in order to ensure their return. According to the UNHCR in Prishtina, only 12.043 thousand IDPs from Serbia returned to Kosovo/UNSCR 1244 in the period from 2000 to 2011 (UNHCR OCMP, 2011). However, the actual number of returnees could be significantly smaller, since many of them came back to the territory of Serbia outside Kosovo/UNSCR 1244 for security reasons. Indeed, numerous problems hinder the return of IDPs to their homes. In the main, they are the lack of security in Kosovo/UNSCR 1244, limited freedom of movement, limited access to public services and schools for children, the lack of economic prospects for returnees and the difficulties involved in reclaiming their property (GRS, 2009; CRS, 2011).

Estimation of net migration

It is not easy to give even a rough estimate of the overall size of immigration to, and emigration from, Serbia. It is probably even impossible to give a reliable estimate of its changes in time. As mentioned earlier, the demographic statistics produced by the Statistical Office of the Republic of Serbia do not include annual data on international migration; only internal migration is reported. Annual population figures are calculated taking births, deaths and internal migration into account, but not international migration; immigration from Kosovo/UNSCR 1244 is taken into consideration within the internal migration category. This lack of reliable migration statistics makes it necessary to estimate international emigration and immigration flows from/to Serbia using data reported by the countries which receive migrants from Serbia.

An additional problem relates to the changes of political borders. With the dissolution of the former SFRY, some migration flows which had previously been internal obtained the status of international. More importantly, the data reported by the destination countries for the period prior to the dissolution concern immigration from all the former

republics together. Further changes of political borders took place in 2006, when Montenegro attained independence and in 2008, with the declaration of independence on the part of Kosovo/UNSCR 1244. These events further modified the scope of flows which should be considered when trying to estimate migration from or to Serbia excluding Kosovo/UNSCR 1244. Consequently, even in those countries with good registration systems and good statistics on international migration, there are no series of data covering a long-term period of time and relating specifically to migrants coming from, or departing to, the territory of the present-day Republic of Serbia excluding Kosovo/UNSCR 1244.

For the purpose of the current study, the estimation of emigration from, and immigration to, Serbia excluding Kosovo/UNSCR 1244 was made using all the available data relating to the flows for 2008 to 2010 and concerning either Serbia excluding Kosovo/UNSCR 1244 or aggregate data involving Serbia, which is to say, data on Serbia including Kosovo/UNSCR 1244 and data on Serbia and Montenegro. Data in respect of flows from and to Serbia excluding Kosovo/UNSCR 1244 were available for only a few countries, so we had to make estimates based on the aggregated data for most of the countries concerned. The main sources of data were Eurostat's online database and the websites of national statistical institutiones (NSIs) or the relevant ministries. We also contacted some statistical offices directly in order to clarify the substance of the data or to obtain more detailed statistics. Technical issues related to the collection of data on international migration are discussed in more detail in the Annex.

A further concern in terms of data is the lack of the comparability in the definitions of 'migrant' and 'migration' in different destination countries (Kupiszewska and Nowok, 2008; Nowok et al., 2006). We addressed this problem when estimating flows between Serbia and Germany, taking into account, in particular, the fact that the definition of 'migrant' in German migration flow statistics is significantly wider than in the other countries, meaning that the German data are overestimated.

An important step in our calculations was the estimation of the shares of flows from/to Serbia excluding Kosovo/UNSCR 1244 in the aggregated flows, namely, the flows which also cover Montenegro and Kosovo/UNSCR 1244. This was done using the detailed data on immigration and emigration from/to Serbia, Montenegro and Kosovo/UNSCR 1244 available for six countries; Germany, Italy, the Netherlands, Norway, Slovenia and Sweden for all or some of the years 2009 to 2010. We subsequently assumed that this share may be similar in

some other countries. Further details of the estimation procedure are provided in the Annex and include a discussion of selected cases where the reported data had to be corrected, for instance, in respect of flows from Croatia), or where the estimates are prepared in a particular way, such as, for example, emigration from the United States and Canada and flows to and from the United Kingdom.

The final results of our estimations are presented in Table 3. Overall, in the period from 2008 to 2010, around 32.6 thousand people emigrated annually from Serbia and 19.5 thousand immigrated to Serbia, resulting in a net emigration from Serbia of 13.1 thousand people annually. However, given all the problems with data quality and availability described above and in the Annex, these figures should be treated as very rough estimates.

For 2008 to 2010, the most intensive, officially-registered migration flows, regardless of direction, were those with Germany, Austria, Slovenia, Italy, USA, Switzerland, Hungary and France. However, at –2,426 people annually, the highest net migration balance is that resulting from the flows with Italy. Serbia has a negative migration balance with all the countries for which data is available, except Austria and, probably, Bosnia and Herzegovina; there is no data on immigration to the latter. It emerges from this list that the new popular destinations are Italy, USA and Hungary. These countries thus have highly positive balance with Serbia in comparison to the old destinations, such as Germany and Austria, which are characterized by a significant number of pensioners returning to Serbia after their working careers abroad come to an end.

The estimate of net emigration at 13.1 thousand does not include immigration from Kosovo/UNSCR 1244 to Central Serbia and Vojvodina. As mentioned earlier, in Serbia, flows from and to Kosovo/UNSCR 1244 are treated as internal migration. An examination of the Serbian internal migration statistics reveals that there were 131.7 thousand internal in-migrants and 127.2 thousand out-migrants in 2010. The difference was therefore 4.5 thousand people. The average net internal migration to Serbia excluding Kosovo/UNSCR 1244, calculated for the 2005 to 2010 period, is 3.9 thousand. There may be four components to this figure, namely, the net migration from Kosovo/UNSCR 1244 which really took place during the period in question, this being mainly ethnic Serbs; the registrations of IDPs and refugees who were already staying in the country; an under-coverage in the registrations or de-registrations of flows within Vojvodina and Central Serbia; and, finally, in the case of the 2010 data, the Albanians from Kosovo/UNSCR 1244 who registered as

residents in the south-eastern municipalities of Serbia, where Albanians constitute a majority of the population, in order to obtain a Serbian passport after Serbia entered the White Schengen List at the end of 2009. The first component most probably dominates and we may assume the net migration flow from Kosovo/UNSCR 1244 to be around 3.3 thousand. The overall net emigration from Serbia excluding Kosovo/UNSCR 1244 could thus have been around 9.8 thousand.

Given the roughness of the estimate presented here, we have prepared an auxiliary estimate of net migration using the population numbers from the 2002 and 2011 censuses. For this purpose, we assumed that the population deficit, which is to say, the difference between the census population and the population estimate prepared by SORS using the demographic accounting principle, may be attributed to international migration, as the statistics on births and deaths are more reliable.

Table 3 Estimates of the average annual flows between Serbia excluding Kosovo/UNSCR 1244 and the most important destination countries, 2008–2010.

Destination or origin country	Emigration from Serbia	Immigration to Serbia	Net migration to Serbia
Italy	2 793	367	-2 426
USA	2 691	354	-2 337
Switzerland	2 366	967	-1 399
Hungary	1 554	201	-1 353
UK	1 346	177	-1 169
Slovenia	3 121	1 997	-1 124
Sweden	933	157	-776
Croatia	861	229	-632
France	1 149	575	-575
Germany	9 051	8 574	-477
Slovakia	349	54	-295
Canada	338	44	-294
Norway	248	28	-220

Belgium	210	28	-182
FYRM	341	166	-175
Finland	145	10	-135
Czech Rep.	138	27	-111
Spain	160	52	-108
Netherlands	252	150	-102
Australia	206	108	-98
Denmark	94	18	-76
Austria	4 253	4 501	248
Bosnia and Herzegovina	0	764	764
Total	32 599	19 547	-13 051

Source: Authors' estimates, using Eurostat data and data reported by the NSIs or ministries of the countries listed.

In order to minimize the methodological differences between the two censuses, the first results for both counts were used, rather than the final ones[8]. The total population of Serbia, which is 7,120,666 as per the first results of the 2011 census, was adjusted upwards by 60 thousand, this being a rough estimate of the people not enumerated owing to a political boycott[9]. Finally, the number of IDPs was estimated as being around 200,000[10] and this was subtracted in order to arrive at a

8 Only the first results of the 2011 census are available at the moment of writing. The first results on the total population size in both censuses do not include those who have lived abroad for less than a year.

9 The Albanians, who represent the majority in the three south-eastern municipalities of Presevo, Bujanovac and Medveda, boycotted the 2011 Census (SORS, 2011).

10 Since there is no published data on the number of IDPs included in the total census population, the last available number of IDPs, namely 210,184 in 2010, taken from the register of Serbian Commissariat for Refugees, was used. It could be that the figure is lower, according to the last census, since it is quite possible that a number of the people enumerated did not report themselves as IDPs. Thus, the final estimate of IDPs in the 2011 census was arbitrarily rounded down to 200,000.

figure methodologically consistent with the results of the 2002 census, in which IDPs were not reported. The difference between the figure thus adjusted and the first result of the 2002 census is almost half a million people. Of this number, 300 thousand may be attributed to the negative natural increase, which suggests that the negative migration balance over the last 9.5 years was almost 200 thousand, or approximately 21 thousand a year.

In this way, we obtained two estimates. It is not surprising that the first of them points to a lower emigration, given that it includes neither irregular migration nor migration to many countries for which there were no data available. The difference between the two estimates may also be related to different periods and to the fact that, owing to unreliable or missing data, the estimate based on the flow statistics contains very rough estimates for some important countries. It seems reasonable to assume that the real value of the recent annual net migration balance lies somewhere in the middle, between the two estimates. We decided to adopt 15,000 persons a year as an arbitrary estimate of the recent annual net emigration to be used as a departure point for the international migration scenario settings.

Assumptions on future migration

In cohort component models, we usually use age-specific fertility, mortality and emigration rates as well as immigration figures. However, the lack of reliable data on migration in Serbia forced us to use net migration. Modelling net migration in terms of absolute numbers has various undesirable consequences, in particular, the fact that the future net migration does not relate to the future population. In the case of a far-reaching decrease in population, owing, for example, to emigration, the net migration numbers assumed may take on disproportionately high values. In such circumstances, it is therefore better to model net migration in terms of rates. To do this, in each five-year projection period and scenario we start by establishing an initial hypothesis about the future average, annual net migration numbers, assuming a constant population. In the second step, we try to predict age and sex distribution for these net migrants. Finally, we 'translate' the net migration numbers for each period into the net migration rates, taking into account the fact that the actual flows depend on the future popu-

lation. When running the projection model, these rates are applied to the population at the beginning of the current projection step, giving the forecasted net migration numbers. Thus, the modelled net migration numbers evolve with the changes of population. If the population is decreasing, as we expected would be the case for Serbia, the final net migration numbers are smaller that initially assumed for the constant population.

Given the lack of comparable historical data on migration and the fact that migration is highly sensitive to economic and political conditions, we could not rely solely on an analysis of the past migration trends in Serbia. Instead, we had to resort to establishing hypothetical scenarios by exploring analogies with other countries. The developments in Poland were taken as a pattern which might occur in Serbia. We chose Poland because it is similar to Serbia in certain ways, having had an income gap comparable to Serbia's in relation to the EU average in 1990s and a similarly significant, but inefficient, agricultural sector. It has large resources of unused or underused labour, especially in rural areas and small towns and including a substantial group of peasants-workers who survive on two sources of income, namely, small farms and low-skilled employment in industry, again just as Serbia had and, indeed, still has (Kupiszewski, 2006). The mobility potential of the rural and small town populations was somehow neglected in Poland early in 2000, when demographers analyzed what might happen after the EU enlargement. This group fuelled emigration after Poland's accession. For the rural labour group in Serbia, too, legal migration will provide an excellent opportunity to improve their economic situation. Finally, both countries have a long tradition of international migration and developed migration networks abroad. Like Poland, Serbia is a country with large emigration networks in old EU countries.

For the forecast, we formulated two migration scenarios, which we labelled *Optimistic* and *Pessimistic*. In the first, which, in our view is the more likely, Serbia will successfully join the European Union. In the second, we assumed that accession to the EU will not take place within the next thirty years.

Serbia in the EU. The Optimistic scenario

First, let us consider the case of Serbia's joining the EU and the timing of this event. Here, we need to establish a hypothetical date for Serbia's accession to the EU, as it will most likely have significant consequences on migration. Serbia is a difficult candidate for two reasons. The first is strictly economic; Serbia has a low GDP per capita. According to the CIA World Factbook, Serbia stood in the 105th position globally in 2011, with a GDP per capita equalling 10700 PPP in US dollars. It is very likely that the EU would wish to help stimulate the Serbian economy first and bring Serbia into the club only when the discrepancies are not that stark, especially given that the admission of Romania and Bulgaria resulted in a number of problems. The revival of the economy is bound to take time, particularly in view of the sovereign debt crisis in Southern Europe. The second problem would be political in nature and is related to the potential objections on the part of other countries. To sum up, since Serbia has just gained the status of an accession country and will only now start negotiations, we would not expect her to join the EU before 2021. As a reference point, the countries which joined the EU in 2004 typically negotiated for between six and seven years. At the same time, Serbia's position is difficult not only because of the aforementioned issues mentioned, but also because the EU is weary of the enlargement process and is also undergoing a deep financial, institutional and economic crisis.

So let us assume 1 January 2021 as a hypothetical date for Serbia's accession to the EU. What may happen with migration beforehand? The net migration losses might reduce slightly, owing to the financial crisis in Europe. We have already observed a reduction in emigration flows from Serbia, particularly to the new destinations such as Italy and Slovenia. Simultaneously, the slow economic recovery should reduce unemployment, which will also lead to a decrease in emigration. Immigration will probably remain more or less stable. Overall, we would thus assume a reduction in the net migration loss of some 10% every five years until 2020. In addition, the perspective of Serbia's joining the EU may generate a deferred demand for emigration, to be realized after Serbia's accession.

Serbia's accession to the EU would have an important effect, namely, a large-scale emigration of an explosive but relatively short-lived nature. What are the arguments for such a hypothesis? Basically,

the history. The demise of communism gives two very good examples of migration waves triggered by a change in political conditions. One is the former German Democratic Republic, which experienced an unprecedented outflow of its citizens after the reunification of the two German states in 1990. Albeit only for a short period, East Germans flew to West Germany at a rate of 50 thousand per week! Perhaps a more relevant example is the emigration flows of Poles, Lithuanians, Latvians and Slovaks after the 2004 EU enlargement. The removal of administrative barriers by the UK, Ireland and Sweden resulted both in large outflows to those countries from the aforementioned new EU Member States and smaller, but still visible outflows from the other acceding countries. These outflows decreased after the initial mass phase. There are also strong pull factors ahead; in the late 2010s and early 2020s, the working life of the post-war baby boom population in Western Europe will come to an end, creating a huge gap on the labour market. Simultaneously, there will be a rising demand for carers and workers supporting the ageing, West European populations. This will provide a strong incentive for the EU countries to limit potential transitional periods for the free movement of labour at the time of the Serbian accession.

We expect that the wave of emigration from Serbia could be similar to the one experienced by Poland after 2004. We estimated the net outflow of Poles from 2004 to 2009 by considering the increase in the Polish population resident abroad during that period. We have expressed the net outflow as a percentage of the Polish population in 2004 and assumed that a similar percentage of the Serbian population may emigrate, with the correction described below.

According to the Central Statistical Office (GUS, 2011), the number of Polish people residing abroad five years after the EU enlargement increased by around 870 thousand (GUS, 2011). This is the equivalent of 2.28% of Poland's population as at the end of 2004. Assuming that a similar process will be observed in Serbia and taking the Serbian population as at 1 January 2011 as the basis for our calculations, we can estimate the post-enlargement emigration from Serbia at 164.6 thousand over the first, five-year period, giving us a figure of around 33 thousand per year.

