

UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE
Geneva, Switzerland

DISCUSSION PAPER SERIES

No. 2012.2

June 2012

**DEMOGRAPHIC PRESSURES AND THE SUSTAINABILITY
OF SOCIAL SECURITY IN EMERGING EUROPE AND
CENTRAL ASIA**

- Jaromir Cekota
- Claudia Trentini



UNITED NATIONS

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Demographic pressures and the sustainability of social security in Emerging Europe and Central Asia

Jaromir Cekota and Claudia Trentini¹

Abstract

This paper investigates long-term effects of population ageing in a number of ECE emerging market economies. The latest revision of the UN World Population Prospects implies that all countries of Eastern Europe, Caucasus and Central Asia (EECCA) and South-Eastern Europe (SEE) will experience population ageing over the period 2010-2050. In most of them, the ageing process will be associated with rising dependency ratios as the share of the working-age groups in total population shrinks. In these economies, the combination of an ageing and declining population is likely to reduce the effective labor supply, threatening to undermine the sustainability of their public pension and health systems. The analysis of available demographic and economic data confirms the severity of the demographic crisis' consequences for fiscal sustainability. Further, the results provide compelling evidence on the necessity for most countries in the region to undergo wide reaching policy reforms with a particular focus on pension systems and labour markets. Sources of cost pressure for health spending in SEE and EECCA countries include but are not driven only by ageing. The public health sector needs to be reformed with a view to increasing its efficiency.

JEL codes: I13, J11

¹ An earlier version of this paper was presented at the 22nd Conference of the International Trade and Finance Association held in Pisa, Italy during May 23 - 26, 2012. The authors express their appreciation to Viviane Brunne, Vitalija Gaucaite Wittich, Taeke Gjaltema, Ralph Heinrich and Robert C. Shelburne for comments and to Margaret Muindi for secretarial assistance. The usual disclaimer applies.

I. Introduction

Social security provides the elderly in ECE economies with the principal source of income that enables them to escape poverty and lead productive lives. However, a number of studies indicate that population ageing poses a serious threat to the financial sustainability of public pension and health systems in EU countries, including the new member states.² But how serious are the long-term effects of population ageing in the emerging economies of Eastern and South-Eastern Europe, the Caucasus and Central Asia? To answer this question, this paper considers some employment and fiscal implications of ageing in these countries.

The 2010 revision of the UN *World Population Prospects* (UN, 2011) implies that all countries of Eastern Europe, Caucasus and Central Asia (EECCA) and South-Eastern Europe (SEE) will experience population ageing over the period 2010-2050. The ageing process will be associated with rising dependency ratios as the share of the working-age groups in the total population shrinks. The combination of declining fertility and increasing longevity is bound to have an adverse impact on the effective labor supply, threatening to undermine the long-term sustainability of public pension and health systems.

In order to examine systematically the employment and fiscal implications of ageing in the countries investigated, we use a comparable framework. We propose a simple but robust model that can be applied to the available demographic and economic data and projections for population, employment and output trends. Model simulations confirm the severity of the consequences of rapid population ageing for long-term employment and fiscal sustainability of public pension and healthcare systems in a number of countries of the region. This implies the need for policy reforms with a particular focus on labor markets and public pension and healthcare systems.

II. Population trends

The population projections used in this study were taken from the 2010 revision of the UN *World Population Prospects* (UN, 2011). The future population of each country is projected starting with an estimated population for 1 July 2010. The UN population projections are based on assumptions regarding future trends in fertility, mortality and international migration. A number of projection variants are produced, based on medium, high and low fertility trends and alternative immigration flows. The medium variant used in our model simulations is based on the medium fertility assumption and normal migration assumption that projects international migration on the basis of past international migration estimates and consideration of the policy stance of each country with regard to future international migration flows.³

The medium variant implies that all EECCA and SEE countries will experience population ageing over the period 2000-2050 (table 1). In all of them the ageing process will be associated with rising old-age dependency expressed as the ratio of the population aged 65+ to working-age population (15-64 years).⁴ The rising dependency ratio reflects mainly

² See e.g. EU (2011).

³ For more details on the UN population projections see Raftery et al (2009).

⁴ For a discussion of the underlying fertility trends in transition economies see UNECE (2000), chapter 6.

the impact of increasing longevity and gradual convergence of the fertility rate to a long-run equilibrium of 1.85 children per woman. The equilibrium value is based on the trends observed in advanced industrial economies and is lower than the replacement fertility rate that amounts to 2.1 children per woman in the ECE region.

