Allianz Dresdner Economic Research

Working Paper

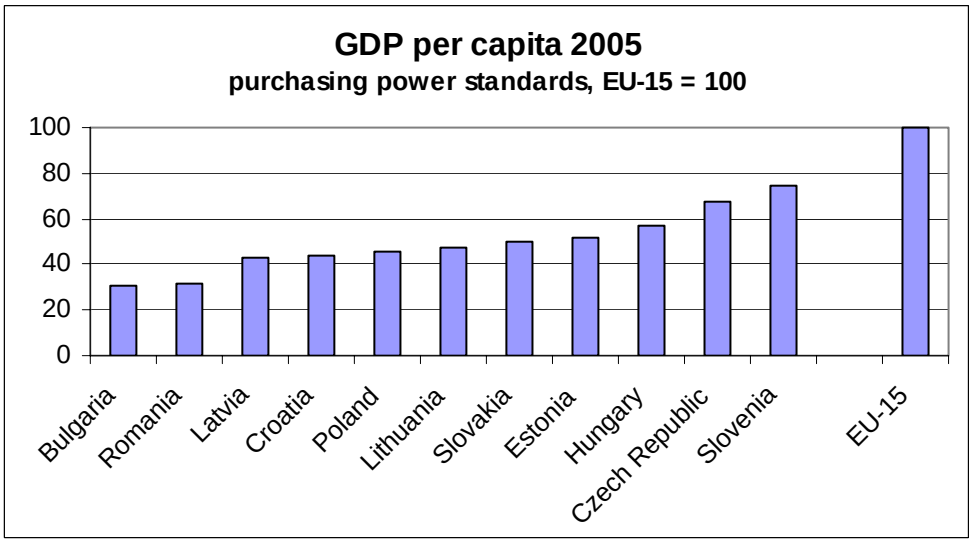
No.: 88, 18.06.2007

Author: Dr Jürgen Stanowsky

Central and eastern European demographics – that shrinking feeling!

1. Weight of new EU-member states within EU

In its latest two expansions the EU admitted 12 new member countries, of which 10 are from Central and Eastern Europe (CEE). Slightly more than 100 million people became EU citizens. Almost 30 million – the citizens of Bulgaria and Romania – as recently as January 1st, 2007, the others in May 2004. The EU-15 added roughly a third to its existing population in the course of the two enlargement rounds. This substantial 30 % increase in population was accompanied by an increase in GDP which amounted to only 6 % of EU-15 GDP. The income discrepancies are wide within the EU after enlargement. A look at per capita GDP in purchasing power standards shows that all CEE member countries except the Czech Republic and Slovenia are poorer than the poorest EU-15 member Portugal. In other words, the potential for catching-up with the old EU-15 is huge.



The GDP growth figures show that this catching-up progress is well established. However, it is starting from a low base and for most countries it will take many decades until the level of the old EU-15 members is within reach. With respect to demographics the CEE countries will close the gap to Western Europe much faster. In this process the problems causing headaches in the capitals of many EU-15 countries will have to be addressed in the new member states, too.