However, there are a number of reasons to think that post-accession emigration from Serbia will be relatively lower than that for Poland. At present, the majority of the unemployed population, mostly low-skilled workers, live in villages and small towns. It is quite possible that, prior to 2021, two processes will significantly deplete this source of potential emigrants. One is substantive internal migration towards several large and demographically vital urban centres where this population can find jobs. The second stems from the fact that, by 2021, the vast majority of the post-war baby boom generations will have retired; those born in 1950 will be over seventy in 2021. This will have a strong impact on the size of the working age population and the ratio between workers and pensioners in general and means that the population will be considerably older and the emigration potential will surely be smaller, in relative terms, than that of the countries which entered the EU in 2004. Thus, the number of potential emigrants could be significantly depleted before the EU accession date, as compared to the situation in the new, post-socialist Member States during the period from 2004 to 2009.

We also have to look at the potential immigration to Serbia. One part of this, which will remain relatively stable over time, will be the return migration of Serbs who reach retirement age abroad and decide to settle in their home country, either for their retirement or, perhaps, with a view to setting up a small business. Second, the significance of immigration from third countries will most likely rise, given the tradition of exchanges between Serbia and the countries of the Non-Aligned Movement. The number of ethnic Serbs in the neighbouring countries is limited, so we have assumed no significant inflows of this category of migrants. The accession process and development will certainly trigger the immigration of foreigners from the EU, such as business people and officials, but this inflow will not be very high.

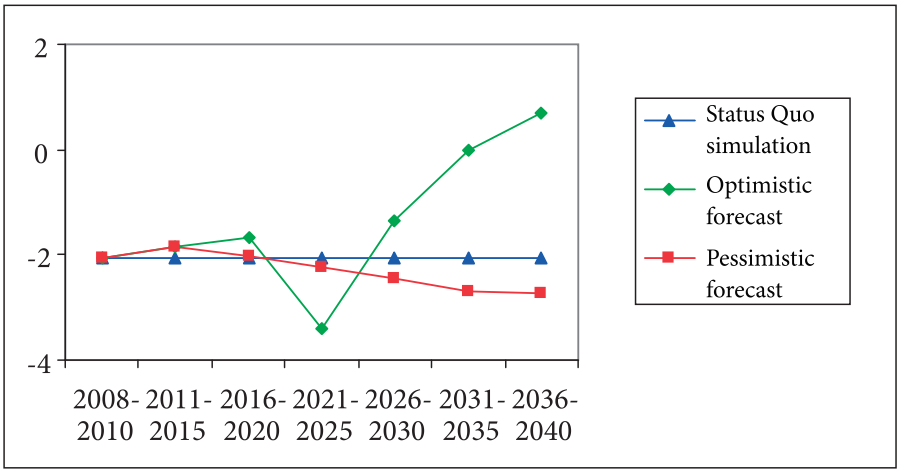
Altogether, these various immigration flows will to some extent reduce the losses caused by emigration after EU accession. Therefore, we decided to limit our estimate of the emigration from 2021 to 2026, initially calculated on the basis of the Polish case, to 25 thousand per year.

Such a high volume of emigration cannot last long, as both historical data and simple, demographic common sense demonstrate. So,

for the five-year periods subsequent to 2026, we would expect a rapid reduction of net migration loss and, finally, a turn towards positive net migration at the end of forecasting period. This assumption is justified by the experience of Central European countries such as, for example, the Czech Republic, which turned from a negative migration balance in the 1980s to a positive one in 1990s and 2000s (Drbohlav et al., 2009). Similar assumptions were made in other forecasts with respect to the countries with a long history of emigration (Alho, 2001; Matysiak and Nowok, 2006). More generally, a team of researchers from the IDEA research project (Okólski, 2012) who analyzed the migration processes across European countries, argued that, in the long run, the transformation of a country's economic system leads to a change in the migration pattern from net emigration to net immigration.

Figure 8 presents the values of net migration rates assumed in the two forecast scenarios, the *Optimistic* and *Pessimistic*, compared to the *Status Quo* scenario. The *Status Quo* value for the net migration rate was estimated at minus two people per thousand, assuming an annual net emigration of 15 thousand people in the period between 2008 and 2010. In the *Optimistic* scenario, with the exception of the

Figure 8 Forecasted net migration rates (per 1000).



Source: Authors' elaboration

immediate five-year period following the assumed accession to the EU, a decreasing trend in migration losses, ending with a positive net migration balance, is forecasted, as discussed above.

Serbia does not join the EU. The Pessimistic scenario

The *Pessimistic* scenario assumes that Serbia's negotiations with the EU will be unsuccessful. This is not very likely, but it cannot be completely excluded, so taking it as the worst case scenario makes sense. The justification for such a scenario was presented earlier. The outcome of the negotiations will not be clear for the next five years at the very least, so we have assumed the same migration dynamics for the 2011 to 2015 period as in the *Optimistic* scenario. For the subsequent periods, we have assumed that the net migration losses will increase at a steady pace, following a widening gap between the economic situation of the EU Member States and the European countries outside the EU. The main limiting factor for emigration would be the lack of potential emigrants owing to the depletion of demographic resources, as happened with some regions in Bulgaria (Markova, undated paper). For this reason, we would cap the net outflow at around 2.7 people per thousand, which is more than one-third of the *Status Quo* value. If the population was stable, this would be equivalent to an increase in the net outflow of 20 thousand.

3.4 Economic activity

Past trends of economic activity in Serbia

Serbia's strong and intense economic development after World War II made possible changes which substantially affected the economic activity rates of the population. The most important of these changes were the abolition of child labour and the decreasing activity in the young and old age groups, as well as an increasing female participation in non-agricultural activities. Above all, the main characteristic of the transformation of the population's socio-economic structures over the past sixty years has been the decline in the size of the agricultural population (Radivojević, 2006).

Under socialism, Serbia featured a very high level of social security for the employed, regardless of their working achievements; "once

employed – always employed"; while wages were partly funded by foreign credits (Šuković, 2006). At the same time, except for individual work in subsistence agriculture, all types of working engagement provided social security benefits (Marković, 2004). As a consequence, a large number of people with a right to a pension is expected when the numerous members of the baby-boom generations reach retirement age. The first female baby-boom cohort started to retire in 2008, while its male counterpart will reach the minimum retirement age in 2013 (Stojilković, 2010a).

The 1990s saw an increase in poverty and a change in the population structure as a result of not only a large inflow of refugees and IDPs, but also the emigration of young people and a relative increase in the share of the old, the ill and the dependant. All these changes greatly influenced the labour force supply both quantitatively and qualitatively.

A declining trend has been observed in the size of the labour force in Serbia since 1981. The total economically active population, aged 15 and above, dropped from 3.683 million in 1981 to 3.398 million in 2002 and 2.965 million in 2010. It is worth noting that the large, baby-boom generations are still participating in the labour force and will not have left it fully until the end of this decade. It was not only the numbers which decreased, though. An almost continuous declining tendency was observed in the overall economic activity rate for the whole population during the entire post-World War II period. This rate decreased from 50.4% in 1953 to 49.4% in 1981, then to 45.3% in 2002 and to as little as 39.7% in 2010.

A much stronger decline in the economic activity rate was observed for men, at 66.5% in 1953, 59.5% in 1981, and 46.3% in 2010, than for women, at 35.3%, 40.0% and 33.4%, respectively, since the rates for women only started to decline after 1991. The decline in the rate for men is caused primarily by a decline for the older age groups. This tendency was triggered by a decrease in the rural population, along with the favourable conditions in respect of old-age benefits and the retirement age for non-agricultural activities. The economic activity of women increased continuously until the 1990s, mostly owing to better education and the strengthening of the tertiary economic sector (Radivojević, 2006).

Factors shaping economic activity and current trends

Wage and salary levels and access to social protection and various benefits are the main factors influencing the labour activity level. In accordance with the *Law on work* (Službeni glasnik, 2009), the minimal wage in Serbia is approximately one euro per hour. Consequently, the minimum guaranteed monthly wage varies in the range of 150 to 170 euros, depending on the month. The monthly unemployment benefit is approximately one-third of the minimum monthly wage. Thus the gap between the minimum pay and unemployment benefits is large enough to be able to affect the labour force participation rates significantly.

The changes in the pension legislation adopted in 2005 assume a gradual increase of six months per year in the retirement age for both sexes. In 2011, this strategy gave a retirement age of sixty for females, and sixty-five for males, contingent upon at least fifteen years of paying insurance contribution. A male with forty years of insurance contributions and a female with thirty-eight years will be allowed to draw old-age benefits as of the age of fifty-eight.

The number of people drawing disability pensions, which, in most countries, has an impact on participation rates in the older age groups, also influences the rates at younger ages in Serbia. Even though the share of disability pensioners in the total number of pensioners there was much lower in 2008 (27%) than it was in 1960 (40%), it is still significantly higher than in most of the European countries. This is a consequence of the corruption in the system before the pension legislation of 2001 and, particularly, of 2003, was introduced (Stojilković, 2010b).

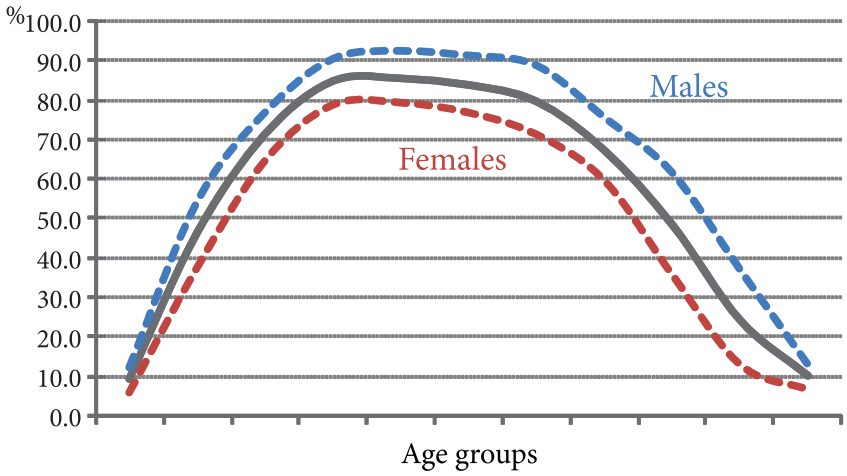
Keeping in mind the background outlined above, we examined the observed current and recent trends in labour force participation. The data on age and sex for specific economic activity rates in Serbia cover the period between 1981 and 2010. For the period prior to 2000, only the census data for 1981 and 1991 are available. Since 2000, the SORS has conducted regular annual surveys on the labour force, in line with the International Labour Organization's standards and the EUROSTAT requirements. As a result, in addition to the 2002 census data, there is a continuous data series for the period from 2000 to 2010. The annual economic activity rates by sex are presented by ten-year age groups, from 15–24 to 65+, for the first part of this period, namely 2000

to 2003, and by five-year age groups, from 15–19 to 75 and above, for the most recent years, 2004 to 2010.

Both the male and the female profile of economic activity is unimodal (Figure 9), with levels of participation at the ages of the highest economic activity, namely 25–49, which are high when compared to the other European countries and low for the youngest age group, 15–19. The labour force participation of males evolved substantially between 1981 and 2010 (Figure 10). A decrease occurred in all the age groups, but was most significant for those aged 65+, at 30% of the initial value and for the youngest age group, 15–19, at 51% of the initial value. In the 30–59 age groups, the decreases did not exceed 10%. However, activity increased in the 60–64 and 65+ age groups between 2002 and 2010, most notably in the former, at 47%. This is an effect of the recent raising of the retirement age to sixty-five.

The age pattern of female participation rates in Serbia differs from the patterns in most of the developed countries, which are characterized by two peaks of higher activity, before and after the best ages for childbearing (Matković, 1994; Radivojević and Nikitović, 2010). Economic activity rates for women were very high in the former socialist countries in Europe, as compared to the capitalist countries (Wertheimer-Baletić, 1973). The age distribution of the rates has the

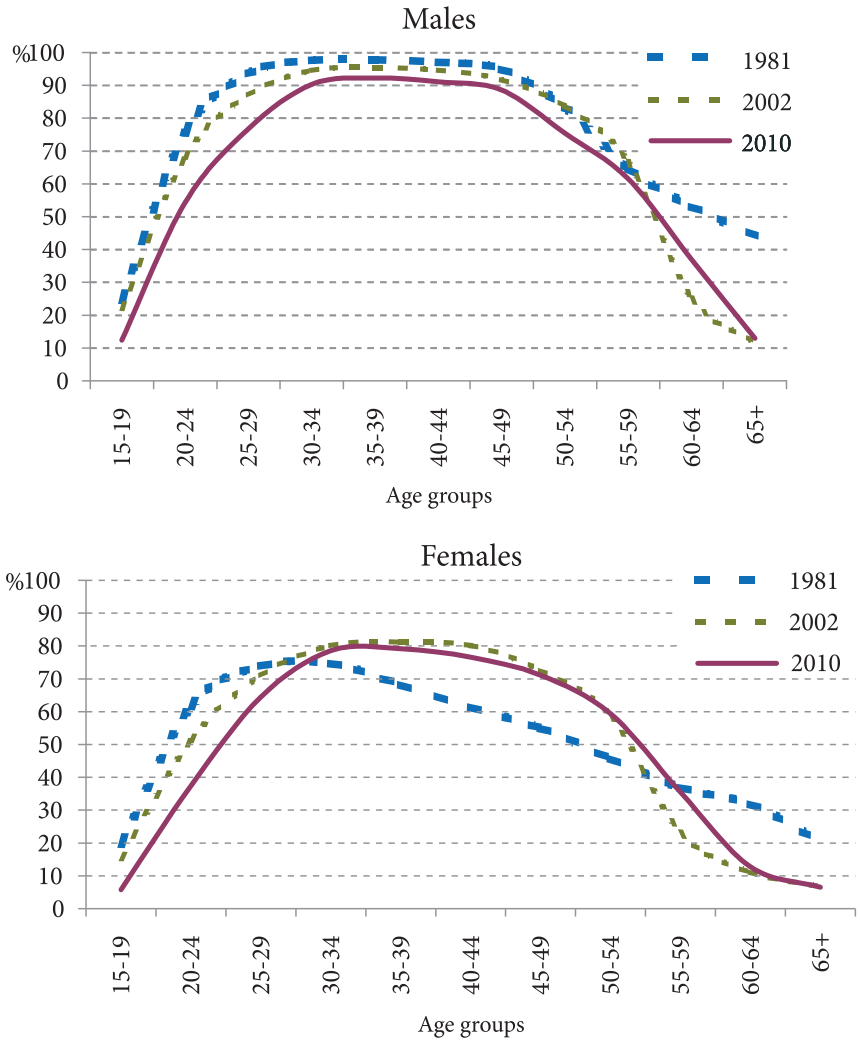
Figure 9 Economic activity rates by sex and five-year age groups from 15 to 65+, 2010



Source: Nikitović 2012b.

shape of a unimodal curve. This is a result of the employment policy, which promoted a continuous working career for women, regardless of their marital status and the number of children. There were also economic reasons for this; a woman's income contributed significantly to her family's living conditions (Matković, 1994).

Figure 10 Economic activity rates by five-year age groups; 1981, 2002 and 2010



Source: Nikitović 2012b.

In consequence, the female economic activity in 2010 was quite similar to the male, but with lower values (Figure 9). However, female activity has changed much more than male since 1981. Female activity rates for 2010 were lower than for 1981 in the 5–29 and 55 or more age groups and higher in the remaining age groups. The youngest and the oldest age groups experienced a drop of around two-thirds of the initial values. The changes between 2002 and 2010 were different from the overall changes over the entire thirty-year period, during which, female activity fell in all the age groups up to 49 years and increased in the remainder. The highest rise was observed in the 55–59 age group, this being a consequence of the raising of the female retirement age to sixty.

Forecast of economic activity rates

The initial profiles of age– and sex-specific activity rates as at 1.1.2011 were estimated on the basis of the SORS data on the active population in October 2010 and April 2011 for both sexes together and on economic activity rates in 2010 by age and sex.