Table 1
Median age in EECCA and SEE countries, 2000 - 2050

Country	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Eastern Europe, Caucasus and Central Asia											
Armenia	30.3	31.2	32.1	33.3	35.1	37.5	39.9	41.8	42.8	43.0	43.7
Azerbaijan	25.6	27.8	29.5	30.9	32.9	35.3	37.5	38.8	38.1	38.0	38.8
Belarus	36.3	37.4	38.3	39.2	40.3	41.9	43.6	45.4	46.0	45.5	44.5
Georgia	34.4	35.8	37.3	38.8	40.4	42.2	44.2	46.3	48.1	49.1	48.3
Kazakhstan	27.7	28.8	29.0	29.8	31.1	32.3	32.8	32.6	32.9	33.8	34.7
Kyrgyzstan	22.5	23.6	23.8	25.5	27.0	28.3	29.3	29.8	30.9	32.1	33.3
Republic of Moldova	32.3	34.1	35.2	36.3	37.9	39.8	42.4	44.9	46.7	47.8	47.9
Russian Federation	36.5	37.3	37.9	38.7	39.8	41.5	43.3	44.9	44.9	43.7	43.1
Tajikistan	18.4	19.0	20.4	21.7	23.0	24.2	25.5	26.9	28.5	30.0	31.8
Turkmenistan	21.6	22.9	24.5	26.4	28.4	30.4	32.0	33.6	35.2	36.6	38.1
Ukraine	37.7	38.9	39.3	39.9	40.9	42.3	43.9	45.5	46.1	45.3	44.2
Uzbekistan	20.9	22.5	24.2	26.2	28.3	30.5	32.5	34.5	36.1	37.7	39.2
South-Eastern Europe											
Albania	27.4	28.7	30.0	32.4	34.7	37.4	40.1	42.6	45.1	47.3	49.4
Bosnia and Herzegovina	35.1	37.3	39.4	41.3	43.2	45.0	47.0	49.0	51.0	52.3	53.2
Croatia	39.1	40.3	41.5	42.5	43.5	44.7	45.9	46.8	47.4	47.7	47.6
Montenegro	33.5	35.0	35.9	37.2	38.5	40.1	41.7	42.9	43.8	44.6	45.3
Serbia	35.7	36.6	37.6	38.7	40.1	41.6	43.0	44.4	45.3	45.9	46.5
The FYR Macedonia	32.5	34.2	35.9	37.7	39.6	41.6	43.4	45.2	46.8	48.1	49.0
Turkey	24.5	26.4	28.3	30.2	32.1	34.0	35.9	37.7	39.4	40.8	42.3

Source: UN World Population Prospects: The 2010 Revision, medium variant.

Table 2 shows that the demographic old-age dependency ratio is projected to reach by 2050 relatively high values (between 44 and 53 per cent) in six EECCA countries (Armenia, Belarus, Georgia, Republic of Moldova, Russian Federation and Ukraine) and six SEE countries (Albania, Bosnia and Herzegovina, Croatia, Montenegro, Serbia and The former Yugoslav Republic of Macedonia). The combination of an ageing and declining population is likely to reduce the effective labor supply. In comparison, the demographic dependency ratio in the European Union is projected to double from 26 per cent in 2010 to 52 per cent in 2050 (EC 2011). By contrast, the remaining six EECCA countries in the Caucasus and Central Asia as well as Turkey are projected to have rising but comparatively low dependency ratios and could benefit from the demographic dividend in the form of rising working-age population until the 2040s.

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Table 2
Demographic old-age dependency ratio in EECCA and SEE countries,
2000 – 2050
Population 65+ over population 15-64

Country	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Eastern Europe, Caucasus and Central Asia											
Armenia	16	18	16	16	19	24	28	28	28	30	35
Azerbaijan	9	10	9	9	11	15	19	21	23	24	27
Belarus	20	21	19	20	22	26	29	31	33	36	40
Georgia	19	22	21	22	25	29	35	37	39	42	45
Kazakhstan	10	12	10	10	12	14	17	17	18	20	21
Kyrgyzstan	9	9	7	6	7	9	12	13	15	15	17
Republic of Moldova	15	16	15	17	21	25	28	29	30	32	38
Russian Federation	18	19	18	19	23	26	29	30	31	34	39
Tajikistan	7	7	6	5	6	8	9	10	11	12	13
Turkmenistan	7	7	6	6	7	9	11	13	15	17	20
Ukraine	20	23	22	22	25	28	30	31	33	35	40
Uzbekistan	7	8	7	6	8	10	12	14	16	18	22
South-Eastern Europe											
Albania	12	13	14	15	17	21	25	28	31	34	40
Bosnia and Herzegovina	16	19	20	21	25	30	36	40	44	49	55
Croatia	23	25	25	27	31	35	38	40	42	45	48
Montenegro	15	19	18	20	23	26	29	30	32	34	38
Serbia	21	22	21	22	25	27	29	31	34	37	41
The FYR Macedonia	15	16	17	18	21	24	27	30	34	38	43
Turkey	8	9	9	10	12	14	17	19	22	26	30

Source: UN World Population Prospects: The 2010 Revision, medium variant.

III. Labour market trends

Labour supply and employment projections were derived as follows. The labour force was estimated with the aid of the ILO participation rates (ILO, 2011a) and the UN population projections mentioned above. We utilized ILO's estimates of participation rates for the male and female 5-year age groups for 2010 and their projections until 2020. Further, we assumed that the age and gender specific participation rates remain unchanged at their 2020 levels until 2050. Projections of employment are based on the assumption that the equilibrium rate of unemployment equals 5 per cent in 2010 and remains constant in subsequent years. Employment levels were calculated for the population aged 15-64 years.

The estimated and reported employment levels in 2010 are shown in table 3. The differences between the estimates and official employment figures are relatively small (0 - 5 per cent) in the majority of EECCA countries.⁵ Such differences tend to be greater for SEE countries, reflecting the relatively high levels of employment in the shadow economy that could not be captured by official statistics. The usefulness of a particular employment measure depends on the purpose of investigation. We believe that our estimates capture actual employment levels at least as well or better than official statistical data and are thus more useful for the derivation of long-term production possibilities than the official data. By contrast, official employment statistics capture mainly employment in the formal sector that is relevant for short-term analysis of the financial position of the social security systems financed by payroll taxes.

⁵ No official employment statistics for Turkmenistan has been available. Therefore, table 3 shows no difference between estimated and reported levels.