2. The demographic situation in the CEE countries

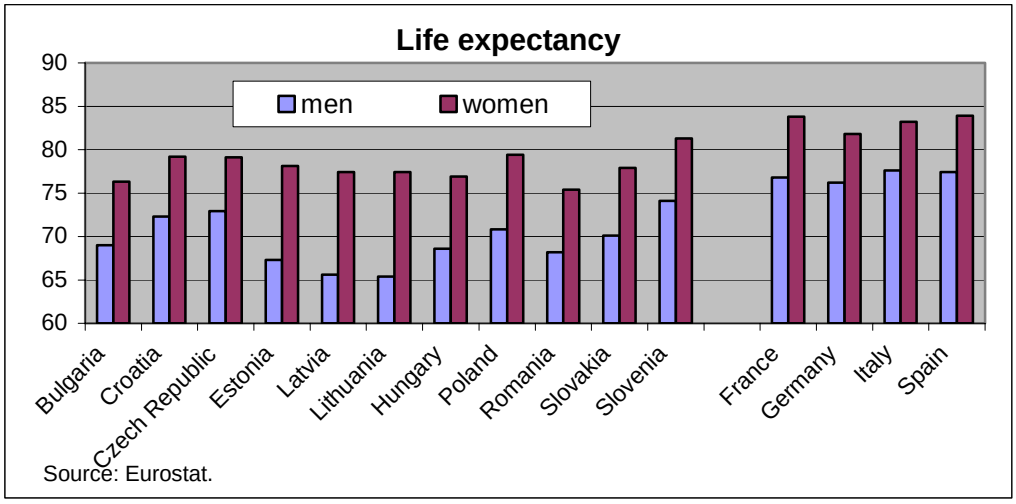
The structure of any country's population – old or young, big or small – is governed by three fundamentals: the developments of **mortality, fertility and migration**. The **mortality rate** simply indicates the number of deaths for a given population. A more detailed picture of mortality is presented by so-called life tables, which show the mortality rate at any given age. From these tables life expectancy is calculated. As in most parts of the world, life expectancy in the CEE countries is increasing. Better hygiene and nutrition as well as access to improving medical services are the main driving forces behind this trend, not only in Central and Eastern Europe but globally. However, an increase in life expectancy should not be taken for granted. A closer look at its development in the region highlights how beneficial the end of communist rule was for these people. In the period between 1975 and 1990 life expectancy for West German men increased by 3.7 years. Comparable figures can be found for the rest of the EU i.e. France 3.7 years or Italy 4.3 years. However, in six out of eleven CEE countries male life expectancy decreased in that time period. The rest had negligible increases with the exception of Slovenia and Croatia. The latter two belonging to former Yugoslavia stood somewhere between the West and the communist block. After 1990 the picture changed dramatically and only Lithuania saw a drop in life expectancy, whereas most of the other countries showed development close to that in the west.

Changes in life expectancy

	1975 – 1990		1990 – 2005	
	men	**women**	**men**	**women**
Bulgaria	-0.5	1.5	0.6	1.1
Croatia	2.5	2.8	3.7	3.2
Czech Republic	0.5	1.4	5.3	3.7
Estonia	-0.1	0.3	2.6	3.2
Latvia	0.1	0.3	1.3	2.8
Lithuania	0.1	0.7	-1.0	1.2
Hungary	-1.2	1.3	3.5	3.2
Poland	-0.3	2.0	4.1	3.1
Romania	-0.8	1.1	1.6	2.3
Slovakia	-0.2	1.6	3.5	2.5
Slovenia	2.9	2.8	4.6	3.2
Germany	3.7	3.6	4.2	3.4
France	3.7	3.4	4.0	2.9
Italy	4.3	3.9	4.0	3.1

Sources: Eurostat, German Federal Statistical Office, own calculations.

For women the picture is less bleak, but no CEE country came close to the increases in life expectancy seen in Western Europe. These developments are naturally reflected in life expectancy at birth 2005. In most CEE countries it is still significantly lower than in the EU-15. However, together with economic growth we can expect life expectancy to grow faster in those countries which are now lagging the furthest behind.



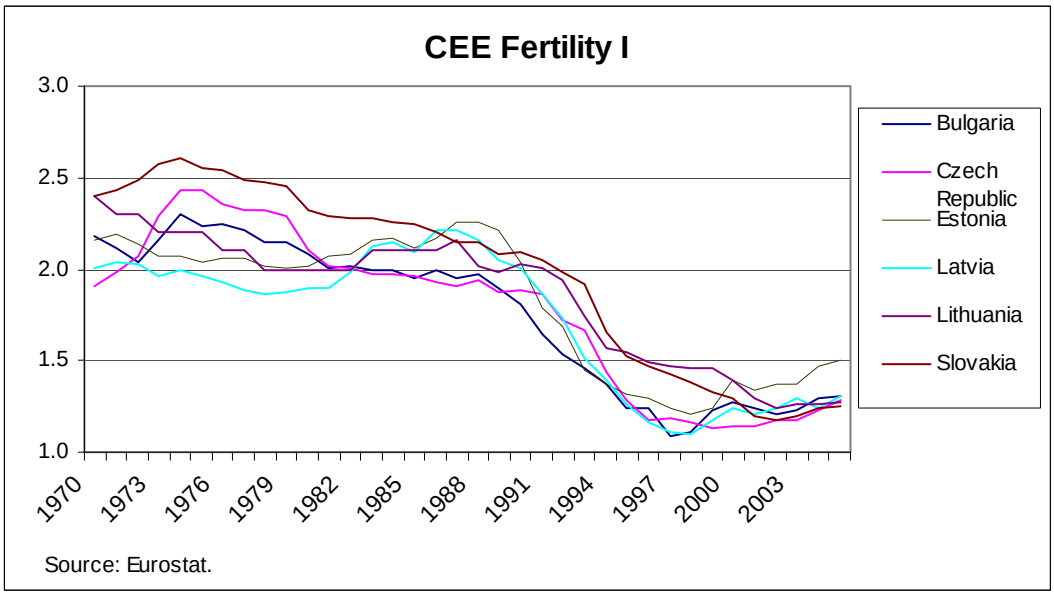
Source: Eurostat.