The global economy requires an increasingly flexible labour force. The forecasts of numerous economists and sociologists are based on the conviction that, in future, more and more people will be workers with a portfolio of skills and qualifications which they will use to transfer from one job to another during their working life (Šuković, 2009). A deficit of labour owing to the simultaneous shrinking and ageing of the population will result in the competitive pricing of labour and the introduction of employee-friendly, flexible forms of employment. This constituted a cornerstone of our assumptions and we therefore posited a universal increase in economic activity between 2011 and 2041.

However, the global economic crisis has had a negative effect on activity rates in Europe, particularly in those countries like Serbia, which are slowly undergoing an economic transition. The already low rates recently decreased further and most economists do not expect them to recover significantly in the next decade (Šuković, 2009). Given these circumstances, it seems rather unrealistic to predict an increase of activity rates in Serbia during the next decade. We thus assumed a moderate decrease in the first five-year step of the forecast, namely 2011–2015, and a very small one in the second period. We also assumed that the decrease, along with all the changes throughout the forecast-

ing period, will be stronger in the age groups with the lowest activity, which is to say, the young and the old. These age groups, characterised by low activity, form a natural reserve of labour which is partially exchangeable for educational activities and, for females, for motherhood, or for retirement benefits for the older age groups.

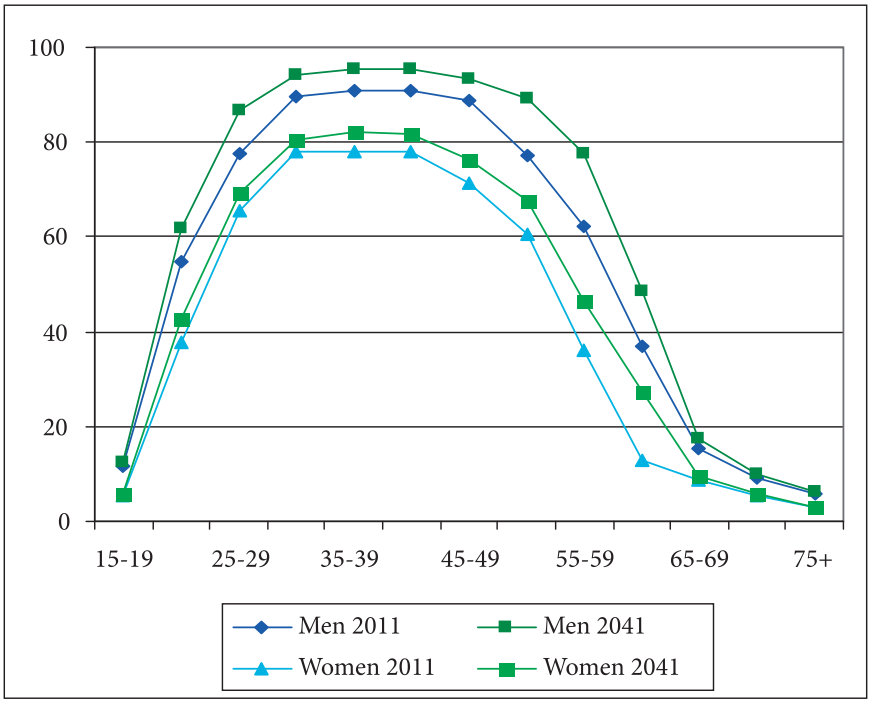
We have assumed that, with effect from 2021, most of the age-specific rates will increase and that this trend will continue through to the end of the forecast period. A modest increase in the rates is predicted for the initial period, between 2021 and 2026, which, under the realistic assumption of accession to the EU in or around 2021, coincides with the first five years of membership. The strongest recovery in the activity rates is predicted as happening in the second part of the projection horizon, from 2026–2041.

We took into account the fact that our assumed increase of fertility rates in the 30–34 age group will hamper the activity rates for that group. We also assumed that Serbia will have to raise the retirement age of women to sixty-five[11] and have therefore posited significant increases in labour activity for the female 60–64 age group for 2026 and 2031.

Our assumptions regarding future labour force participation rates in Serbia, by age and sex, are presented in Figure 11.

11 The reasoning behind this assumption is that, over time, the retirement benefit will be increasingly linked to the total value of contributions paid by each worker. This means a low pension-to-earning ratio for women, who usually have fewer contributory years. The only solution to very low retirement benefits for women is to raise their retirement age.

Figure 11 Assumed economic activity rates (per 100) by age and sex; 2011 and 2041



Source: Authors' calculations

4. The results and policy implications of the population and labour force forecasts and simulation

This chapter presents the results of the population and labour force forecasts, taking into account the two variants of the international migration scenario, namely, the *Pessimistic* and the *Optimistic* (Table 1). Selected results of both forecasts are compared with the results of the *Status Quo* simulation. The assumptions for the *Pessimistic* and *Optimistic* variants of the forecast were presented in Chapter 3. As mentioned earlier, both variants share the same assumptions on fertility, mortality and economic activity, and differ only in migration assumptions. In the *Status Quo* simulation, we assumed that the age-specific fertility, mortality, net migration and economic activity rates will remain at the level observed for the jump-off period of the simulation[12]. The main value of such calculations lies in the possibility of assessing the long-term consequences of the current demographic trends. This has a diagnostic policy value, as it tells us how far the demographic patterns observed are from the long-term policy targets.

4.1 Decline of population and labour force

In the *Optimistic* scenario, which we think is the more likely, the Serbian population will drop to 5.55 million, a decrease of 1.7 million over the next thirty years, which is to say, 23% of the original population (Table 4 and Figure 12). The main driver of this decrease will be the negative natural change, at –1.408 million, which is much larger,

12 The following values were assumed for the age-specific demographic rates in the *Status quo* simulation: average annual fertility and mortality rates, as observed in the 2006 to 2010 period and average annual net migration rates, as estimated for the 2008 to 2010 period. The economic activity rates were fixed at the level estimated for 1 January 2011.

in absolute terms, than the negative net migration, at –261 thousand). At 21%, labour force changes will be slightly smaller, in relative terms, than the changes in the entire population. Significant structural changes should be expected, as the population aged 65+ will increase by 14% over the forecast period.

Table 4 Selected indicators of population and labour force development in the *Status Quo* simulation and in the *Optimistic* and the *Pessimistic* forecasts for 2011 to 2041

Population and labour force (000)	2011	2041		
		Status Quo simulation	*Optimistic forecast*	*Pessimistic forecast*
Population	7218.2	5080.3	5549.5	5347.2
Education age population (5–24)	1620.9	939.1	1022.7	958.5
Population aged 65+	1213.2	1184.4	1383.0	1389.0
Labour force	3074.4	2042.3	2428.1	2307.0
Characteristics of population and labour force changes 2011–2041		*Status Quo* simulation	*Optimistic* forecast	*Pessimistic* forecast
Population change (000)		–2137.9	–1668.7	–1871.0
Population change (%)		–29.6	–23.1	–25.9
Education age (5 –24) population change (%)		–42.1	–36.9	-40.9
65+ population change (%)		–2.4	14.0	14.5
Births (000)		1534.7	1598.3	1585.2
Deaths (000)		3281.4	3006.2	3009.1
Natural increase (000)		–1746.7	–1407.8	-1423.8
Net migration (000)		–391.2	–260.9	–447.2
Labour force change (000)		–1032.0	–646.3	–767.4
Labour force change (%)		–33.6	–21.0	–25.0

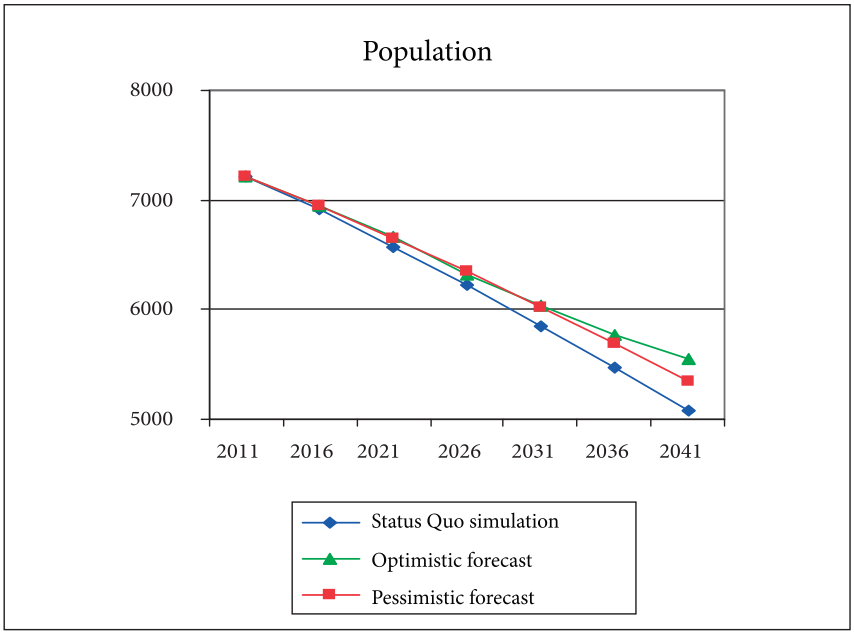
Characteristics of population and labour force structures	2011	2041		
		Status Quo simulation	*Optimistic forecast*	*Pessimistic forecast*
Proportion of 0–14 in population (%)	15.1	12.5	12.7	12.5
Proportion of 65+ in population (%)	16.8	23.3	24.9	26.0
Proportion of 40+ in labour force (%)	52.7	58.2	59.5	61.3
ODR	24.7	36.3	39.9	42.2
LMDR	134.8	148.7	128.6	131.8

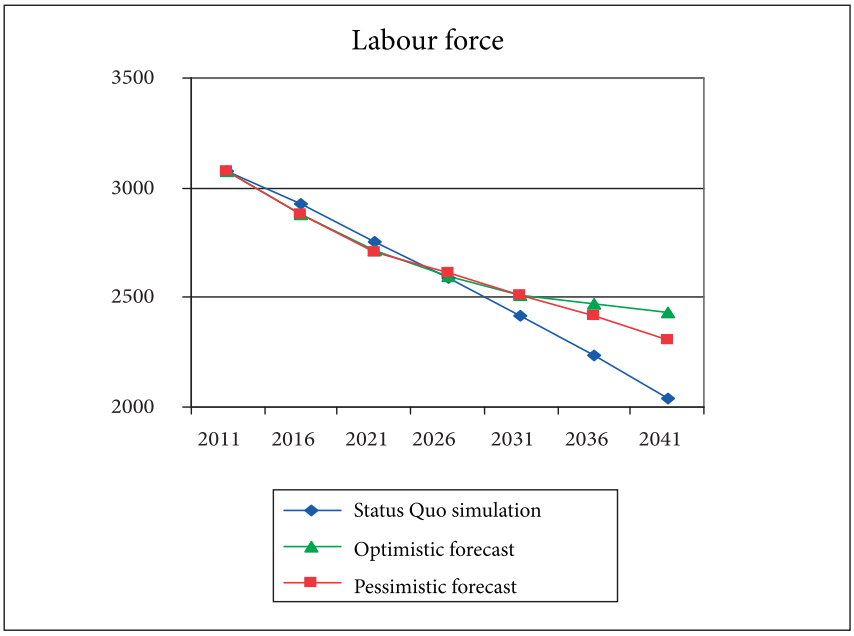
Source: Authors' computations

The *Pessimistic* forecast, which assumes higher migration losses, at –447 thousand, predicts a 26% population decrease over the thirty-year period. It is worth noting that the higher emigration results in the decrease of the overall number of births by 13 thousand in comparison to the *Optimistic* forecast, even though the same age-specific fertility rate scenario was assumed for both variants. The difference represents the births of mothers who emigrated abroad.

The continuation of the observed *status quo* values over the thirty years would lead to a 30% decrease in the total population and a 34% decrease in the labour force size. This is the most 'penalizing' scenario of all. The decrease through natural change in the *Status quo* scenario is much higher than in both forecast variants, being 24% higher than in the *Optimistic* scenario and 23% higher than in the *Pessimistic*. As the net natural loss is the main driver of changes, one clear conclusion is that increasing fertility and reducing mortality should be a policy priority. A reduction in the negative migration balance would also benefit population development, but probably not to the same extent as increasing fertility would. We will return to this issue in Chapter 6.

Figure 12 Population and labour force in the *Optimistic* and *Pessimistic* forecast and the *Status Quo* simulation, in thousands





Source: Authors' computations

It should be noted that, from the policy point of view, a population decrease, especially of the magnitude forecasted for Serbia, should not go unnoticed. The times when the significance of states was defined mainly by their population size may long since be gone, with other factors such as human capital, innovativeness and productivity playing an increasingly important role. Nevertheless, large population decreases could result in regional and subregional depopulation, both of which have been observed in Serbia for a fairly considerable length of time (Todorović, Dobnjaković, 2010) and which relate, in particular, to remote rural localities with a limited, often monofunctional economic base and an inadequate transport and communication infrastructure. A severe population decrease may lead to deficits in the labour supply, as discussed below. Other long-term hypothetical economic consequences are more speculative, but we may add slower economic growth to the list, along with a fall in real estate prices, a reduction in savings and so forth. To date, with the exception of periods of war, the populations in modern economies have been growing, so we have little empirical evidence of the economic consequences of population decline. Nevertheless, it would be prudent to curb large population decreases by means of policy measures.

The changes in the population size and structure, combined with the assumed changes in economic activity, would lead to a marked reduction in the available labour force resources, by 21%, or 646 thousand, in the *Optimistic* forecast and 25%, or 767 thousand, in the *Pessimistic*. The reduction is significant, despite the considerable increase in economic activity assumed as starting from 2021. The lack of changes in demographic and activity rates, as assumed in the *Status Quo* simulation, would lead to an even greater labour resource decrease of 34%, which is over one million people (Table 4 and Figure 12).

The forecasted reduction of labour resources by one-fifth or one-fourth is not a development to be taken lightly. We do not have a forecast of the labour demand for Serbia over the next thirty years, so it is impossible to compare it with our labour supply forecast. Nevertheless, we may speculate on the possible consequences of so dramatic a reduction. First of all, shrinking labour resources, especially under the assumption of a growing economy which we made in the

Optimistic scenario, may lead to a mismatch between labour supply and labour demand. This purely numerical mismatch may be augmented by a structural mismatch, for example, in terms of a lack of workers with specific skills or qualifications. The scarcity of labour may also lead to an increase in salaries, which would have two macroeconomic effects, namely inflationary and lost competitiveness.

4.2 Population and labour force ageing

The changes in the total population and labour force size are accompanied by age structure changes. The structural changes are clearly visible when the age pyramids presenting the share of population in individual five-year age groups are examined (Figure 13). In 2011, the population pyramid was already regressive. The characteristic feature of the regressive pyramid is that the nearer the bottom, the narrower it becomes, in other words, the younger the age group, the less numerous. In 2011, this was the case for the age groups below 30–34 years. By 2041, the structure is even more unfavourable in the *Pessimistic* and *Optimistic* forecasts, with the narrowing beginning at 60 for women and 55 for men. For all the five-year age groups over 55 for females and 50 for males, the shares in the total population would be higher in 2041 than in 2011.