Table 3
Estimated and reported employment levels, 2010
Million persons

Country	Estimated level	Reported level	Difference (%)
Eastern Europe, Caucasus and Central Asia			
Armenia	1.3	1.1	15
Azerbaijan	4.3	4.3	-1
Belarus	4.3	4.7	-9
Georgia	1.9	1.6	17
Kazakhstan	8.1	8.1	0
Kyrgyzstan	2.3	2.2	4
Republic of Moldova	1.1	1.1	-1
Russian Federation	71.5	69.8	2
Tajikistan	2.7	2.2	18
Turkmenistan	2.0	N/A	..
Ukraine	20.4	20.3	1
Uzbekistan	11.0	11.6	-5
South-Eastern Europe			
Albania	1.3	1.1	22
Bosnia and Herzegovina	1.4	0.8	48
Croatia	1.8	1.5	17
Montenegro	0.3	0.2	22
Serbia	4.0	2.4	51
The FYR Macedonia	0.9	0.6	46
Turkey	24.7	22.6	9

Source: UNECE statistical database and authors' estimates.

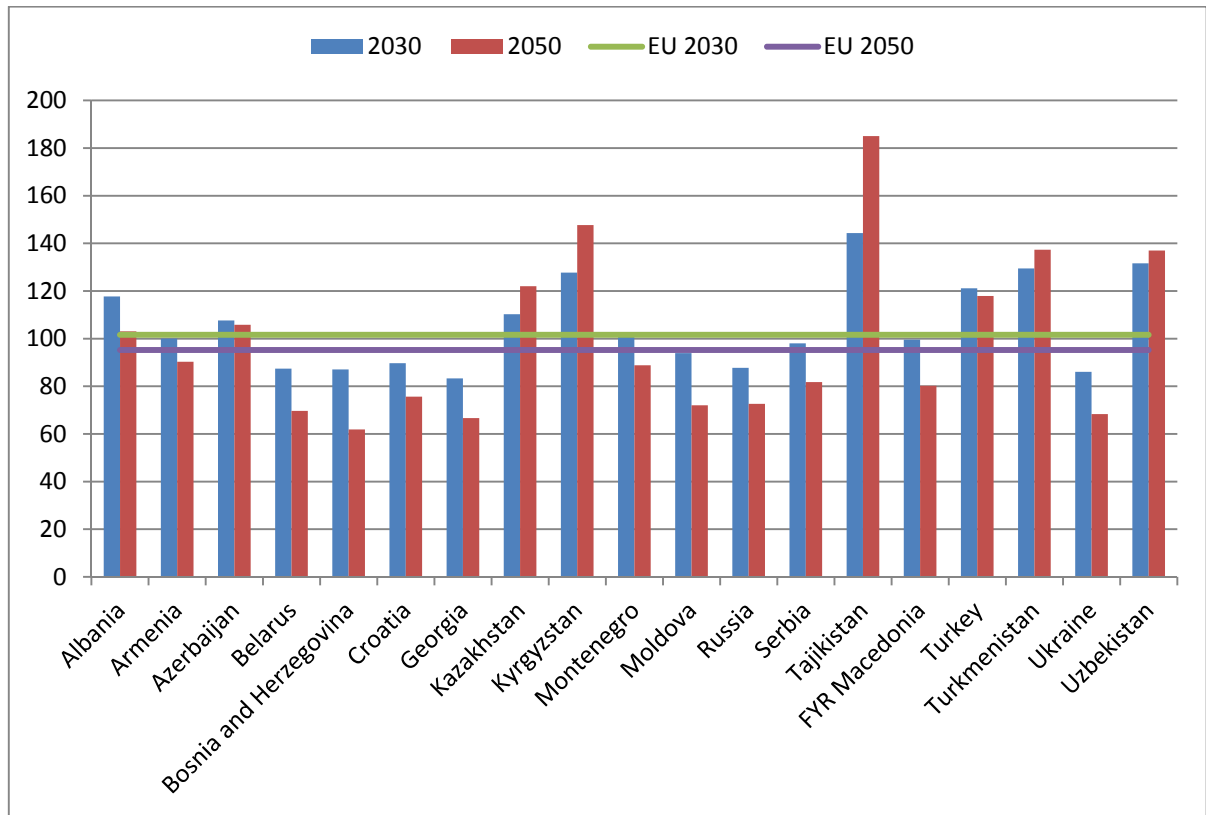
Note: Last column of the table shows the difference between the estimated and reported employment levels divided by their average.

Figure 1 shows the projected employment levels in 2030 and 2050. These projections reveal remarkable differences between the countries with relatively young populations that are expected to have positive employment growth and their counterparts with rapidly ageing populations. In particular, the countries of Central Asia and Turkey are characterized by a great potential for employment growth that reflects their relatively high fertility rates. In countries of Eastern Europe employment is expected to start declining already during the current decade and then continue to fall until 2050. In contrast, employment in the EU is expected to increase slowly up to 2020 and then decline gradually to 95 per cent of the 2010 level by 2050.⁶

⁶ The latest EU Ageing Report projects employment as a residual variable, determined by Eurostat population projections and assumptions about future participation and unemployment rates. The EU-wide unemployment rate (15-64) is expected to decline gradually from 10.1% in 2010 to 6.7% in 2045 and remain unchanged in subsequent years. For details, see EC (2011).