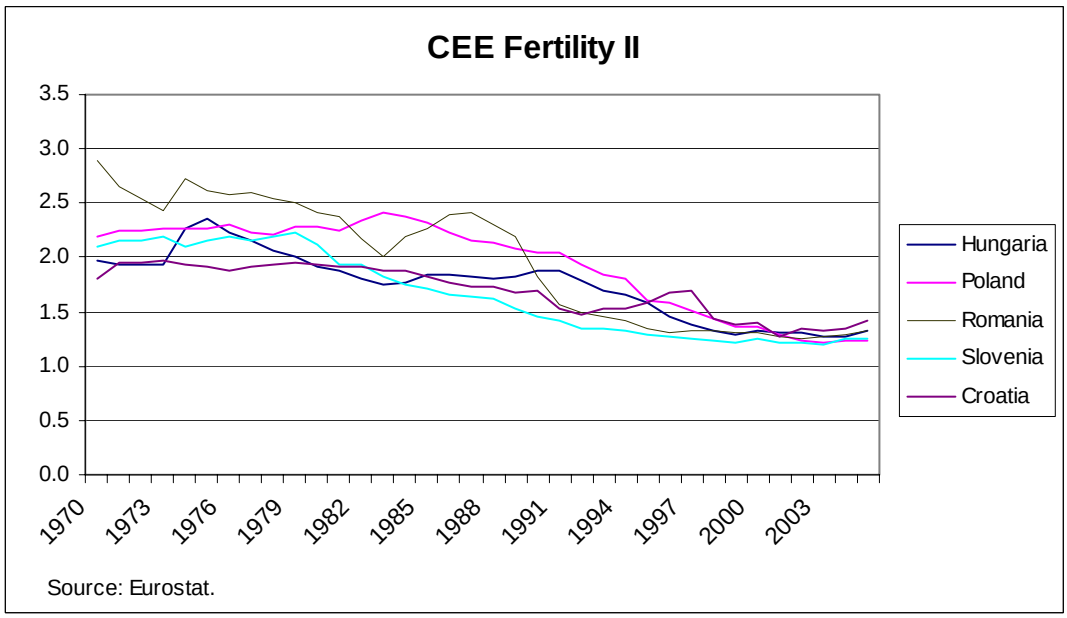
Another important factor determining population development is the number of children. As long as the number of births exceeds the number of deaths, a population will grow – disregarding migration. To keep a population size stable in the long run, statistically each woman must give birth to 2.1 children, or in other words the total fertility rate must be 2.1. A higher fertility rate leads to growing populations, a rate below 2.1 means the population is shrinking.

As with life expectancy, which is rising, there is a global trend in fertility – it is declining. According to UN data global fertility is about 2.5 today, down from 5.0 in 1950. Fertility trends among countries differ widely. The situation in the CEE countries is marked by a steep decline in fertility, which began in the 1970s and accelerated in the early 1990s after the collapse of the Soviet Union. This was not surprising, given that times of increased economic insecurity frequently lead to sudden changes in birth rates. And again it becomes obvious that those countries with the closest economic links to the former Soviet Union saw the biggest changes. Between 1990 and 1995, fertility in the CEE countries declined much more sharply than in the rest of Europe. The drop was particularly dramatic in Latvia, Estonia and the Czech Republic. Croatia, Slovenia and Hungary were less affected as these countries were less economically dependent on the former Soviet Union.