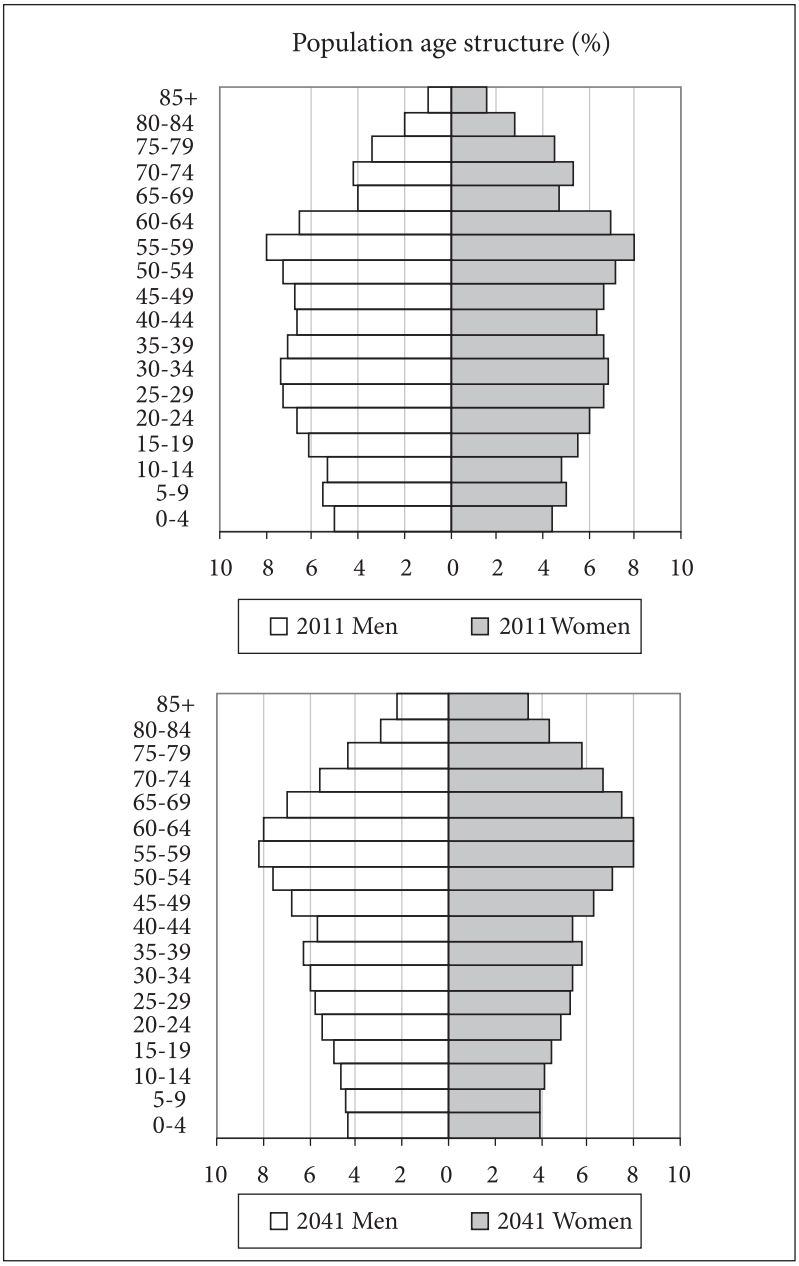
The changes in the age pyramid for the labour force also clearly show its ageing (Figure 13). In the *Optimistic* forecast for 2011 to 2041, the share of labour in all age groups up to 49 for males and 44 for females would decline, while increasing in all the older age groups. A similar process is observed in the *Pessimistic* scenario, though here the labour is even older, with the share of economically active people aged 40+ being 53% in 2011, but increasing to 59.5% by 2041 in the *Optimistic* scenario and 61% in the *Pessimistic*. The highest proportion of older workers in the total labour force will occur in 2036 at 60.9% and 61.5% in the *Optimistic* and *Pessimistic* scenarios, respectively. The small drop which appears in 2041 is linked with the retirement of the post-war baby boom echo.

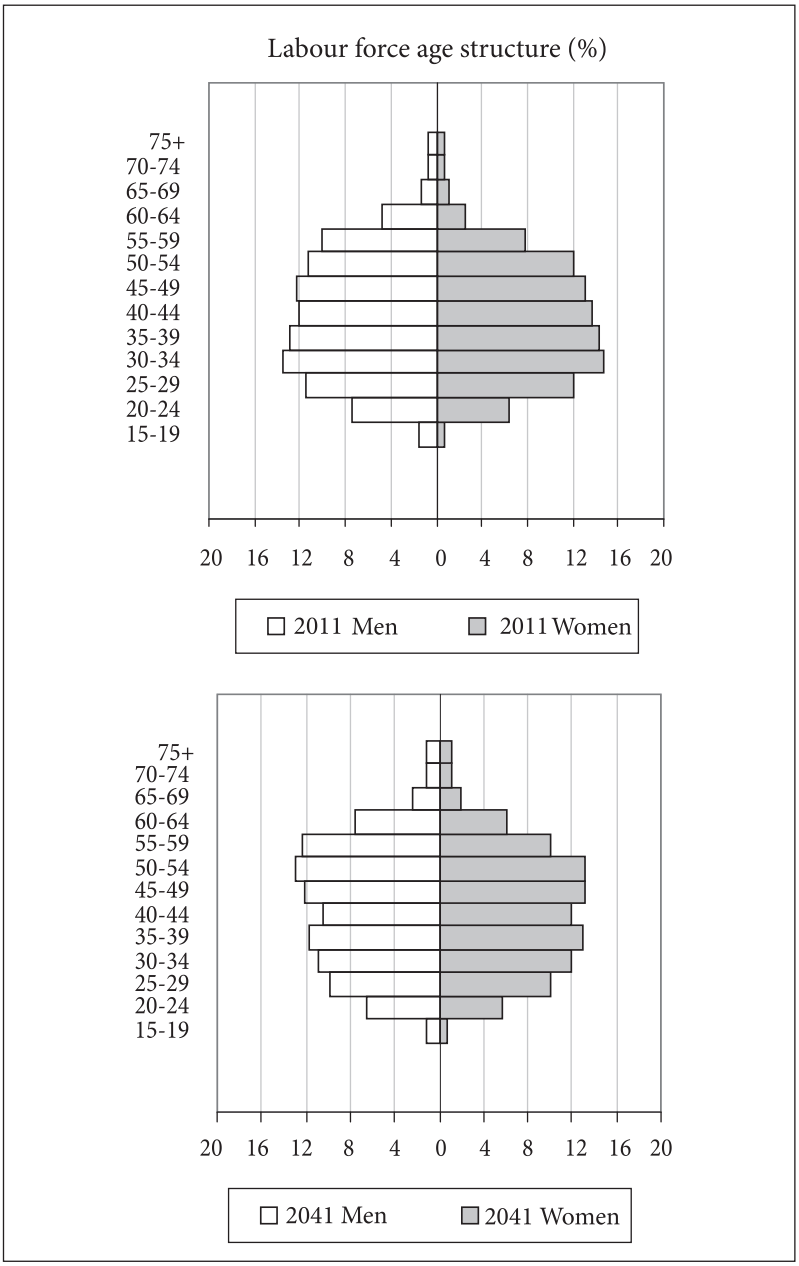
In order to understand the consequences of the changes in the age structures better, we examined the evolution of selected broad age groups in comparison to their initial size in 2011. We also analyzed de-

pendency ratios (ODR, LMDR; see the definitions in Section 2), which provide information as to the evolution in size of certain age groups or the number of economically active people in given age groups in comparison to other groups. The structural indicators indirectly address the question of future changes in the need for facilities and services indispensable to, or in demand for, specific ages.

We investigated two broad age groups, namely 5–24-year-olds, this being most important from the point of view of educational activities and the 65+ age group, the retirees requiring the most medical attention and social care. It would be very interesting to look at the changes in an even the narrower age group of people aged 85 and above, as it may safely be assumed that, at this age, people use medical and social services quite intensively. With an increase in this age group, the need for state-funded, long-term care would grow rapidly; therefore its size may be important from the planning point of view. Unfortunately, the statistics concerning the very old population seem not to be reliable, which prevented us from conducting such an analysis.

Figure 13 Population and labour force age structure, *Optimistic* forecast, 2011 and 2041





Source: Authors' computations

In the *Optimistic* forecast, we would expect a drop of 37% in the educational age population, the 5–24 age group, from 1.621 million in 2011 to 1.023 in 2041. In the *Pessimistic* forecast, the changes would extend even further, with a decline to 959 thousand, and thus of 41%, by the end of the projection period (Table 4). Such a change will have a fundamental impact on the demand for schools and teachers. A decreasing demand for educational services or, to put it bluntly, a lack of pupils, may lead to the closure of schools, especially in the rural, depopulating areas, which are mostly located in the mountains. This, in turn, will limit access to education, especially for the youngest pupils, as the organization of transport from villages to school centres will be a costly affair. The impact of these changes may be particularly acute at the elementary education level, as it is particularly important for the youngest pupils to have a school near their place of living. A decreasing accessibility to education may, in turn, undercut the fundament of modernization, namely, good education.

The changes in the share of the population aged 65+ will be quite considerable, shifting from 17% of the total population in 2011 to 25% or 26% in 2041 for the *Optimistic* and *Pessimistic* forecasts, respectively (Table 4). However, in absolute numbers, the increase will not be staggering, at 170 thousand, which is to say 14%, in the *Optimistic* scenario (Table 4). The *Status Quo* simulation shows a small decrease in this age group (Table 4). These changes are much slower than in the forecasts of most European countries, which is directly linked to our cautious assumptions on mortality decrease in Serbia. If there are more significant reductions in mortality rates, especially in the older age groups, the increase in the oldest age group will be much higher.

We also have to remember that the population of Serbia is already very old. This can best be demonstrated by looking at another indicator, the *old-age dependency ratio* (ODR), which relates the number of over sixty-fives to the number of people of working age, namely, 15–64. This is a demographic indicator which tells us how many older people there will be per one hundred people of working age. In Serbia, the ODR was 25 in 2011. This is around the average for the EU–27, which was 25.9 in the same year (Eurostat 2012). However, many of the European countries compensate for advanced ageing by high economic activity and high productivity.

Given Serbia's already very advanced ageing, the further significant increase forecasted in both the *Optimistic* and *Pessimistic* variants is very worrying. In 2041, the ODR will be either 40, or even 42 in 2041, respectively (Table 4, Figure 14). The increase of 62% forecasted for the ODR in the *Optimistic* scenario shows how far-reaching the structural demographic changes could be. Such changes require the reshaping of the entire economy, as the 'grey' society will require different services and products from the middle-aged one. We may expect the changes to affect the public services sector, with an increased demand for geriatric and long-term care and support for those who are frail, but still able to care for themselves in most cases. Medical facilities will have to be restructured, with more geriatric wards and an expansion of medical facilities and medical care for elderly. Accessibility will be a growing issue, with an increasing demand for wheelchair-accessible spaces and transport. Most likely, new services will emerge, supporting more affluent older people. The main problem will not be the infrastructure, but the personnel needed to provide the services, because the increase in the share of the elderly is larger than the increase in their number. The economic consequences will be significant, as the pressure on pension funds will be growing, while their revenues will be shrinking. This will be a substantial burden on the state budget, which will have to subsidise the payment of the guaranteed benefits. Individual bank savings and investments will decrease, as older people will supplement their pensions with their lifetime savings.

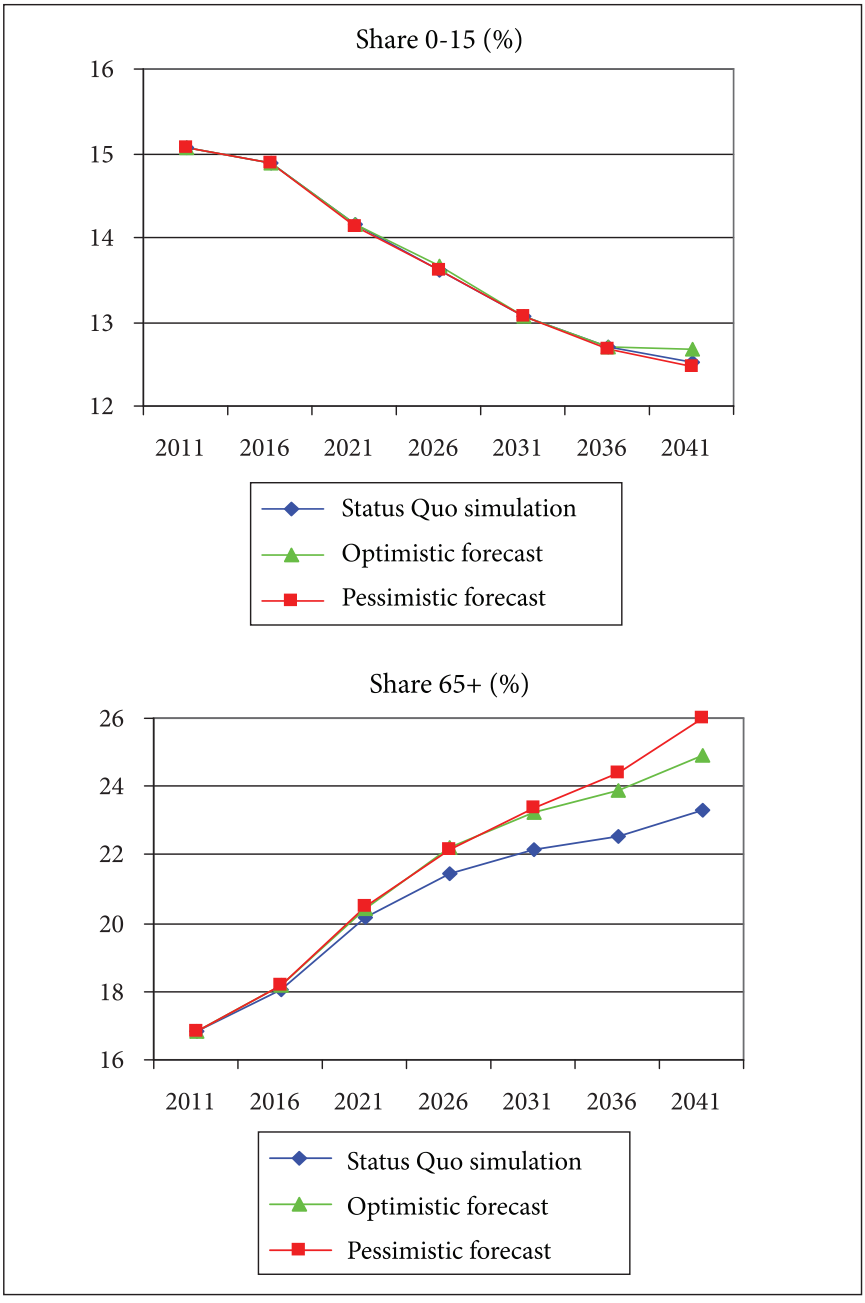
Perhaps the most important and potentially damaging aspect is the combined impact on the social security systems of the growth in the number of pensioners and the shrinkage of labour resources. Serbia has a redistribution system, in which those who contribute to the social security from their salaries directly finance the cost of contemporary pensioners' pensions. In 2009, this system cost 13% of the GDP; in relative terms, this is the second highest cost in Europe (Jaeger, Lissovolik, 2010). As the number of pensioners grows and the labour resources shrink, the system will be increasingly underfunded and will have to rely on state subsidies paid from taxes. Policy options to prevent such developments are discussed in Section 6.3.