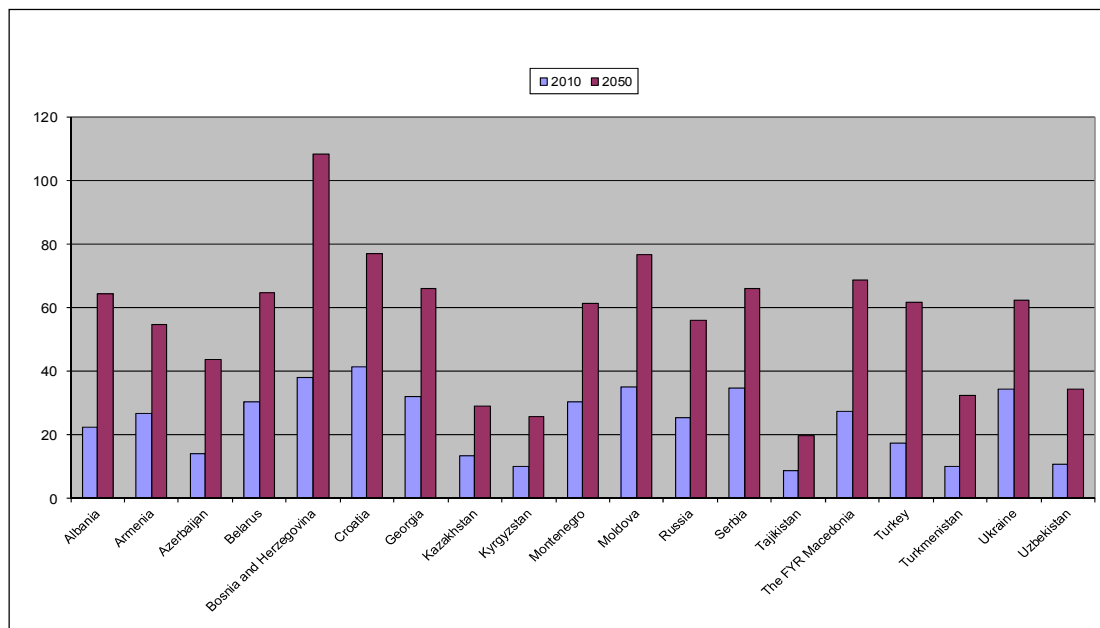
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Figure 1
Employment (15-64) projections
2010 = 100



Source: ECE estimates and EC (2011).

Figure 2
Economic old-age dependency ratio
Population 65+ over employed population 15-64



Source: ECE estimates.

Figure 2 shows that the economic old-age dependency, defined by the ratio of the elderly population (65+) to employment (15-64), is projected to increase in all economies investigated. Given the projected labour force participation rates and population trends, this indicator would exceed by 2050 the 50 per cent threshold, consistent with 2 workers per elderly person, in all countries of Eastern and South-Eastern Europe as well as two countries of the Caucasus. This implies that comprehensive pension and labour-market reforms are needed to make social security systems sustainable.

Aggregate output growth

Aggregate output growth is derived from the labour productivity and employment projections. The baseline scenario assumes that each economy investigated takes advantage of productivity catch-up opportunities up to 2050. The productivity catch-up model is defined by the following equation:

$$C(t) = (1+\alpha)*C(t-1) + \beta*[A(t-1) - C(t-1)].$$

C and A denote labour productivity, measured by GDP per worker, in the relevant EECCA or SEE country and the United States, α refers to the labour productivity growth trend of 1½ per cent per annum, t indexes time and β is a catch-up parameter equal to 1 per cent. GDP levels in the base year are expressed in comparable purchasing parity terms in 2005 US dollars and available in the UNECE statistical database for all economies investigated. The productivity gap vis-à-vis the US economy is assumed to decline by 1 per cent per year, providing that the relatively high level of educational attainment and investment in the ECE emerging economies can be maintained. More optimistic convergence scenarios⁷ assume implicitly higher productivity growth. In four countries (Kyrgyzstan, Moldova, Tajikistan and Uzbekistan) with comparatively low productivity (less than 10 per cent of the US level in 2010), the productivity catch-up parameter is set to 25 per cent per annum in order to avoid implausibly high growth rates.

It should be noted that the catch-up model does not allow for interactions between demographic or social policy variables and productivity. For instance, productivity growth depends on investment in new equipment but investment depends on expected after-tax returns. If pension expenditure models based on current parameters project rapidly rising deficits, potential investors might fear future tax increases and scale back investment plans. Therefore, productivity growth will not be independent of pension reform. This limitation should be kept in mind when going through the various scenarios.

Long-term employment and productivity projections are in any case speculative because no model can eliminate the irreducible uncertainty associated with any qualitative social change, including economic development. Instead of the simple catch-up model presented above, more complex models could have been chosen. However, such alternatives would hardly provide us with more reliable or realistic results. Given these constraints, the model chosen by the authors can be used to illustrate general trends and possible alternative scenarios.

⁷ For instance, Dadush and Stancil (2010) expect that annual GDP growth in Russia and Turkey will average until 2050 3.3 per cent and 4.4 per cent respectively. Our catch-up model is consistent with average GDP growth rates in Russia and Turkey of 2.1 per cent and 2.9 per cent respectively.

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In the countries with rapidly ageing populations output growth can be sustained even with declining labour force and employment, providing that technical change increases productivity at a faster pace. Assuming that transition economies continue to enhance the business environment and competitiveness over time, they should enjoy relatively strong investment and productivity growth over the next few decades. However, as the productivity gap continues to shrink, the catch-up model predicts that productivity growth converges towards the trend prevailing in advanced industrial economies. If the institutional transformation were to stall, then both productivity and output growth would slow down considerably. Table 4 illustrates these points for the Russian economy.