Today fertility rates in the CEE countries are among the lowest in Europe and, accordingly, in the world. In 2005 the figure for Germany – a country known for its low fertility – stood at 1.34. Nine out of eleven countries analyzed in this paper had fertility rates lower than Germany. Poland and Slovakia had the lowest rates with 1.24 and 1.25 respectively. (See charts below) This means that, without substantial immigration or a rebound in the fertility rate, these countries would shrink

dramatically. Under current conditions each generation in the CEE countries will only replace itself by about 60 %. So populations are set to shrink eventually. The expected increase in longevity can only postpone but not ultimately avert a decline in population given the low fertility.



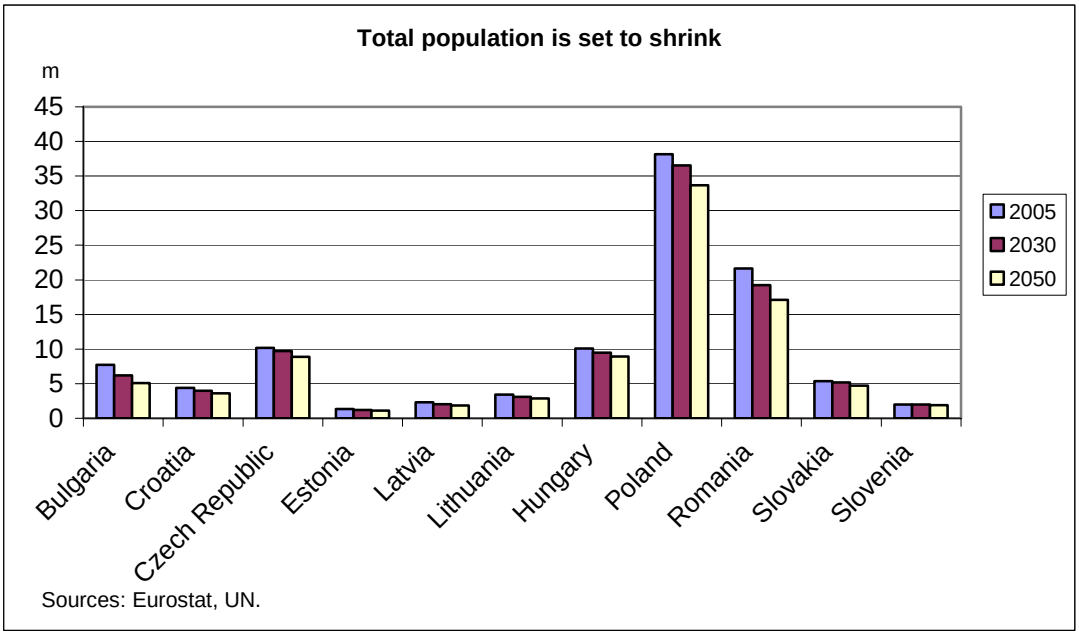


An increase in immigration could offset the trend in natural population change, but no immigration wave into CEE countries of sufficient size is in sight. However, the picture presented on migration by EU statistics is rather good. Only four countries show net emigration. These countries are Poland, Latvia, Lithuania and Romania. Unfortunately, migration statistics are not particularly reliable and the real picture probably looks much different from the one presented by the statistics. A slightly better gauge of real developments might be the assumptions underlying the population forecasts. Eurostat – the European Statistical Office – assumes a negative migration balance, that is net emigration, for most of the countries until 2020, turning positive thereafter. Notable