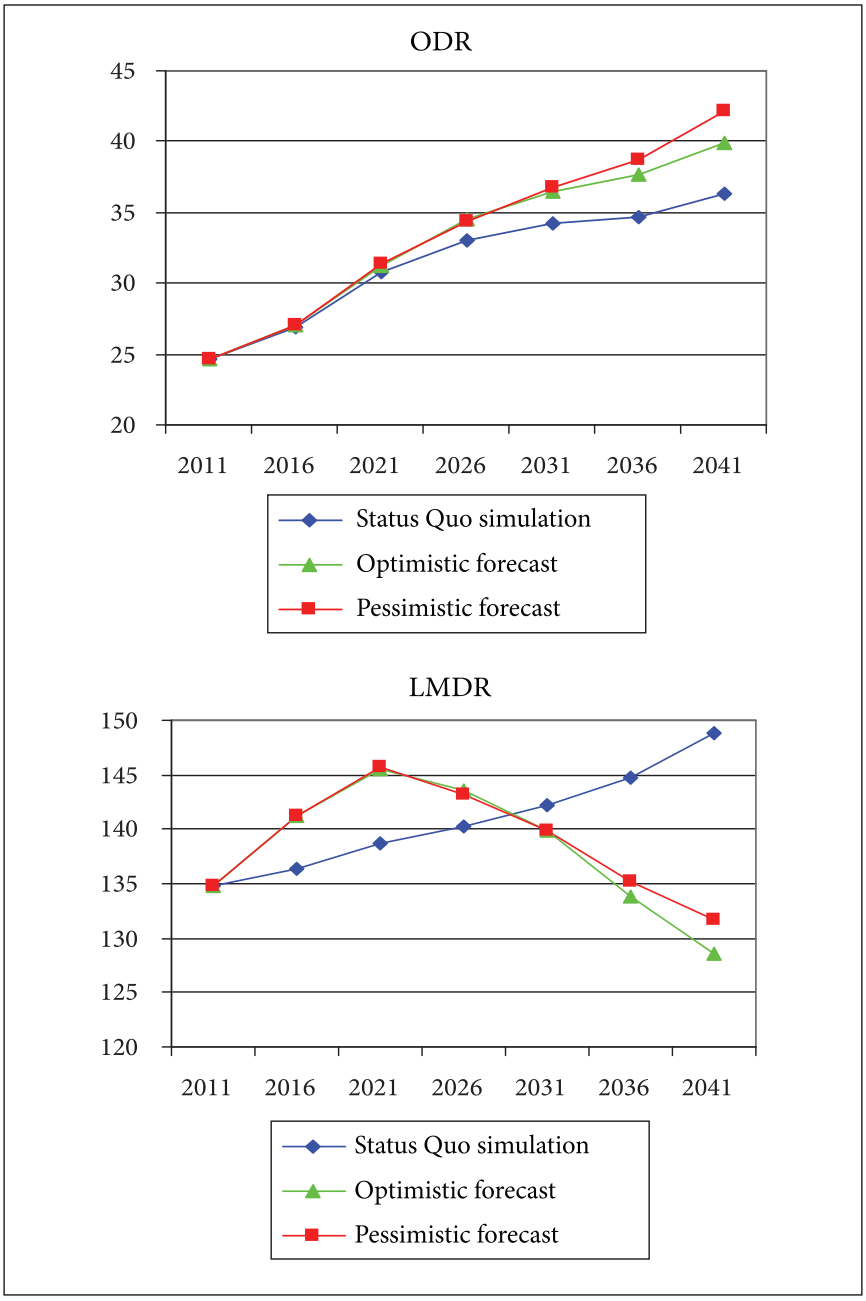
As an indicator which can help us to evaluate the overall economic burden of the inactive population on the labour market, we

propose using the *labour market dependency ratio* (LMDR). It tells us how many economically inactive people there will be per 100 active persons. It is especially useful for the assessment of the impact of demographic trends and economic activity on social security systems and medical and social care costs. In 2011, its value in Serbia was 135 and in the *Status Quo* scenario, it would increase to 149. These numbers are alarming, particularly when compared to the values observed in the European countries. In 2005, the highest LMDR values were observed in Italy and Malta, at 105, Hungary at 104 and Bulgaria, at 101; in all the other European countries, they were below 100. The non-weighted average for thirty-one European countries, namely, the EU–27 plus EFTA, was 73, and the values for many countries were smaller than half of the LMDR for Serbia in 2011, at 50 in Switzerland, 51 in Denmark, 56 in Norway and the Netherlands and 60 in Sweden.

When developing the assumptions for the forecasts, we assumed that economic activity rates in Serbia will increase significantly after 2021 and that the retirement age for women will be raised to 65. These changes should, indeed, help to improve the situation, as demonstrated by the forecasted LDMR values. After an initial increase, the LMDR will start to decline in 2021 and drops to 129 and 132 by 2041 in the *Optimistic* and *Pessimistic* forecasts, respectively (Table 4 and Figure 14). However, despite the decrease, Serbia would still be well above the European average, which is forecasted to be around 92 in 2030 (Kupiszewska and Kupiszewski, 2010b).

Figure 14 Selected indicators of population and labour force development in the *Status Quo* simulation and the *Optimistic* and *Pessimistic* forecasts, 2011 to 2041





Source: Authors' computations

4.3 The impact of migration on future population development

Migration is a potent driver of population change. Migrants are mostly young adults and their persistent, long-term emigration may therefore modify the population age structure at source. In the countries where migration is feminised, it may also distort the sex structure. Migration has a direct impact on the number of births, as it decreases the population of potential mothers. Couples often emigrate with the children born to them prior to emigration. These factors contribute to the undercutting of the age pyramid. Besides these direct demographic consequences, there are indirect economic and social ones. The demographic processes affect the labour force supply, which can be particularly damaging when emigrants are well educated and do not return. Depending on the educational and occupational structure, the migrants' productivity and the innovativeness of the economy may be affected (see Skirbekk, 2003 for discussion). Over time, large dents in the young adult age groups may lead to a decrease in the in-family care of the elderly. Even these very sketchy arguments induce us to consider the impact of migration on demographic development in more detail.

To assess this impact, we prepared a simulation on the basis of the assumptions that all the age-specific fertility, mortality and labour force participation rates are as per the forecast, which is the same in both the *Optimistic* and the *Pessimistic* variants, and that the net migration is set to zero.

According to the *Optimistic* forecast, the population of Serbia in 2041 will be smaller by 371 thousand than it would be if there were no migration. The size of the labour force resources will be smaller by 220.2 thousand. This impact of migration may be decomposed into a direct and an indirect component. The direct impact consists of the total net migration flows summed over the forecast period. No reference is made to the hypothetical demographic events which might have happened to the emigrants had they not emigrated. These events constitute an indirect impact. In particular, what we are referring to here are the births and deaths which the migration either prevented or caused to happen, depending on the overall direction of

migration flows and also summed over the entire forecast period. Table 5 allows the calculation of all the migration-related components of population change.

The direct impact of migration on population in the *Optimistic* forecast equals –261 thousand. This is the net migration, aggregated over the period from 2011 to 2041. In the case of negative net migration, the indirect impact of migration consists of the loss of births owing to the emigration of potential mothers and the loss of the emigrants' deaths. The effect of the latter is small.

The number of births which female emigrants would have delivered had they not emigrated during the entire forecast period accounts for 104 thousand. The number of deaths was reduced by 6 thousand by migration; these people might have died anyway, but their death occurred after they emigrated, so it cannot be counted in the figures for Serbia, as they did not number among the population of Serbia at the time of death. The overall indirect impact of migration is –110 thousand.

The total direct and indirect impact of migration results in a population decline of 371 thousand in the *Optimistic* forecast. Almost 30% of this decline is due to migration-related, potential, but not 'consummated', natural change. In relative terms, migration is directly or indirectly responsible for 22% of the overall population decline in the *Optimistic* forecast (Table 5).

We quantified the impact of migration on selected indicators by calculating the percentage difference between the value of the indicator for 2041 in the *Optimistic* forecast and the *No Migration* simulation, scaled to the latter (Table 6). In the *Optimistic* forecast, the total population is smaller by 6.3% and the total labour force, by 8.3% as a result of migration. It also has a significant impact on the age structure of population. As assumed in the *Optimistic* forecast, it would decrease the share of population aged 0–14 by 3% and increase the share of the population aged 65+ by 7% (Table 6). It would also increase the old-age dependency ratio by 8.5% and the LMDR by 4.1%.

Table 5 Selected indicators of population and labour force development in the *No Migration* simulation and the *Optimistic* forecast, 2011 to 2041

Population and labour force in 2041 (000)	*No Migration simulation*	*Optimistic forecast*
Population	5920.3	5549.5
Education age population (5–24)	1115.5	1022.7
Population aged 65+	1384.5	1383.0
Labour force	2648.3	2428.1
Characteristics of population and labour force changes 2011–2041	*No Migration simulation*	*Optimistic forecast*
Population change (000)	–1297.9	–1668.7
Population change (%)	–18.0	–23.1
Education age (5 –24) population change (%)	–31.2	–36.9
65+ population change (%)	14.1	14.0
Births (000)	1702.3	1598.3
Deaths (000)	3000.2	3006.2
Natural Increase (000)	–1297.9	–1407.8
Net migration (000)	0.0	-260.9
Labour force change (000)	–426.1	–646.3
Labour force change (%)	–13.9	–21.0

Source: Authors' computations

We may firmly say that, from the demographic point of view, migration in Serbia has a negative impact on population development, as it increases the depopulation of Serbia, reduces the total number of births, reduces labour resources and has an adverse effect on the age structure of the population. The reduction of net migration should be one of the tasks of population and economic policies.

Table 6 Migration-induced changes in selected population and labour force indicators in the *Optimistic* forecast, 2041

Indicator	Percentage difference
Population in 2041	–6.3
Labour force in 2041	-8.3
Population aged 5–24 in 2041	–8.3
Population aged 65+ in 2041	–0.1
Share of population aged 0–14 in 2041	–3.3
Share of population aged 65+ in 2041	6.6
ODR in 2041	8.5
LMDR in 2041	4.1

Source: Authors' computations (see explanations in the text)

5. Impact assessment of selected policy measures

5.1 Assumptions for testing the sensitivity of population and labour force dynamics to different policy measures

Population and labour force decline and ageing, both clearly identified characteristics of contemporary Serbia, may cause economic and social problems if they progress too fast. It makes sense to look at the sensitivity of the population and labour force dynamics to the modification of certain drivers of change, namely, fertility, migration and economic activity. These modifications may be accomplished through policy developments. We thus developed a quantitative method and a set of numerical indicators that help in assessing which policy may bring better results. In order to analyse the potential impacts of various policies, we prepared four 'what-if' simulations showing the consequences of (i) fertility increase, (ii) an increase in net migration and (iii) an increase in economic activity rates. In these simulations, we increased the net migration to a level we considered high, but not completely unrealistic. Fertility and economic activity were increased to a high level, but not necessarily the highest observed recently in Europe. Finally, we ran a simulation in which all these components were increased simultaneously. Thus the policy assumptions are very high, but still plausible.

The policy simulations were specified as follows (see also Table 1):

1. Assumptions on mortality, migration and economic activity as per the forecast; higher fertility rates (*High Fertility* simulation).
2. Assumptions on fertility, mortality and economic activity as per the forecast; higher net migration rates (*Increased Net Migration* simulation).

3. Assumptions on fertility, mortality and migration the same as per forecast; higher labour force participation rates (*High Economic Activity* simulation).
4. Assumptions on mortality as per the forecast; fertility, net migration and economic activity higher than in the forecast and as per policy scenarios 1, 2, and 3, respectively (*Combined Policies* simulation). This scenario presents simultaneous implementation of the three policies described above. It may be considered as an upper boundary of what could be achieved under extremely favourable conditions.

The characteristics of the policy scenarios and justifications as to our definition of the relevant 'high levels' of fertility, net migration and economic activity are provided below.

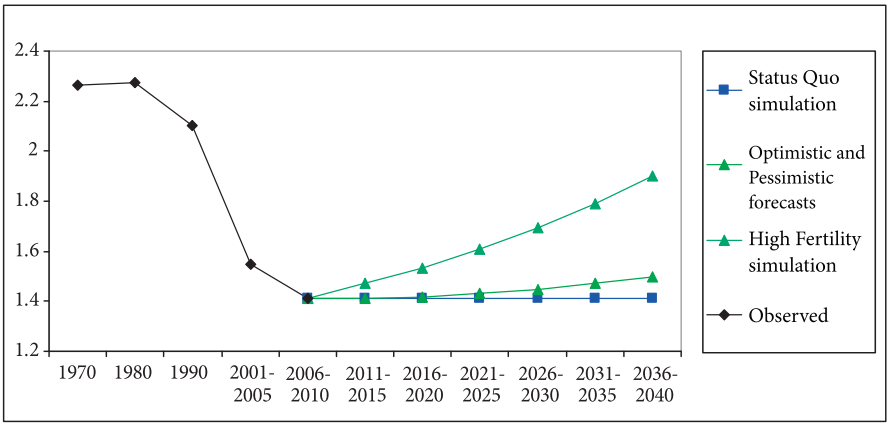
High Fertility policy scenario

We assumed an increase in the TFR to 1.9 in 2041, which is still below the replacement level (Figure 15). The target age structure of mothers will be as per the last five-year forecast step, rescaled to give the assumed TFR. Thus, the shift of the fertility peak to the 30–34 age group will be more pronounced than in the forecast. As for the forecast, it was assumed that, in the policy scenario, the age-specific fertility rates will change by constant rates until they reach the target values.

A TFR of around 1.9 is the highest observed in continental Europe, with France at 1.99, Norway at 1.96, Sweden at 1.91, the UK at 1.90, Finland at 1.85 and Belgium at 1.82 (Eurostat, 2011), demonstrating that such a level of procreation is not completely out of reach. However, it is lower than in Iceland and Ireland. Therefore, it may be assumed as a realistic policy target, albeit, probably, very difficult to attain, given the low fertility in Serbia in the past.

The experience gained in various European countries shows that policies aimed at the increase of fertility have to cover a broad spectrum of institutional, social and labour issues (Kotowska and Matysiak, 2008). In the opinion of those authors, the countries which were successful in maintaining high fertility had developed child care and other support for mothers on the labour market, depolarising the labour market split between the male breadwinner and the female child carer. These measures were supported by pecuniary transfers either in the form of tax breaks related to childrearing, or by child benefits, or both.

Figure 15 TFR in the *High Fertility* simulation



Source: Authors' elaboration

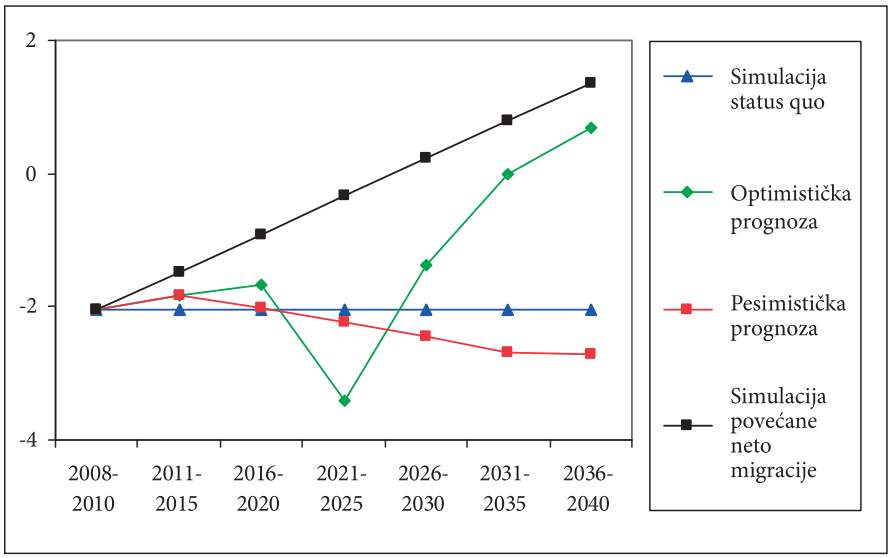
Increased Net Migration policy scenario

In the *Migration Policy* scenario, we assumed that, if the population of Serbia did not change, then the annual net migration would change linearly from the –15 thousand estimated for the 2008 to 2010 period to +10 thousand in the final five-year period of the simulation (see Figure 16). In this scenario, no huge net outflow related to the accession to the EU is expected. While the positive migration balance in the forecast was assumed to be reached only in during the 2036 to 2040 period, in the *Migration Policy* scenario this would occur ten years earlier.

Migration policies which aim to increase net migration may go in two directions; reducing emigration and increasing immigration. Generally, it is quite difficult to implement policies aiming directly at limiting emigration. The main push factor is economic development and the policies recommendation may be boiled down to one simple piece of advice; get the economy growing and get the institutional setting right (Bertocci, Strozzi, 2008).

Policies aimed at bringing in more migrants are much more complex. The growth of the economy is a necessary precondition, but the institutional and legal framework, integration policies and social attitudes all constitute important factors in migration decisions.