Table 4
Growth rates of employment, productivity and GDP in the Russian Federation

		2010	2020	2030	2040	2050
Employment						
All scenarios	Index 2010 = 100	100.0	95.0	87.8	81.8	72.6
	Average growth rate (%)		-0.5	-0.8	-0.7	-1.2
Labour productivity						
Baseline (trend + 1% catch-up)	Index 2010 = 100	100.0	141.1	190.1	248.3	317.3
	Average growth rate (%)		3.5	3.0	2.7	2.5
Trend only (1.5% per annum)	Index 2010 = 100	100.0	116.1	134.7	156.3	181.4
	Average growth rate (%)		1.5	1.5	1.5	1.5
Real GDP						
Baseline	Index 2010 = 100	100.0	134.1	166.8	203.2	230.4
	Average growth rate (%)		3.0	2.2	2.0	1.3
Slower growth (no productivity catch-up)	Index 2010 = 100	100.0	110.3	118.2	127.9	131.7
	Average growth rate (%)		1.0	0.7	0.8	0.3

Source: ECE calculations.

The countries with relatively young populations can benefit significantly from the demographic dividend that should enable them to have higher employment and output growth. Table 5 illustrates the impact of demographic dividend on economic growth in Kazakhstan. The demographic impact is enhanced by strong productivity growth in the catch-up model that predicts higher growth rates for the economies starting from a lower productivity level.

Table 5
Growth rates of employment, productivity and GDP in Kazakhstan

		2010	2020	2030	2040	2050
Employment						
All scenarios	Index 2010 = 100	100.0	105.4	110.3	119.4	122.0
	Average growth rate (%)		0.5	0.5	0.8	0.2
Labour productivity						
Baseline (trend + 1% catch-up)	Index 2010 = 100	100.0	151.2	212.3	285.2	371.8
	Average growth rate (%)		4.2	3.5	3.0	2.7
Trend only (1.5% per annum)	Index 2010 = 100	100.0	116.1	134.7	156.3	181.4
	Average growth rate (%)		1.5	1.5	1.5	1.5
Real GDP						
Baseline	Index 2010 = 100	100.0	159.4	234.2	340.6	453.7
	Average growth rate (%)		4.8	3.9	3.8	2.9
Slower growth (no productivity catch-up)	Index 2010 = 100	100.0	122.3	148.5	186.6	221.4
	Average growth rate (%)		2.0	2.0	2.3	1.7

Source: ECE calculations.

IV. Public pension trends

The combination of slowing GDP growth and rising dependency ratios can undermine the financial viability of national old-age support systems by reducing revenue growth and increasing public spending. The main components of these systems are public pensions and health services. This section addresses some issues related to the long-term financial sustainability of public pension systems.

The main purpose of public pension systems is to prevent old-age poverty. However, social security does not only ensure minimum subsistence levels but it has broader aims such as social inclusion. The official poverty thresholds usually range between 40 and 60 per cent of median income. The 40 per cent benchmark is provided by the ILO 1952 convention on minimum social security benefits whereas the 60 per cent benchmark is used to define population at risk of poverty in the EU countries. It is important to note that the share of population at risk of poverty in the majority of the post-communist new EU member states (NMS) is approximately equal to the share of population living in material deprivation.⁸ The situation is likely to be similar in the EECCA and SEE transition economies. At present older people in some EECCA and SEE countries are less prone to poverty than younger persons or even some working poor and often use their pension benefits to support their children and grandchildren.⁹ It is unclear whether such voluntary intergenerational transfers are sustainable, when pension systems are exposed to increasing demographic pressures.

⁸ By contrast, material deprivation rates are significantly lower than relative poverty rates in the EU-15 countries (Zaidi, 2010).

⁹ For instance, in 2008 some 8 per cent of Russian pensioners lived in absolute poverty compared to 13 per cent across the general population. The poverty rate of pensioners was reduced significantly by income redistribution through transfers consisting mainly of pensions and taxes. See OECD (2011b), p. 160-163.

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The previous sections show major differences in demographic and economic dependency ratios between the countries with rapidly ageing populations and those characterized by a delayed demographic transition. In the latter group of countries, consisting of the five Central Asian Republics, Azerbaijan and Turkey, the demographic crunch will not materialize before the middle of the century. By contrast, the remaining countries of the Caucasus, Eastern and South-Eastern Europe are much more exposed to adverse demographic pressures on social security and the need to ensure fiscal sustainability with the aid of forward-looking reforms has become increasingly urgent.

Following Zeng (2006), we can express the pension deficit by the equation

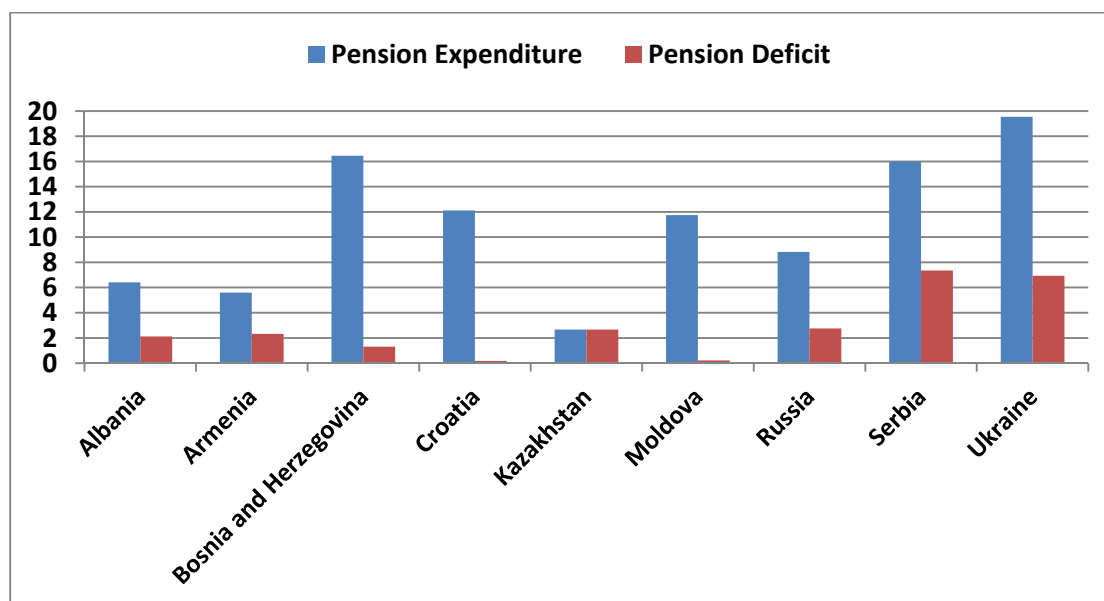
$$D(t) = [B(t)*d(t)*(r(t)/e(t)) - C(t)]*W(t),$$