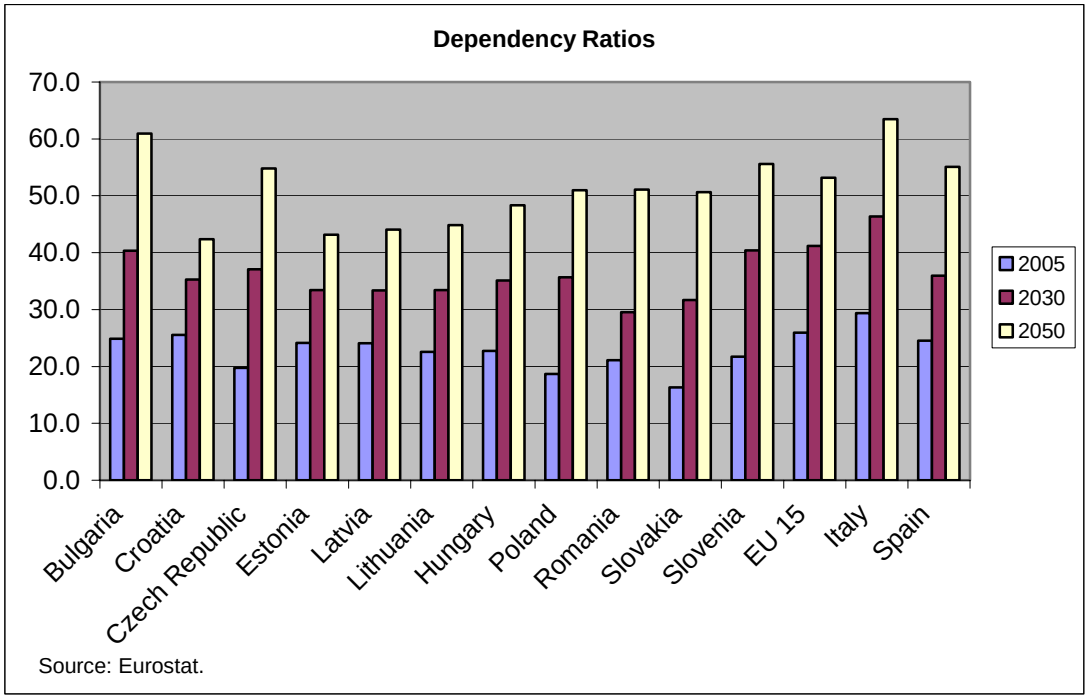
exceptions are Hungary, Slovenia and the Czech Republic. In the latter countries net immigration is forecast for the future at least up to 2050 – the end of the forecast horizon.

3. Consequences of demographic developments

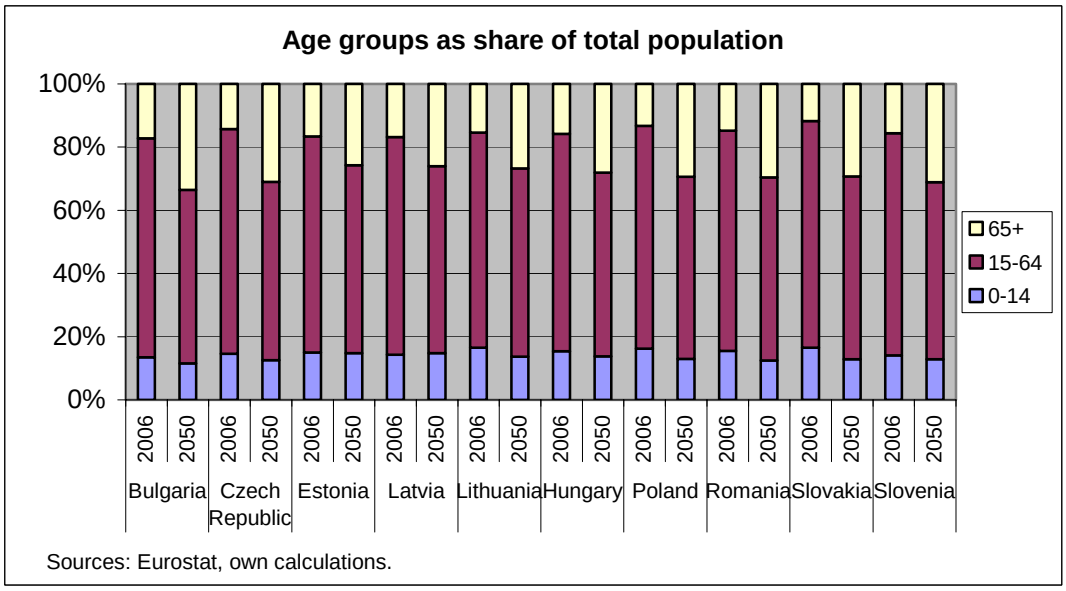
In the absence of any sizeable immigration, fertility decline is leading to shrinking populations, while increasing life expectancy is boosting the average age. The age group comprising people over 65 is the only one expected to grow in the future. Overall, the population of these 11 countries is forecast to shrink by about 15 %, or roughly 16 million people, by 2050. This means that an equivalent to the current population of Hungary and the Slovak Republic will disappear by 2050. In absolute terms, Poland and Romania are the worst hit, as they will each lose about 4.5 million inhabitants by 2050, representing 10 % and 20 % of their respective populations. The situation is even worse in Bulgaria. According to Eurostat, the country will lose roughly a third of its current population within the next 40 to 45 years.