Figure 16 Net migration rates, per 1000, in the *Increased Net Migration* simulation



Source: Authors' elaboration

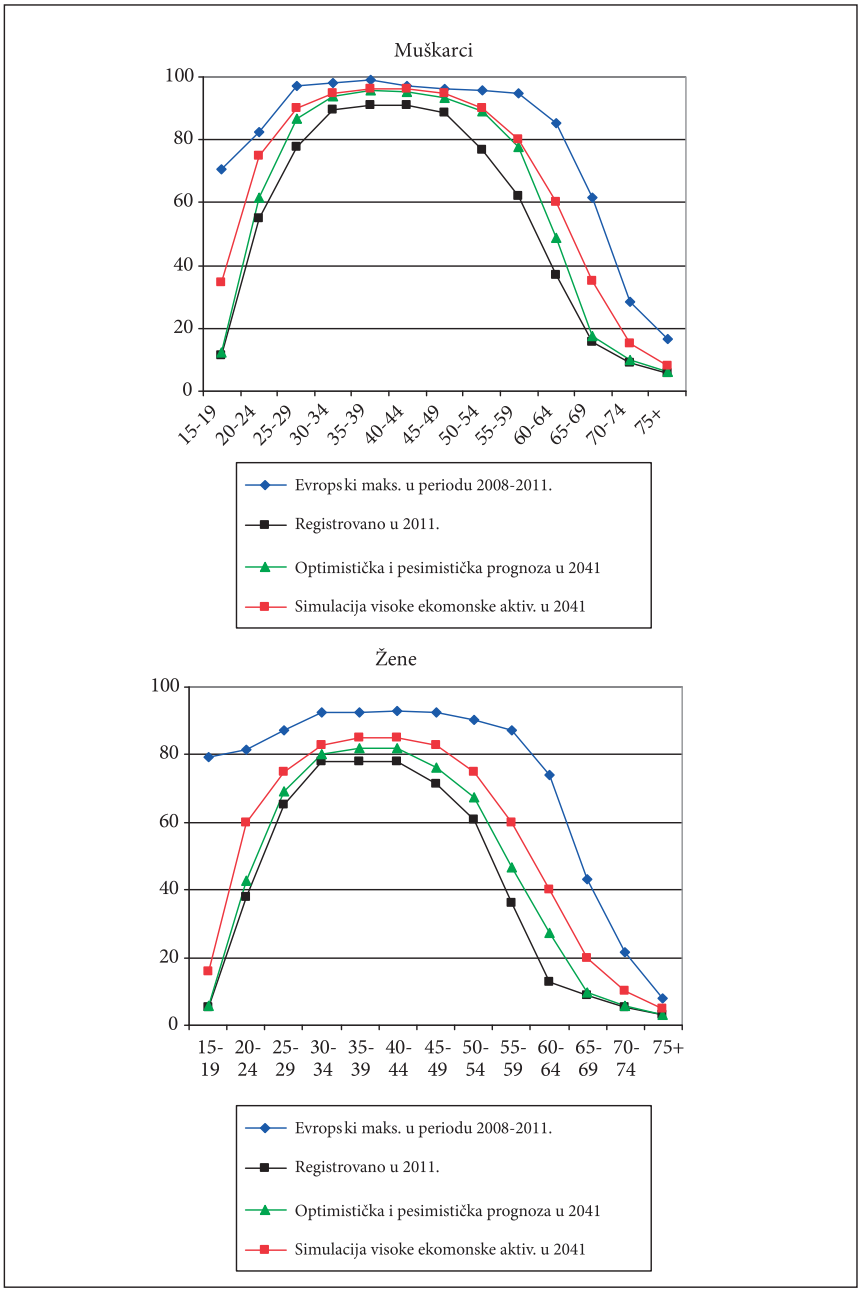
High Economic Activity policy scenario

When setting the scenario for the *High Economic Activity* simulation, we adopted the following assumptions; there will be a strong economic development combined with highly effective policies stimulating employment and a deficit of labour induced by the ageing of Serbian society. We set the 2041 target economic activity rates at the maximum level which can be reasonably expected under the conditions specified above, but lower than maximal observed recently across each age group in Europe, having examined the maximum value for a given age group across all the European countries for 2008 to 2011.

We assumed that female activity rates will increase more than those for males. In the case of a very substantial discrepancy between the maximum rate for a given age group observed in Europe and the rate for Serbia in 2011, the target policy rate was set to be no more than three times higher than the 2011 Serbian rate.

Figure 17 presents the target, age-specific, economic activity rates assumed for men and women in the *High Economic Activity policy* scenario, compared with the *Status Quo* rates, the rates assumed in the forecast and the maximum rates observed in Europe.

Figure 17 Economic activity rates for 2041 in the *High Economic Activity* simulation.



Source: Authors' elaboration

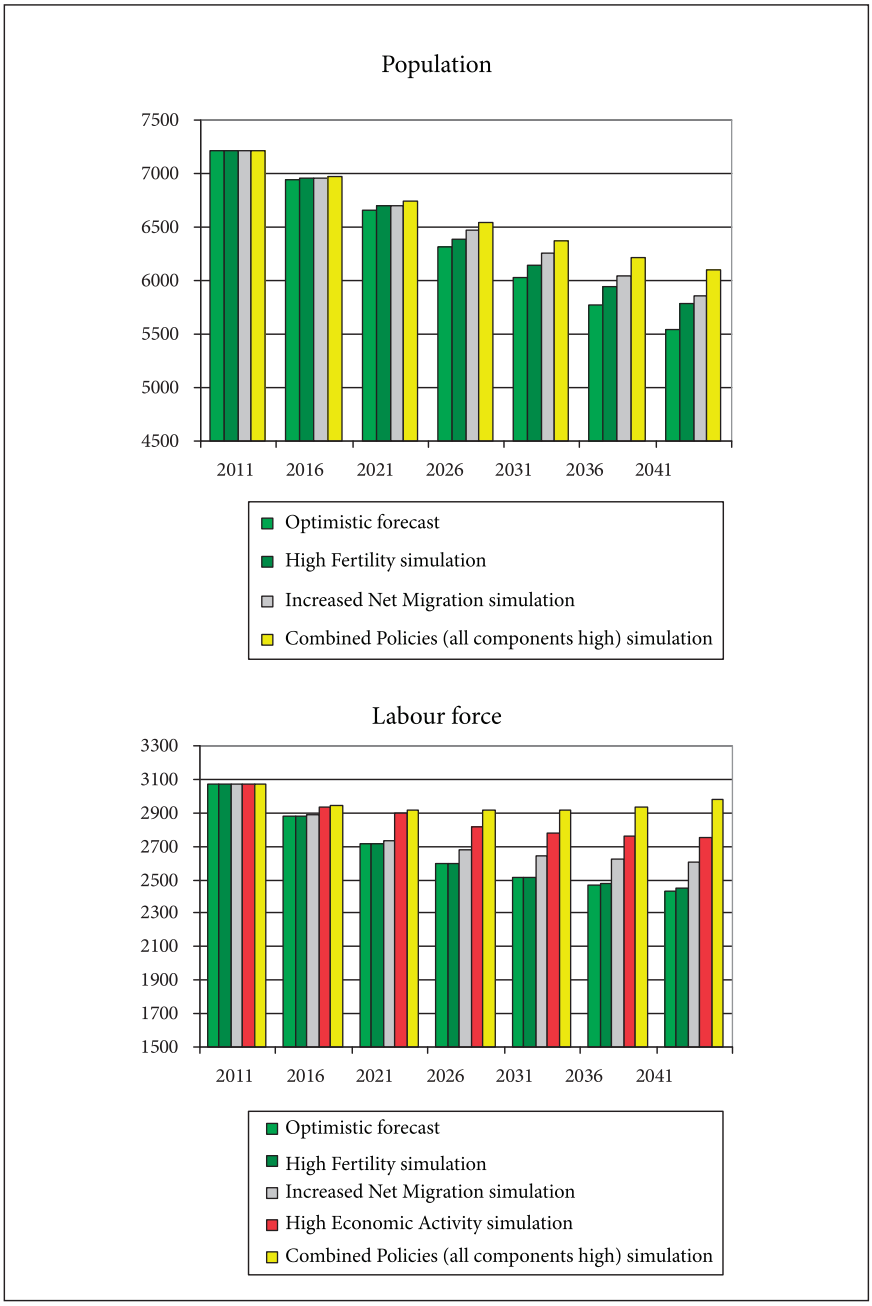
5.2 Analysis of the results of the policy scenario simulations

This section presents an analysis of the impact of various polices on demographic and labour resource developments in the next thirty years, as modelled through the four policy simulations. It looks at the effectiveness of various policies in slowing down the population and labour force decline and in curbing the ageing of the population and the labour force. The main numerical indicators are presented in Table 7.

A reduction in the population decline is best achieved by the implementation of the policy focused on the increase of net migration (Figure 18 and Table 7). This would result in 302 thousand people more than the *Optimistic* forecast for 2041, including 238 thousand fewer emigrants and 68 thousand more births. The differences in the number of deaths are small and will be ignored here. The policies which aim at increasing fertility would render 230 thousand more people in 2041 in comparison to the *Optimistic* forecast scenario, nearly all of them owing to the increased number of births. A successful implementation of both policies simultaneously results in 548 thousand more people, of which 313.5 thousand would be the outcome of births, which is 13.5 thousand more than we obtained from a simple sum of the two previous simulations. This synergy effect arises from the increased fertility of those who have not emigrated.

If we want to increase the supply of labour, the most effective strategy is the increasing of economic activity rates. Such a strategy leads to the reduction of labour force shrinkage over the 2011 to 2041 period from 21% in the *Optimistic* forecast to 11% in the simulation with a high labour activity, this being a difference of 321 thousand in absolute terms. Combining this scenario with the two demographic scenarios leads to the labour force decrease being reduced to 98 thousand, or a mere 3% in comparison to the 2011 value, which would be an excellent result. The increase in fertility does not bring any significant improvement to the labour resources in the period up to 2041, but this is not surprising, as the impact is gradual and the newborn children will need between 16 and 24 years before they appear on the labour market. This low sensitivity of labour resources to fertility increase is somewhat misleading. If the horizon of the simulation were to be fifty

Figure 18 Population and labour force development, according to the four policy simulations, 2011–2041



Source: Authors' computations

years, rather than thirty, then the role of fertility in the supply of labour would be much more pronounced. The implementation of policies which aim at increasing net migration would lead to 177 thousand more people on the labour market than in the *Optimistic* forecast.

The policies tested here would have an impact on the age structures (Figure 19). It is, in particular, clearly visible that the combination of policies leads to a pyramid with a solid base. The simultaneous implementation of the fertility and migration policies would increase the share of the 0–14 age group from the 12.7% in the *Optimistic* scenario to 15.4%, most of which would be owing to the high fertility policy (Figure 19). Only the combination of both policies would prevent the decline in the share of this age group as compared to the 2011 value (15.1%).

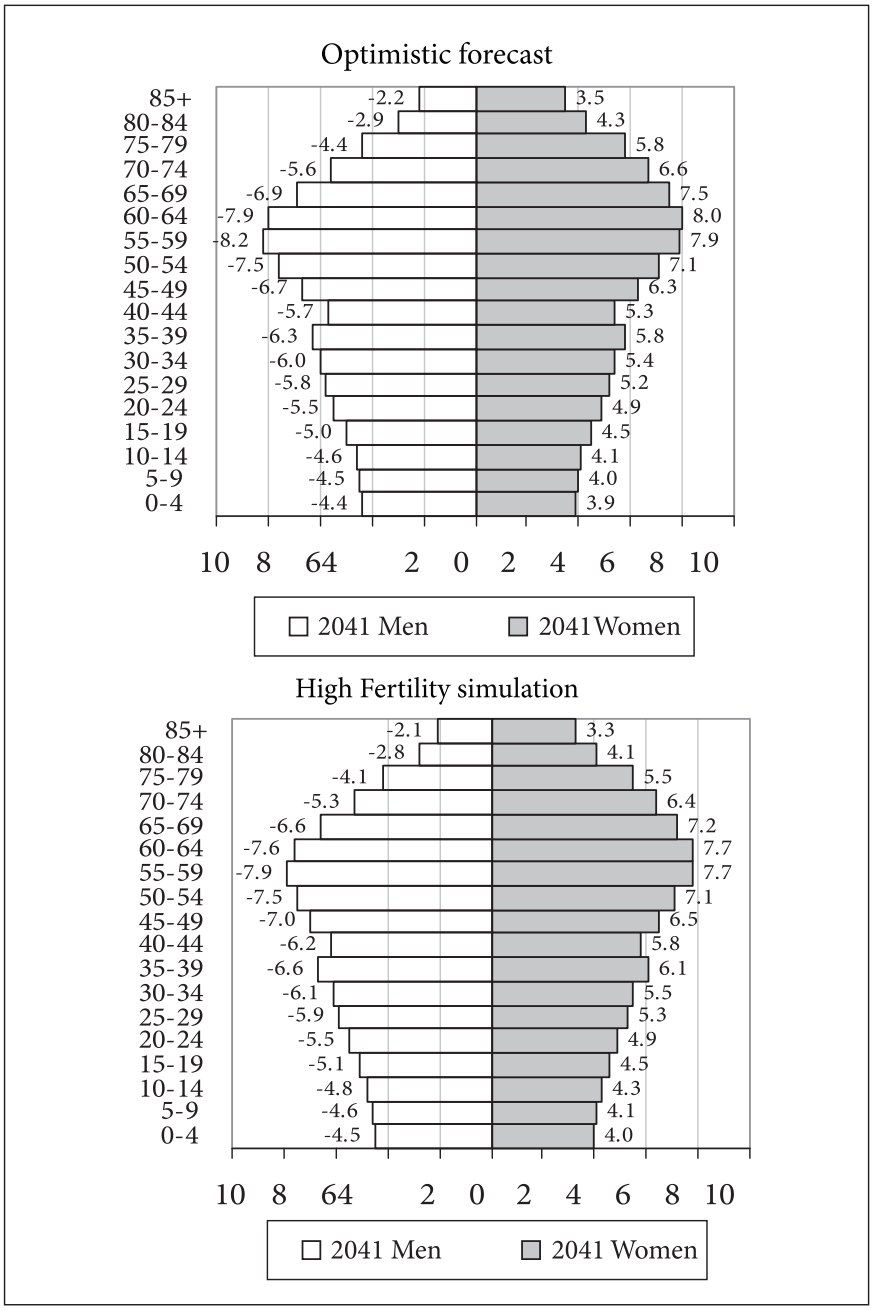
Table 7 Selected indicators of population and labour force development in the four policy simulations and *Optimistic* forecast, 2011 to 2041

Population and labour force (000)	2011	2041				
		Optimistic forecast	*High Fertility*	*Increased Net Migration*	*High Economic Activity*	*Combined Policies*
Population	7218.2	5549.5	5779.3	5851.4	5549.5	6097.4
Education age population (5–24)	1620.9	1022.7	1173.9	1101.5	1022.7	1262.1
Population aged 65+	1213.2	1383.0	1383.2	1387.7	1383.0	1387.9
Labour force	3074.4	2428.1	2453.1	2605.2	2749.3	2976.1
Characteristics of population and labour force change 2011–2041		*Optimistic forecast*	*High Fertility*	*Increased Net Migration*	*High Economic Activity*	*Combined Policies*
Population change (000)		-1668.7	-1438.9	-1366.8	-1668.7	-1120.8
Population change (%)		-23.1	-19.9	-18.9	-23.1	-15.5
Education age (5 –24) population change (%)		-36.9	-27.6	-32.0	-36.9	-22.1
65+ population change (%)		14.0	14.0	14.4	14.0	14.4

Births (000)		1598.3	1830.3	1665.8	1598.3	1911.8
Deaths (000)		3006.2	3007.7	3009.6	3006.2	3011.2
Natural Increase (000)		-1407.8	-1177.4	-1343.8	-1407.8	-1099.4
Net migration (000)		-260.9	-261.5	-23.0	-260.9	-21.4
Labour force change (000)		-646.3	-621.3	-469.2	-325.1	-98.3
Labour force change (%)		-21.0	-20.2	-15.3	-10.6	-3.2
Characteristics of population and labour force structures	2011	2041				
		Optimistic forecast	*High Fertility*	*Increased Net Migration*	*High Economic Activity*	*Combined Policies*
Proportion of 0-14 in population (%)	15.1	12.7	15.0	13.1	12.7	15.4
Proportion of 65+ in population (%)	16.8	24.9	23.9	23.7	24.9	22.8
Proportion of 40+ in labour force (%)	52.7	59.5	58.8	59.0	60.2	58.9
ODR	24.7	39.9	39.2	37.5	39.9	36.8
LMDR	134.8	128.6	135.6	124.6	101.9	104.9