where D gives the deficit in per cent of GDP, B and C denote the average replacement and effective contribution rates respectively, W refers to the wage share in GDP, d is the demographic dependency ratio, e is the employment rate of the working-age population (15-64) and r the retirement rate (pension recipients over the population 65+), and t indexes time. The equation shows the impact of demographic and economic factors on the pension deficit but does not capture interactions between explanatory variables.

All countries of Emerging Europe and Central Asia with the exception of Kazakhstan operate pay-as-you go (PAYG) public pension systems in which pension contributions of the current generation of workers are used to pay current pensions, including old-age, disability and survivor benefits. This system, known also as the first pillar, provides defined benefits to participants. The amount of pension benefit is typically linked to the employment history and contributions paid by the recipient. Pension rules stipulate that benefits are indexed either to wage inflation, consumer price inflation or a combination of the two variables. Nevertheless governments tend to impose ad hoc adjustments that are not rule based but reflect the political or economic cycles. The imposition of lower and upper limits on pension contributions and benefits in most PAYG systems favors low wage earners whose pensions are characterized by relatively high replacement rates. A number of public pension systems in the region also provide special pensions for certain categories of citizens, including the elderly poor and war veterans. In some countries such benefits are provided by the social assistance system rather than pension administration.

Detailed information about the age-related public expenditure, revenues and public debt was not available to authors for most of the countries investigated. For nine countries the IMF government financial statistics (GFS) available to us for recent years report social security contributions as well as public pension expenditures. Figure 3 shows the level of pension expenditure and deficits for the latest year with available GFS data.

Figure 3
Public pension expenditure and deficit levels, 2009
Per cent of GDP



Source: ECE estimates based on official IMF GFS data.

As expected the pension expenditure is comparatively low in countries with younger populations. The pension deficits are exceptionally large in Serbia and Ukraine, reflecting to some extent the economic downturn in 2009 that reduced social security contributions. The underlying problems however seem to be the relatively low retirement age as well as the decline of formal employment and rapid increase in early retirement during the post-communist transition.

Following the resumption of economic growth in late 1990s, the authorities in most countries of Emerging Europe and Central Asia responded to pension deficits by increasing the statutory retirement age (table 6). Nevertheless, only Bosnia and Herzegovina increased the statutory retirement age for both men and women to 65 years, a benchmark that has been often recommended by pension reform advocates and corresponds to the norm in most OECD countries. Four countries (Belarus, Russia, Ukraine and Uzbekistan) have not increased yet the statutory retirement age inherited from the Soviet era (60 and 55 years for men and women respectively). In Turkey the eligibility for a full pension during the 1970s and 1980s was based solely on the payment of contributions for 25 years of service so that the retirement age was as low as 45 years, assuming a 25-year period of employment from the age of 20. The standard retirement age was reinstated and gradually increased in the subsequent period (OECD 2011a, p. 21).

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Table 6
Statutory retirement age, years