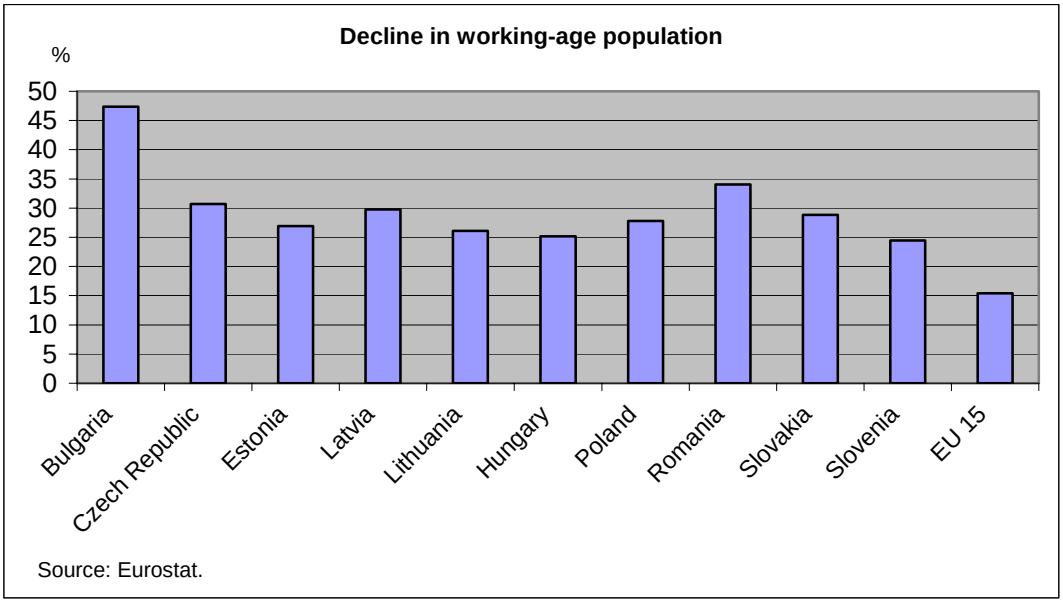
The **old-age dependency ratio** provides a good indication of a country's demographic situation and the resulting pressures on the pension system. This ratio shows for 100 people of working age (15 – 64 years) the number of people aged 65 and more, i.e. pensioners, who have to be supported. Currently the old-age dependency ratios in the CEE countries under consideration range between 16 and 26. With a ratio of about 16, Slovakia has the lowest old-age dependency, while Croatia has the highest with a ratio of 26. In 2050, these ratios will be much higher still. In Bulgaria, there will be 60 pensioners for every 100 people of working age. The figure will be lowest in Croatia and the Baltics, with about 42 to 45 pensioners, while the EU-15 average will be around 53. The following chart illustrates these developments. It should be taken into account that the EU-15 average is pushed higher by Italy and Spain, which have the two fastest-ageing populations.



A further consequence of the demographic trends described above are changes in the age structure of the population. Most notably the increase in life expectancy which is most welcome on an individual level, leads collectively to an increase in the average and median age of the society. Today's median age is around 37 years in Poland and Romania, slightly less in Slovakia and about 41 years in Bulgaria and Croatia. This means that half of the population in these countries is older than 41 years. By 2050 this threshold will be on average more than 10 years higher. In Poland, Bulgaria and Slovenia median age will be over 52 years according to UN forecasts. With this ageing trend the age distribution changes, elderly citizens become more numerous as the number of young people decreases. The changes in the weight of different age groups between now and 2050 are shown below.