Source: Authors' computations

Figure 19 Age structures (%) in the *Optimistic* forecast and policy scenarios, 2041

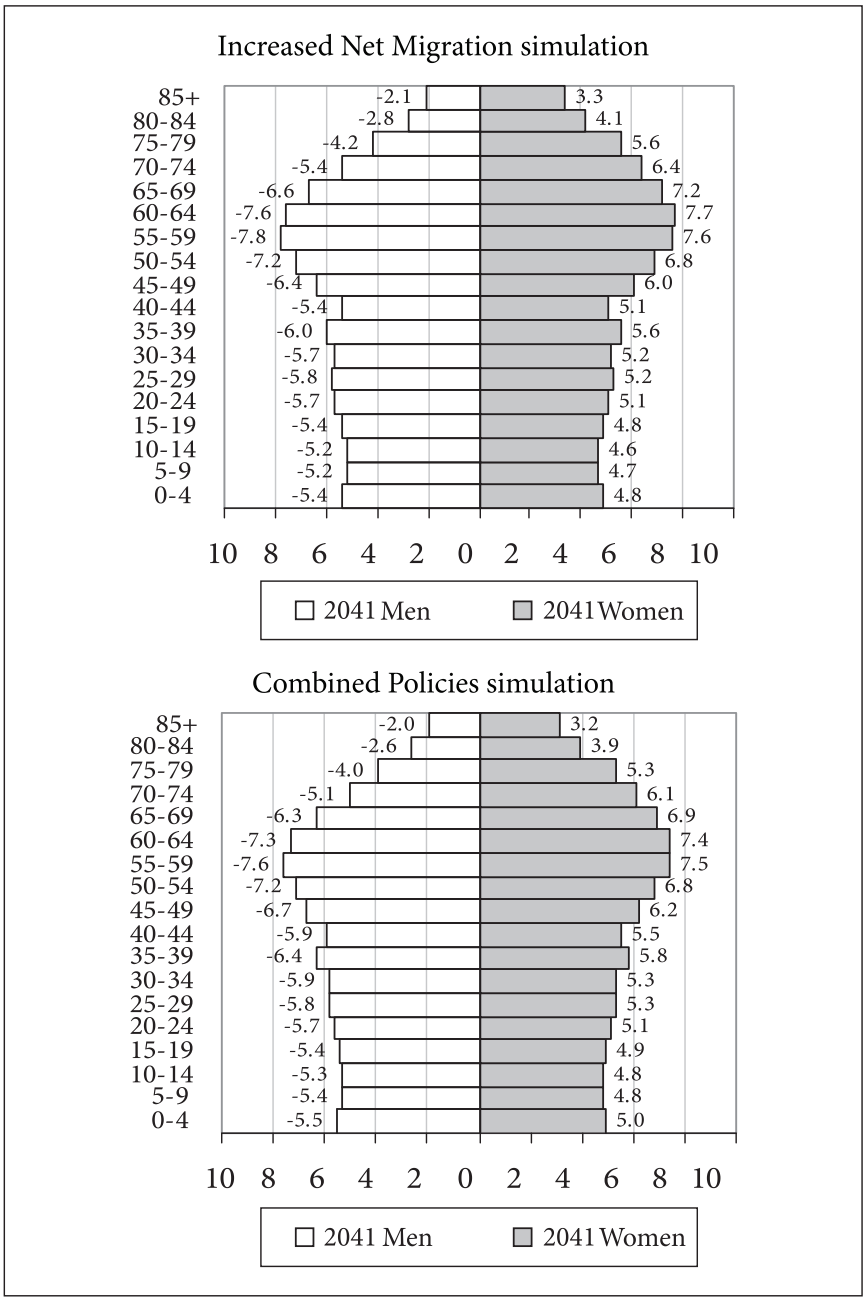


Source: Authors' computations

What was not obvious without running the simulation is that the *High Fertility* policy results in a similar share of the most mobile age group, namely, 20–29, as does the *High Net Migration* policy, at 10.9% and 10.7%, respectively. However, the *High Net Migration* policy is the most effective in increasing the share of the middle-aged population, namely, 30–44. In this scenario, the 30–44 age group would constitute 18.1% of the total population, 5% more than the 17.2% in the *Optimistic* forecast. Indirectly, combining both policies leads to a decrease in the share of the 65+ age group, at 24.9% in the *Optimistic* forecast and 22.8% in the *Combined Policies* scenario. In absolute terms, the number of people aged 65+ is very similar in all the simulations, as expected, since no newly born children and only a few potential migrants would enter that age group within the thirty-year horizon.

The old-age dependency ratio, the measure of the demographic burden of the older population on the working age population, is more sensitive to the increase in net migration than to the fertility increase (Figure 20). If the *High Net Migration* policy were to be implemented, the ODR might decline by 6%, which is to say, 2.4 old people less per 100 working age people in comparison to the *Optimistic* forecast. The reduction would be 0.7 old people, or 2%, in the *High Fertility* scenario, and 3.1 old people, or 8%, in the scenario which combines high fertility and increased net migration. As ageing is the demographic process with the furthest-reaching social and economic consequences, the role of migration in shaping it should be noted.

Figure 20 Selected indicators of the age structure of the population and labour force in the four policy simulations, 2011 to 2041



Source: Authors' computations

The level of ageing for the labour force in 2041, expressed here as the percentage of labour aged 40+, is similar in all four policy simulations, although it is slightly lower in the *High Fertility* and *Increased Net Migration* scenarios than for the *Optimistic* forecast and slightly higher in the *High Economic Activity* scenario (Table 7). Whatever the scenario, the majority of the labour force would always be 40+ at between 58.8% and 60.2% in 2041. While the beneficial impact of the *Increased Net Migration* is visible throughout the 2011 to2041 period, the effect of high fertility is delayed until the children born in the first projection period start entering the labour market. Despite this lag, the *High Fertility* scenario is the most effective from the point of view of labour force rejuvenation, even in the thirty-year perspective, while its impact would be probably clearer in the longer term.

From the point of view of the sustainability of social security systems, the most significant figure is that for the labour market dependency ratio, which tells us how many inactive people there are per one hundred active. The most effective strategy for reducing the LMDR is to increase labour force participation. This would decrease the LMDR by 21%, from 129 inactive people per one hundred active to 102 in comparison to the *Optimistic* forecast. The increase of net migration would reduce the *Optimistic* forecast value for the LMDR by 3 %, and the increase of fertility would increase it by 5%, quite understandably, as it would result in an increase in the number of inactive children.

5.3 Which policy measures would be the most effective response to population change?

Policy makers need to prioritise the aims they want to achieve, ranking them from most to least important, and then they have to choose the most effective policies to attain the key aims first. This section is designed to help in this difficult task. First, we will make some suggestions on what we think the most important policy aims should be; however, our argumentation will be heuristic.

Basically, we need to rank the reduction of population decline, the reduction of labour force decline, the reduction of population ageing and the reduction of labour force ageing by order of importance.

In general, policies aimed at population or population structure change will simultaneously modify both the labour force and its structures. The latter two, however, may be influenced independently by means of targeted policies directed towards achieving changes in economic activity. Obviously, we should also consider the interplay of the aims outlined above, which is best expressed in terms of dependency ratios, these being, perhaps, better suited as indicators for policy decisions than the 'plain' variables.

Our suggestion would be that the solvency of the social security system should be considered as the first and foremost aim. This is because social security is the most general tool for the reduction of poverty; it secures social cohesion and the provision of elementary wellbeing to the entire society. Its role has been noted by the European Commission (2010), which identified demographic ageing as being the key demographic problem to be solved.

Given the sovereign debt crisis in Europe, which is damaging some countries and placing others under severe financial strain, keeping the social security system solvent may be a challenging task. In many countries, these systems are heavily subsidised from state coffers, but the current economic crisis, in combination with population ageing, may result in the demise of these practices. That brings policies for reforming social security systems and increasing the share of the economically active in the total population to the fore for any government. The former is beyond of the scope of our considerations, so we will concentrate on the latter, which should be the primary aim of demographic and labour market policy. The secondary aims indirectly supporting the primary one should be to limit the ageing of the population and enlarge its labour force.

We have constructed Table 8 as a decision-making tool, allowing the variable we want to modify to be chosen, followed by the selection of the policy options to be applied; the green background indicates the most effective policy, the yellow signifies the second most effective and the least effective policy is marked in red.

Given that our primary policy aim may be translated directly into the requirement to reduce the labour market dependency ratio, namely, the number of non-active people per 100 active, we may identify an increase in economic activity as the most effective policy tool for

achieving this. According to Table 8, increasing fertility seems counterproductive from the point of view of maximising LMDR; however this is a misleading conclusion. It is true, indeed, in the thirty-year perspective, because not very many people born during the simulation period would join the labour force in that time. Most of them will be still in education over that period and thus raise the LMDR indicator as they will be economically inactive. A sixty-year perspective, however, would most likely show a different picture, as those born additionally as a result of increasing fertility would become part of the labour force and would have a positive impact on the LMDR. The implementation of all the policies simultaneously gives nearly as a good result as the implementation of the policy aiming at an increase in economic activity and it should be recommended as the choice, since it effectively decreases the LMDR, increases the population and rejuvenates it at one and the same time.

Among the single policies which support the enlargement of the labour force, the most effective are those which increase economic activity, as is the case for the reduction of the labour market support ratio. On the other hand, an increase in fertility is the most effective tool for keeping the labour force young.

The ageing of the population is a strictly demographic phenomenon and policies aiming at an increase in economic activity are therefore irrelevant in this case. Policies which aim to increase fertility are the ones to choose when we want to maximise the share of children or of people at the educational ages in the total population. Policies to increase net migration are more effective if the aim is to decrease the share of the elderly or to minimize the old-age dependency ratio. It should come as no surprise that applying both policies, in other words, increasing fertility and net migration simultaneously, gives the best results when trying to reduce population ageing. However, if we are to apply only one of these policies, our choice will be determined by the time horizon in which we would like to see the results. Increasing net migration brings faster profits. Policies to increase fertility bear fruit in the longer term. On the other hand, migrants age as well and thus, in the long-term, the benefits of increased net migration may be not as strong as they are initially.

Table 8 Selected population and labour force indicators in the *Optimistic* forecast and the four policy simulations, together with their effectiveness, 2041.

	Optimistic forecast	*High Fertility*	*Increased Net Migration*	*High Economic Activity*	*Combined Policies*
Population (000)	5549	5779	5851		6097
Labour force (000)	2428	2453	2605	2749	2976
Population aged 5–24 (000)	1023	1174	1102		1262
Share 0–14 (%)	12.7	15.0	13.1		15.4
Share 65+ (%)	24.9	23.9	23.7		22.8
ODR	39.9	39.2	37.5		36.8
40+ in LF (%)	59.5	58.8	59.0	60.2	58.9
LMDR	128.6	135.6	124.6	101.9	104.9

N. B.: See the text for the explanation of the colour code.
Source: Authors' elaboration.

We did not consider maximising the population size as crucial; however it should be noted that policies aiming to increase net migration are the most effective to that end.

6. Conclusion

The principal aim of this study was to prepare a forecast and a set of simulations for the population and labour force in Serbia over the period from 2011 to 2041 and to investigate the impact of the changes in migration, fertility and economic activity regimes on the population and labour force resources of Serbia in the medium term, namely, thirty years. Despite being of a theoretical, model-based nature, such an assessment gives some useful indications as to the directions of population and labour market policies which would most efficiently relieve some specific problems, particularly the looming burden of ageing, which is a pan-European phenomenon (Kupiszewski, Bijak, Nowok, 2008).

The results of the forecast are quite gloomy. If they were to come true, the population in 2041 would drop to 5.5 million, 23% less than that observed for 2011. The natural change losses over the period in question would equal 1.4 million, while net migration loss for the same period would be 261 thousand, the labour force would decline by 21% and the old-age dependency ratio would increase by 62%, to 40 people aged 65+ per 100 aged 15–64. The LMDR would decrease by 5% to 129 inactive people per 100 active, but it would still remain far above the European average.

We tested the impact of migration on the population dynamics. In the scenario assumed, net migration accounted for the loss of 261 thousand people, but the indirect consequences of migration, which is to say, – a lower natural increase, accounted for the loss of another 110 thousand. Altogether, migration would be responsible for a population decrease of 6.3% and a fall of 8.3% in the labour force. It seems justified to state that migration is an important driver of population change although, in Serbia, natural change is currently much more important.

Testing the sensitivity of the development of population and labour force dynamics to various policies revealed that increasing migration is the best options to curb ageing in the short term, while increas-

ing fertility is most efficient in the long term. An increase in economic activity would help to sustain the labour force and keep it young. Applying various policies simultaneously gives the best results in almost every case.

The main policy recommendation for Serbia is to consider increasing its labour force in the future[13]. There are two key strategies for this; the introduction of atypical forms of employment, such as part-time employment, time share, teleworking and so forth and to raise the retirement age and limit the possibilities of retiring before the normal retirement age.

The second recommendation is to implement pronatalist policies. These will have an effect in the long run. Stimulating fertility through social transfers seems to be effective when such transfers are very substantial, exceeding 10% of the GDP (Caldwell et al., 2002). A great deal of recent research points to the incompatibility of motherhood and employment and the rigid division of social roles between males and females as powerful factors in limiting fertility. Therefore, policies aimed at supporting child care, the sharing of household roles and the reconciliation of family life and employment should be promoted (Palomba, 2003). However, as Caldwell et al. (2002) noted, it is difficult to predict the outcome of pronatalist polices.

Policies aiming at increasing net migration are of a different character and have different effects. They are strictly linked to economic development. One of the most important drivers of migration is the difference in income between the source and destination countries. A nation's good economic performance is a natural magnet for labour; it reduces emigration and attracts immigrants. The development of the labour market and its transparency, as well as the provision of public services also has an important role to play in the migration decision-

13 The forecasted lost of labour could run at around 20%, which is numerically quite similar to the recent level of unemployment. However, it would be misleading to assume that the loss of labour would solve the unemployment problem. Many of the unemployed are unemployable owing to their inadequate skills. Most of them are in the older working age group and will therefore have left the labour market by the end of the forecast period. There is a fairly widespread opinion that, in the future, labour shortages of people with the right qualifications will be acute and will be dealt with, *inter alia*, by the activation of the groups which are marginal on the labour market and by employee-friendly work regimes.

making process. An increase in immigration would be brought about not only by the return of Serbs, but also by an inflow of foreigners. This would lead to an increase in socio-cultural diversity and would require the development of integration strategies. If successful, policies to stimulate an increase in net migration give an almost instant result.

There are a number of socio-economic factors which will continue to encourage the emigration of Serbian citizens, including low rates of economic activity, reinforced by the global economic crisis, a decrease in investment, the high rate of unemployment, structural unemployment, the low standard of living, political instability, the underdevelopment of civil society and strong regional differences. The brain drain is also triggered by the numerous benefits offered by the EU and other developed countries to those professions which are needed in their economies, such as the EU Blue Card, a protected job, a decent salary, and so forth. On the other hand, the Government of the Republic of Serbia recently estimated that the country requires between 10,000 and 12,000 young and capable people who would be able to implement Serbia's transition process and facilitate its prompter entry into the European Union (GRS, 2009).

The study presents a different perspective on both observed and future demographic and labour force developments and thus serves as a tool supporting long-term policy decision-making. It does not proffer a ready-to-use prescription, as researchers are not in a position to decide what the government priorities should be. However, it gives an insight into the quantitative consequences of the implementation of various possible population and labour force policies and affords the decision makers a better view of the interplay between them.