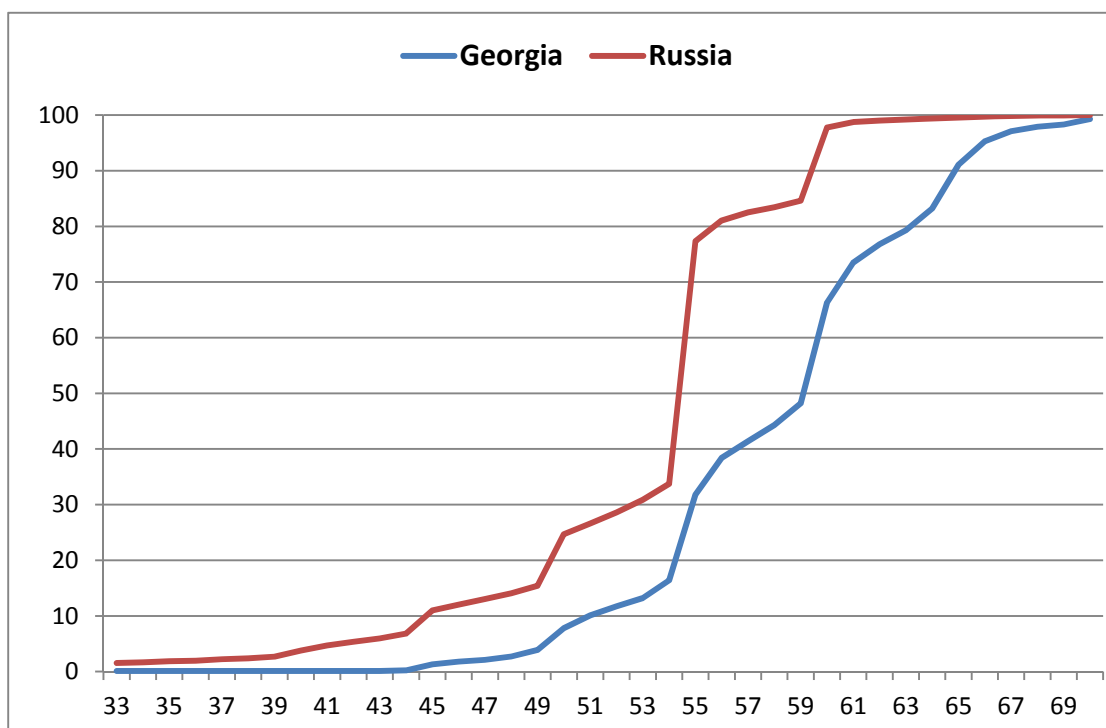
Country	Men	Men	Women	Women
	1989	2010	1989	2010
Eastern Europe, Caucasus and Central Asia				
Armenia	60	63	55	61
Azerbaijan	60	62	55	57
Belarus	60	60	55	55
Georgia	60	65	55	60
Kazakhstan	60	63	55	58
Kyrgyzstan	60	62	55	58
Republic of Moldova	60	62	55	57
Russian Federation	60	60	55	55
Tajikistan	60	63	55	58
Turkmenistan	60	62	55	57
Ukraine	60	60	55	55
Uzbekistan	60	60	55	55
South-Eastern Europe				
Albania	60	65	55	60
Bosnia and Herzegovina	60	65	55	65
Croatia	60	65	55	60
Montenegro	60	64	55	59
Serbia	60	64	55	59
The former Yugoslav Republic of Macedonia	60	64	55	62
Turkey	45	60	45	58

Source: BRAAC (2010), ISSA (2010), OECD (2011a).

The effective retirement tends to take place somewhat earlier than the statutory retirement age, but relatively large numbers of pension recipients continue to work. Nevertheless, the following figure shows that even in Georgia, the transition economy with the highest participation and employment rates of older cohorts, less than 5 per cent of the elderly continue to work beyond the age of 65 years.¹⁰ The comparatively low effective retirement age in Russia, shown in the same figure, reflect probably the lower statutory retirement age for both men and women, poorer health of the elderly and comparatively high pension benefits.

¹⁰ Following the launch of a government strategy to promote the employment of older persons in Georgia in 2006, the number of employed in the 65+ age group may have increased in recent years. Due to the lack of wage employment opportunities, 88 per cent of working pensioners are reported to be self-employed. See UNECE (2011), p. 9.

Figure 4
The age of retirement, mid-2000s
Cumulative percentages



Source: ECE calculations based on the Generation and Gender Surveys.

The pension deficit equation shows that the employment rate is a key policy variable. The replacement rate, i.e. the relationship between the size of pension benefits and wages is another important policy variable that can reduce the social security deficit. Table 7 illustrates these points in the case of Ukraine. Following the resumption of economic growth, the public pension deficit was close to 3 per cent of GDP in 2010. The gross replacement rate for a person with average earnings (average pension benefit over average gross wage) was equal to 46 per cent in 2010 while pension contributions amounted to approximately one-quarter of the wage bill. The corresponding net replacement rate estimated from the available data on wages and tax parameters was equal to 54 per cent. Given the redistributive nature of the Ukrainian PAYG system, a person earning one-half of the average wage prior to retirement would receive the minimum pension that would replace 62 and 71 per cent of his or her gross and net earnings respectively. The wage share in GDP in 2010 was close to 50 per cent. Assuming unchanged parameters and using projected numbers of pension recipients provided in BRAAC (2010), the pension equation predicts a gradual increase of the nation's pension deficit from 3 per cent in 2010 to 6 per cent of GDP by 2030 and almost 12 per cent of GDP by 2050.

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Table 7
Public pension deficit in Ukraine

		2010	2020	2030	2040	2050
Old-age dependency ratio	Population 65+/population 15-64					
All scenarios	Per cent	22.0	24.6	29.9	32.5	40.4
Effective contribution rate	Pension contributions/wages					
All scenarios	Per cent	25.0	25.0	25.0	25.0	25.0
Wage share	Wages/GDP					
	Per cent	50.0	50.0	50.0	50.0	50.0
Replacement rate	Average pension/average wage					
Baseline	Per cent	46.0	46.0	46.0	46.0	46.0
Lower replacement rate	Per cent	46.0	44.0	42.0	40.0	38.0
Employment rate	Employment 15-64/population 15-64					
Baseline	Per cent	63.8	67.6	66.5	64.9	64.7
Higher employment rate	Per cent	63.8	69.9	72.2	74.2	75.7
Retirement rate	Pension recipients/population 65+					
Baseline	Per cent	195.1	200.7	181.3	182.7	167.5
Higher employment rate	Per cent	195.1	169.0	146.8	149.3	140.6
Public pension deficit	Public pension deficit/GDP					
Baseline	Per cent	3.0	4.3	6.3	8.6	11.5
Higher employment rate	Per cent	3.0	1.2	1.5	2.5	4.7
Lower replacement rate	Per cent	3.0	3.6	4.6	5.8	7.3

Source: ECE estimates.