Most striking is the increase in the share of the over 65 year olds between now and 2050 in all countries. One in three citizens will be over 65 in Bulgaria, in Hungary the figure is 28 % and in Poland 29 %. The decline in the young population, the under 15 year olds, is less pronounced. But the share of the working age population is set to decline significantly in all countries. In the Baltics the decline is between 8.5 and 10 percentage points, in Poland, Bulgaria and Slovenia it is between 14 and 15 percentage points. Since the labor force follows developments of the working age population it is interesting to see how the latter develops over time. The following chart shows the decline in the number of 15 – 64 year olds between 2006 and 2050 based on current EU population forecasts. The Bulgarian potential labor force is set to shrink by almost half, but even Slovenia, with the smallest decline among CEE countries, will lose almost 25 % – ten percentage points more than the EU-15.



Source: Eurostat.

4. Economic consequences of demographic change

Changes in the age structure are accompanied by many other changes in society, too. First of all, if fewer children are born, fewer places for child care and schools are needed. On the other hand, more elderly people mean ceteris paribus more frail and sick people who need care or medical treatment. To a certain degree the CEE countries have already reacted to the pending changes of their societies. The pension reforms enacted over the last one anda half decades were undertaken with an eye on demographic developments. As a result the pay-as-you-go financed part of the pension systems became less important and funded parts more important. In the long-run demographic developments influence economic growth, too. Currently the CEE countries considered in this paper are growing strongly and benefiting from membership in the EU (except for Croatia). The catching-up process is in full swing and EU funds will speed up this development for years to come. In principle, the economic outlook for the foreseeable future is bright. However, eventually the decline in the potential labor force will affect growth since the latter depends on the amount of the input factors capital and labor. Another important ingredient in growth is the

efficiency in the use of these factors. The usage of capital in CEE countries is still low compared with the rest of the EU, though increased investment will be one of the driving forces of growth. Another source will be higher factor productivity due to more efficient use of resources as a result of technical progress. Higher participation rates especially among the elderly could even boost labor in the short run. However, eventually scarcity of labor will reduce growth.

In its forecasts the EU Commission (the Economic Policy Committee) assumes that in the CEE countries technical progress will keep growth of the so-called total factor productivity significantly higher than in the EU-15 until 2030. Thereafter it will converge to the lower EU-15 level. At 3.0 % the growth potential is assumed to be higher in CEE countries until 2030 than in the EU-15 countries where it is only 1.8 %. However, for the period from 2031 to 2050 the picture is reversed. Because of the dramatic labor force decline in CEE countries potential growth at 0.9 % will trail the 1.3 % forecast for the EU-15.

Another field where demographic change leaves its mark is public finances, pension expenditure most prominent among them. However, due to the mentioned reforms the EU Commission calculates that until 2030 public pension expenditure in CEE countries (Bulgaria and Romania are not included in these calculations) will be lower than 2004 whereas it will be significantly higher in the EU-15 countries. This is the result of the phasing out of the old pension schemes which prevailed under communist rule. In the 1990s all CEE countries reformed their pension systems and made them less generous. Retirement age was increased, pension levels lowered and in most cases a mandatory funded pillar was introduced. Younger workers were shifted towards the new pension schemes and only those near retirement remained in the old system. By 2030 the share of pensioners covered by the old systems will be much smaller than today. However, the consequences of demographic developments cannot be delayed forever. By 2050 pension expenditure relative to GDP in CEE countries will be considerably higher than in 2030 and higher than in 2004. The change from 2030 to 2050 will actually be bigger than in EU-15 countries. However, these results for the eight CEE countries covered by the EU Commission can be attributed almost exclusively to the developments in Poland and the pension reforms enacted there. Developments of pension expenditures in the other seven countries under review are more or less identical to the EU-15 until 2030, thereafter they increase much more than in the rest of the EU. The following table shows the respective figures for age-related changes in pension expenditures.