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Annex. Data issues and estimates

Estimation of the start population

When work on this study was in progress, the latest available data on the population of Serbia by sex and five-year age group were those for 1 January 2011 produced by SORS using the population balance method, in other words, using the population data from the 2002 population census and data on the components of population change, namely, births, deaths and migration. In addition, the first results of the 2011 census were available. According to the latter, the total population of Serbia was 7,120,666 people as at 30 September 2011. To estimate the total population on 1 January 2011, we took into account the fact that there were 75.6 thousand deaths and 47 thousand births in the nine-month period from January to September 2011. We estimated the size of net migration during this period at 11.3 thousand net emigrants, assuming the annual net deficit owing to migration at 15 thousand persons, as discussed in Chapter 3 and below. We also took into account the fact that the Albanian population of three municipalities in south-eastern Serbia, namely, Presevo, Bujanovac and Medveda, boycotted the 2011 Census. On the basis of the 2002 census results, we estimated that their number would have been a maximum of 57.6 thousand. Putting all the above components together, we obtained an estimate of 7218.2 thousand people as the population of Serbia on 1 January 2011, which is 58 thousand less than the SORS estimate based on the population balance. Given that no 2011 census data on sex and age structure were yet available, these structures were assumed to be as estimated by SORS using the population balance method.

Demographic statistics

Following World War II, official demographic data were collected and published in line with the administrative-political division of the Socialist Federal Republic of Yugoslavia for the six former constitutive

republics, including Serbia, and two autonomous provinces of Serbia, namely, Vojvodina, and Kosovo and Metohija. After the dissolution of the SFRY in 1991, and, subsequently, of the Federal Republic of Yugoslavia in 2006, demographic statistics were collected by the Statistical Office of the Republic of Serbia (SORS) for the country's three constitutive macro regions, Central Serbia, Vojvodina, and Kosovo and Metohija.

Since 1998, there has been a problem both with a lack of data for Kosovo and Metohija, and with data reliability in respect of the underestimation of rates from 1989 onwards (Penev, 2003; Rašević, 2004). Furthermore, the last two censuses in Serbia, taken in 2002 and 2011, did not cover Kosovo and Metohija, given the absence of Serbian authorities in the province after 1999. Kosovo/UNSCR 1244 proclaimed itself independent from Serbia in February 2008 but, according to the Serbian Constitution, it is still an autonomous province of Serbia. Apart from the actual political and territorial disputes, the practical absence of data for the last twenty years forced us to analyse Serbia without Kosovo and Metohija.

Data on the number of births by mother's age for five-year age groups between 15 and 49 from 1999 to 2010 and on the annual age-specific fertility rates by single years of age for the period from 1950 to 2010 were obtained from SORS. Similarly, we obtained the 1999 to 2010 data on deaths and on mortality rates for 1950 to 2010 by five-year age group, namely, 0–85+ and sex.

It should be noted that the official population estimates used in the denominator when calculating age-specific fertility and mortality rates are not quite consistent in the methodological sense when the two periods, 1950 to 1990 and 1991 to 2010, are compared. The estimates for the former period took into account the population living abroad, while the estimates for later period did not, with the exception of those who had been living abroad for less than a year. However, this migration effect was assessed as not exceeding 5% for each cohort (Penev, 2002). Consequently, the rates for the 1950 to 1990 period would be somewhat higher than the calculated ones if the population living abroad was excluded from the population estimates, which is to say, the denominator of the rate.

Another problem with the official, published national rates is that, for the period from 1950 to 1998, they were calculated for the aggregate of all the regions of the country (Central Serbia, Vojvodina and Kosovo/UNSCR 1244). However, in the subsequent period of 1999

to 2010, the national rates do not include Kosovo owing to the lack of data for this province. As a result, the national rates for the period from 1950 to 1998 were recalculated for the purposes of this report and refer to Central Serbia and Vojvodina, excluding Kosovo/UNSCR 1244 in order to obtain a spatially consistent time series for the whole period from 1950 to 2010 which was being examined.

Data and estimates concerning migration flows

As noted by Flinterman and Kupiszewska (2009), no data on international migration flows are reported by the Statistical Office of the Republic of Serbia. In the absence of official Serbian statistics, the best source of information on international migration flows from and to Serbia are the data from the destination countries. Data were gathered from the Eurostat on-line database, the websites of national statistical institutes (NSIs) and the OECD International Migration Database, as well as by contacting selected European statistical offices directly.

The migration flow data available from the Eurostat database originate from its annual data collection, which has been conducted since 2008 on the basis of *Regulation (EC) No 862/2007 of the European Parliament and of the Council on Community statistics on migration and international protection* and was previously carried out by means of the Joint UNECE-Eurostat-UNSD-ILO Questionnaire on International Migration Statistics on a 'gentlemen's agreement' basis. Data are now collected from all EU Member States, as well as from the candidate and potential candidate countries.

The following data were extracted from the Eurostat database for the purposes of this study: immigration by country of previous residence, emigration by country of next residence, immigration by citizenship and emigration by citizenship, all covering the period from 2002 to 2009. The contents of the Eurostat tables changed with the political changes. Thus, the *Federal Republic of Yugoslavia* was replaced by *Serbia and Montenegro* in the tables relating to flows since 2003. In the 2006 flow tables, two new countries appeared on the list of origins and destinations; *Serbia, including Kosovo/UNSCR 1244* and *Montenegro*. The list of countries changed again in the 2008 flow tables, which now con-

tained *Montenegro Serbia* and *Kosovo under UNSCR 1244/99* as separate entries. However, some countries have continued to report some figures under "the former Serbia and Montenegro" and "the former Yugoslavia". This was justified in the case of migration flow and population stock tables by country of birth and by country of citizenship, since migrants could still have valid passports issued, for example, by the former Serbia and Montenegro. In the tables on emigration by country of next residence, migrants could be listed within non-existent countries, because the information on their country of next residence may be imputed from the data on their citizenship, as registered upon arrival.

In principle, from the point of view of the study, the data referring to Serbia excluding Kosovo/UNSCR 1244 were the most sought after, because we were preparing projections for Serbia excluding Kosovo/UNSCR 1244. However, as the availability of such data is very limited, we collected all the potentially useful data and then endeavoured to estimate the requisite information.

The Eurostat flow data were available for the period up to 2009 and have a number of gaps, in particular for the countries which are not EU Member States. We added the data for 2010 and filled in some gaps, as far as possible, by checking the websites of the NSIs and by contacting selected statistical institutes directly.

In some countries, data on flows were not available in disaggregation by country of previous and next residence. In such situations, we had to use data by citizenship for Switzerland, Hungary and Belgium, or by country of birth for the United States and immigration to Australia.

An additional problem is the lack of comparability as regards the definitions of 'migrant' and 'migration' in different destination countries (Kupiszewska and Nowok, 2008; Nowok et al., 2006). We did not try to address this issue when making the estimates, with the exception of the German data (see below). Even more important is the problem of data quality. The under-coverage of emigration statistics is universal in the European countries, but immigration may also be underestimated. In particular, the migration flow statistics do not cover irregular migration, apart from Spain, where irregular migrants may register in the population register and are then counted in migration flow statistics.

The procedure of estimating migration flows to and from Serbia

The estimation of emigration and immigration from and to Serbia excluding Kosovo/UNSCR 1244 was made using all the available flow data concerning either Serbia excluding Kosovo/UNSCR 1244 or aggregate data involving Serbia, in other words, data on Serbia including Kosovo/UNSCR 1244 and data on Serbia and Montenegro. Data concerning flows from and to Serbia excluding Kosovo/UNSCR 1244 were available for only a few countries, so we had to make estimates based on the aggregated data for most of the countries in question.

It is well known that the definition of migrant in German migration flow statistics is significantly wider than in the other countries, with the result that German data are overestimated. We therefore started by recalculating the German figures using the correction factors estimated by de Beer et al. (2010). The multipliers, derived by de Beer using the data on flows between nineteen EU countries for 2002 to 2007, allow the figures reported by a given country to be corrected and made consistent with the UN definition of long-term migrant. The correction factors which we applied to the original German flow numbers were 0.81 for immigration to Germany and 0.71 for emigration from Germany.

The next step was the estimation of the shares of flows from/to Serbia excluding Kosovo/UNSCR 1244 in the aggregated flows. This was done using the data on immigration and emigration from/to Serbia, Montenegro and Kosovo/UNSCR 1244 available for 2009–2010 for six countries; Germany, Italy, the Netherlands (2009 data only), Norway, Slovenia and Sweden. 60% of the migrants coming from Serbia excluding Kosovo/UNSCR 1244 numbered among the immigrants coming to those six countries from Serbia and Kosovo/UNSCR 1244, and 59% if calculated as a share of immigrants arriving from Serbia, Kosovo/UNSCR 1244 and Montenegro. In emigration flows, 80% of migrants leaving for Serbia excluding Kosovo/UNSCR 1244 numbered among the emigrants departing from the six countries to Serbia and Kosovo/UNSCR 1244, and 78% if calculated as a share of emigrants going to Serbia, Kosovo/UNSCR 1244 and Montenegro. The shares estimated for the six countries were later used to estimate flows from/to Serbia including Kosovo/UNSCR 1244 for the countries where the

numbers reported referred to the aggregated flows covering Serbia including Kosovo/UNSCR 1244 and Montenegro.

In some instances, the data had to be corrected. In particular, the relatively high numbers reported for emigration from Croatia to Serbia in the recent years, at almost 4,000 a year, do not refer to real migration. They probably concern refugees of the 1990s, who then lived in Serbia, were successful in obtaining Croatian citizenship with a view to trying to repossess their properties in Croatia but, when they failed, reported their departure from that country. In fact, they never really left Serbia. The UNHCR's research in Croatia showed that, at most, 43% of Serbian returnees to Croatia really stayed on in order to live there. Representative surveys on repatriation from 2006 and 2010 indicate that only 38.3% and 33.2% of all returnees, respectively, really resided in Croatia. Most of the formal returnees (70%) lived in Serbia in 2010 (Mesić and Bagić, 2010; Mesić and Bagić, 2011). Therefore, the large numbers of emigrants from Croatia to Serbia are, in fact, a statistical artefact (CRS, 2010).

The estimate on the immigration flow to the United States was based on the number of people obtaining legal, permanent resident status by country of birth, according to the official 2010 Yearbook of Immigration Statistics and representing the average for 2009 to 2010.

The only available data on migration to and from the United Kingdom comes from the Eurostat database and covers 2008. It seems to be highly underestimated. This conclusion is supported by the fact that estimates of relatively small groups of immigrants, such as those from Serbia, captured by the UK's sample survey on passengers could not be considered reliable owing to the large, standard errors (Kupiszewska et al., 2010). It was therefore assumed that the recent annual immigration flow to the UK is roughly half of that to the USA.

Other corrections applied to the official data mostly related to the adjustment of emigration flows to Serbia, as the data for some countries were missing and were probably underestimated for others. The estimates on emigrants from Croatia and the former Yugoslav Republic of Macedonia were based on the Serbian statistics for first residence permits for 2009 and 2010. The figure for emigrants from the UK, Canada and USA was estimated assuming that that the ratio of emigration to immigration coincides with the ratio calculated for Italy, since all these countries are considered to be new destinations for

Serbian citizens. The estimate of the number of emigrants from France was arbitrary. Even though it is an old destination for Serbian nationals, it was assumed that the number of returnees to Serbia is half the number of immigrants from Serbia to France, since France was more popular than Austria for seasonal workers at the time, which nowadays probably results in smaller share of the returning pensioners than those registered from Austria; in the case of the latter, the number of emigrants to Serbia is similar to the number of immigrants from that country.

Finally, the official data on immigration flows to Slovakia were reduced in order to exclude immigrants from Kosovo/UNSCR 1244, since it is obvious that they were included, as was the case for Spain, since these two countries did not recognise Kosovo/UNSCR 1244. In the case of Bosnia and Herzegovina, the lack of official data on immigration to this country is replaced by the arbitrary value of zero, under the assumption that this flow direction is not significant.

The final results of the estimations are given in Table 9.

Net migration age and sex profile

The assumptions for the age and sex composition of net migration in the future were derived using the most recent data on migration age and sex patterns in selected European countries where such data were available. The age distribution of migrants in the period from 2011 to 2015, hereafter referred to as the 'initial' distribution, was based on the pattern observed for the migration exchange for 2009 to 2010 between Serbia and three countries; Italy, Sweden and Switzerland (2010). These data covered immigration and emigration, by country of previous and next residence, respectively, for Italy and Sweden and by citizenship for Switzerland. The 'target' age distribution for the *Optimistic* scenario was derived from the data on all immigration and emigration flows, by country of previous and next residence, respectively, for Denmark, Spain, Italy, the Netherlands, Austria, Sweden and Norway for the period from 2004 to 2009. The choice of countries reflects the geographical diversity, immigration attractiveness and presence of Serbian nationals, but was limited by data availability.

The *Pessimistic* and *Status Quo* simulations assume the 'initial' age distribution for the entire projection period. In the *Optimistic* fore-

cast, we used this age distribution in the first two steps of the projection, namely 2011 to 2020. For the subsequent steps, we assumed that the positive net migration in the older age groups, namely 55+, will be generated by the return migration of people who have either retired or simply earned enough to live comfortably on lower salaries until their retirement. This stream will remain relatively stable and is not dependent on political and economic developments, except, perhaps, a war, which we excluded from the likely options. Therefore, in the *Optimistic* scenario we kept the numbers of net migrants in the 55+ age groups stable for the remaining period of the projection.

For 2021 to 2025, the post-accession period, we blew up the net emigration loss in the 20–29 age groups, so that it increases twice as much as the net migration in the other younger (up to 54) age groups. We also increased the net emigration in the 30–34 age group proportionally, albeit not as significantly as for the younger ones. In doing so, we followed the experience of Poland at the same stage of the European integration. For 2026 to 2040, we assumed the age pattern of the 'target' distribution for the 0–54 age groups, with a negative sign for 2026 to 2036 and a positive sign for 2036 to 2040 and kept the level of flows in the 55+ age groups as per those for the previous period.

In the *Increased Net Migration* policy scenario, the age profile of migrants in the first five-year period was assumed to be the same as for the *Optimistic* forecast. From the second period onwards, the net migration flows in the 55+ age groups were assumed to stabilise while, in the younger population, the relation between the size of net migration at various age groups was the same as for the first projection period.

Table 9 Average migration flows from and to Serbia, Kosovo/UNSCR 1244 and Montenegro reported by six selected European countries for 2009–2010

	Emigration	Immigration	Net migration
	from Serbia	to Serbia	to Serbia
Germany	10500	9772	–727
Italy	2359	402	–1957
Netherlands	212	156	–56
Slovenia	2776	2450	–326
Sweden	933	143	–790
Norway	213	31	–182
Total for the 6 countries	16991	12953	–4038
	from Kosovo/UNSCR 1244	to Kosovo/UNSCR 1244	to Kosovo/UNSCR 1244
Germany	5299	1976	–3323
Italy	2644	80	–2564
Netherlands	33	7	–26
Slovenia	2159	1172	–987
Sweden	997	28	–969
Norway	169	13	–157
Total for the 6 countries	11300	3276	–8025
	from Montenegro	to Montenegro	to Montenegro
Germany	454	355	–98
Italy	49	8	–41
Netherlands	28	19	–9
Slovenia	102	63	–39

Sweden	90	11	–79
Norway	18	4	–14
Total for the 6 countries	739	460	–279
	from Serbia and Kosovo/UNSCR 1244	to Serbia and Kosovo/UNSCR 1244	to Serbia and Kosovo/UNSCR 1244
Total for the 6 countries	28292	16229	–12062
	from Serbia, Kosovo/UNSCR 1244 and Montenegro	to Serbia, Kosovo/UNSCR 1244 and Montenegro	to Serbia, Kosovo/UNSCR 1244 and Montenegro
Total for the 6 countries	29030	16689	–12341

N. B.: Adjustment factors of 0.71 and 0.81 were applied to the original German data for outflows from, and inflows to, Germany, respectively

Source: Eurostat, the NSIs of the listed countries and authors' estimates

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