Projected public expenditures on pensions, % of GDP

	2004	2030	2050
Czech Republic	8.5	9.6	14.1
Estonia	6.7	4.8	4.2
Latvia	6.8	5.6	5.6
Lithuania	6.7	7.9	8.5
Hungary	10.4	13.5	17.1
Poland	13.9	9.2	8.0
Slovakia	7.2	7.7	9.0
Slovenia	11.0	14.4	18.3
EU-15	10.6	12.1	12.9

Source: EU Commission, "The long-term sustainability of public finances in the European Union; European Economy No. 4 2006."

The picture for most other fields of public expenditures i.e. long-term care, health care and unemployment benefits is more uniform. Differences between CEE countries and EU-15 countries with respect to projected expenditure dynamics are not significant. In long-term care, where CEE countries spend on average only half as much as the EU-15 countries, the expected increase relative to GDP is only half as big, too. This result shows the big differences in the development of long-term care infrastructure. Public expenditure on education is set to decrease as fewer and fewer children are expected. Again the current level of expenditure of CEE countries is on a par with EU-15 countries. The projected decline for both time periods until 2030 and 2050 is twice as big, however. The projected total change of age-related public expenditures for the eight analyzed CEE countries is shown in the following table. It sums up the net effect of changes in pension, health, long-term care, unemployment benefits, and education expenditures.

Projected changes in age-related public expenditures, % of GDP

	2030	2050
Czech Republic	1.8	7.2
Estonia	-2.2	-2.5
Latvia	-1.5	-1.3
Lithuania	0.3	1.4
Hungary	3.1	7.6
Poland	-6.1	-6.7
Slovakia	0.3	2.9
Slovenia	4.4	9.7
EU-15	1.9	3.7

Source: EU Commission, "The long-term sustainability of public finances in the European Union; European Economy No. 4 2006."

5. Conclusion

Demographic changes in CEE countries are pronounced. Overall populations and especially the working-age population will decline significantly in almost all countries considered in this study. This affects growth possibilities and the developments of public expenditures. These will be geared more towards caring for the old and less towards educating the young – as in the rest of Europe. In CEE countries the old, pay-as-you-go financed pension schemes were abandoned for more modern multi-pillar pension schemes with substantial funded elements. This means that the demographic effects on pensions in CEE countries will in many cases be less severe than in EU-15 countries, unless further reform efforts are undertaken in the latter. However, having a modern pension system does not mean that one should not make provisions for retirement. Stronger exposure to capital market developments has many advantages but carries some risks, too. Compared to state-run pension systems volatility of returns is usually higher, but so is the expected return. A minimum pension income is usually guaranteed, since all countries provide a pay-as-you-go financed base pension, which is topped up by funded pension vehicles. Given the dismal demographic outlook of CEE countries, not relying too much on pay-as-you-go funding is a necessity, even if it does mean higher volatility.

Apart from the pension example, ageing populations will lead to higher costs in health and long-term care, too. On the other hand, the CEE countries have a high income growth potential and for the next 25 years this will probably more than offset the adverse effects due to demographic change. So we are looking forward to rising wages and employment. Higher income and enhanced wealth might even ultimately impact family planning and lead to higher birth rates again. In this event some of the demographic forecasts made above would have to be recalculated. Scandinavia and, most of all, France show that declining fertility is not a one-way road.

Literature:

European Commission: “Commission Communication: The demographic future of Europe – from challenges to opportunity”, Com (2006) 0571 final, 2006.

European Commission: “The long-term sustainability of public finances in the European Union”, http://ec.europa.eu/economy_finance/publications_en.htm

European Commission: “The impact of ageing on public expenditure: projections for the EU25 Member States on pensions, health care, long-term care, education and unemployment transfers (2004-2050)”, European Economy, Special Report no. 1/2006

European Commission: “Enlargement, two years after – an economic evaluation”, European Economy No. 24, May 2006.

European Commission: ”Long-term productivity and GDP projections for the EU25 Member States: a production function framework”, European Economy No. 253, June 2006.

European Bank for Reconstruction and Development: “Ageing, pension reforms and capital market development in transition countries”, Working Paper No. 99, November 2006

Eurostat demographic database:
http://epp.eurostat.ec.europa.eu/portal/page?_pageid=1996,45323734&_dad=portal&_schema=PORTAL&screen=welcomeref&open=/&product=EU_MASTER_population&depth=2