A gradual increase of statutory retirement age to 65 years for both men and women would considerably improve the financial viability of the public pension system. This scenario assumes that statutory retirement age is increased by 6 months per year until it reaches 65 years for men by 2020 and for women by 2030. However, the adverse impact of population ageing would still result in a substantial PAYG deficit close to 5 per cent of GDP by 2050. This outcome is more pessimistic than estimates provided by two earlier studies projecting that an increase of statutory retirement age to 65 would eliminate the PAYG deficit up to the mid-2040s (BRAAC, 2010) or mid-2050s (Lisenkova, 2011). Such discrepancies in long-term projections reflect differences in the models and data used. However, all three studies conclude that the Ukrainian PAYG system is unsustainable with current parameters.

Alternatively, a gradual decrease of the gross replacement rate by 0.2 percentage points per year to 38 per cent by 2050 would see the pension deficit grow to approximately 7 per cent of GDP by 2050. A stronger reduction of a replacement rate would be needed to make the pension deficit more manageable. This could be achieved by indexing pensions to consumer prices, a method often advocated by World Bank experts (see e.g. World Bank, 2009). Wages tend to grow faster than prices (twice as fast in Ukraine during the 2000s) so that the price indexing of pensions is bound to reduce the replacement rate and pension deficit. Assuming that real wages grow in step with productivity, price indexing could eliminate the pension deficit by 2020 when the gross replacement rate would decline to approximately 35 per cent. Further reductions of the replacement rate would be needed in subsequent years to balance the projected PAYG expenditures and revenues that are consistent with the baseline employment scenario. However, this approach to parametric reform of the pension system would undermine the adequacy of retirement incomes.

Given the flat 15 per cent personal income tax and assuming modest tax credits for deductible expenses (e.g. private healthcare fees), the gross replacement rate of 35 per cent

corresponds in Ukraine to the net replacement rate of 40 per cent for average wage earners and thus to the minimum standard specified in the ILO Social Security (Minimum Standards) Convention of 1952.¹¹ The statutory minimum and maximum pension benefits would ensure that the net replacement rate would be somewhat higher for low wage earners and lower for high income earners. The ILO minimum standard is by no means excessive. For instance, a net replacement rate of 80 per cent was considered to be adequate for the maintenance of living standards in retirement by OECD researchers (OECD, 2001). Most elderly persons in Eastern Europe and Central Asia have low savings and can supplement their meagre pensions with continued work for a few years only.

Four of the countries investigated have introduced the so-called second pillar of the public pension system.¹² The contributions of workers to their second pillar individual accounts are invested on their behalf by public or private pension funds while future pension benefits should be determined by investment performance. The following table shows some characteristics of these funded (defined contribution) systems. Kazakhstan stopped operating the first pillar PAYG system while honouring the pension claims accumulated under it. The other three countries continue to operate downsized PAYG (defined benefit) systems. The recent financial crisis had an extremely negative effect on the performance of the second pillar pension funds in all four countries. The relatively good rate of return on investment by pension funds in Croatia probably reflects the comparatively advanced development of financial markets in this EU pre-accession country. Nevertheless, even in Croatia the rate of return earned by pension funds since the inception of the second pillar has only matched wage growth in the economy and been thus well below the OECD benchmark of 1.5 percentage points over wage growth that is often used in long-term projections.¹³

Table 8
Mandatory defined contribution systems

Country	Operational since	Contribution rate	Assets/GDP	Real rate of return (annual average)
		2010	2010	
Croatia	2002	5.0%	10.3%	2.0%
Kazakhstan	1998	10.0%	11.2%	-3.7%
Russian Federation	2004	6.0%	1.0%	-3.9%
The former Yugoslav Republic of Macedonia	2006	7.4%	1.3%	1.0%

Source: Altiparmakov (2011), Hirose (2011), OECD (2011b), National Bank of Kazakhstan, Rudolph and Holtzer (2010), and ECE estimates.

Note: The contribution rate refers to the percentage of pensionable earnings.

¹¹ The Minimum Standards Convention was ratified by all SEE countries. By contrast, no EECCA country ratified the Convention.

¹² The recent Ukrainian pension legislation foresees a creation of the mandatory funded pillar in the future, providing that the financial stability of the first pillar be restored first.

¹³ This benchmark is based on the investment performance of pension funds in OECD countries over the last three decades (Holzmann and Guven, 2009, p. 111).

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The disappointing performance of pension funds to date implies future liabilities for the government sector, given the mandatory nature of second pillar schemes.¹⁴ However, the authorities expect that the second pillar will improve the viability of social security in the long term.¹⁵ This may be too optimistic if the second pillar funds continue to invest predominantly in national government bonds, even if better regulation of pension funds would enhance competition and provide more investment opportunities. In principle the funds could improve their returns by investing in private or mixed (public-private) strategic infrastructure projects that would support sustained economic growth (see e.g. OECD, 2012a). In practice private investment in infrastructure remains rare in transition economies and it is unclear whether the public and governments are prepared to accept cost-reflective user charges that would make such projects feasible.

Even if the investment performance of the second pillar were to improve significantly and match the OECD benchmark mentioned above, the diversion of a portion of social contributions to individual retirement accounts is bound to increase financial pressures on the first (PAYG) pillar over a relatively long time period (40-50 years). During this transition pension entitlements are accumulated but not paid in significant amounts by the second pillar while the PAYG system has to provide benefits to a growing number of retirees.¹⁶

An alternative solution to the poor investment performance of funded schemes would be to downsize or abolish the second pillar and shift the corresponding payroll contributions to the first pillar. The downsizing option was recently tried in Estonia and Poland while Hungary decided to nationalize the second pillar. However, these measures, driven to some extent by the EU fiscal rules on government deficits, improve the pension system balance temporarily but may not be effective in the long run (see OECD, 2012b).

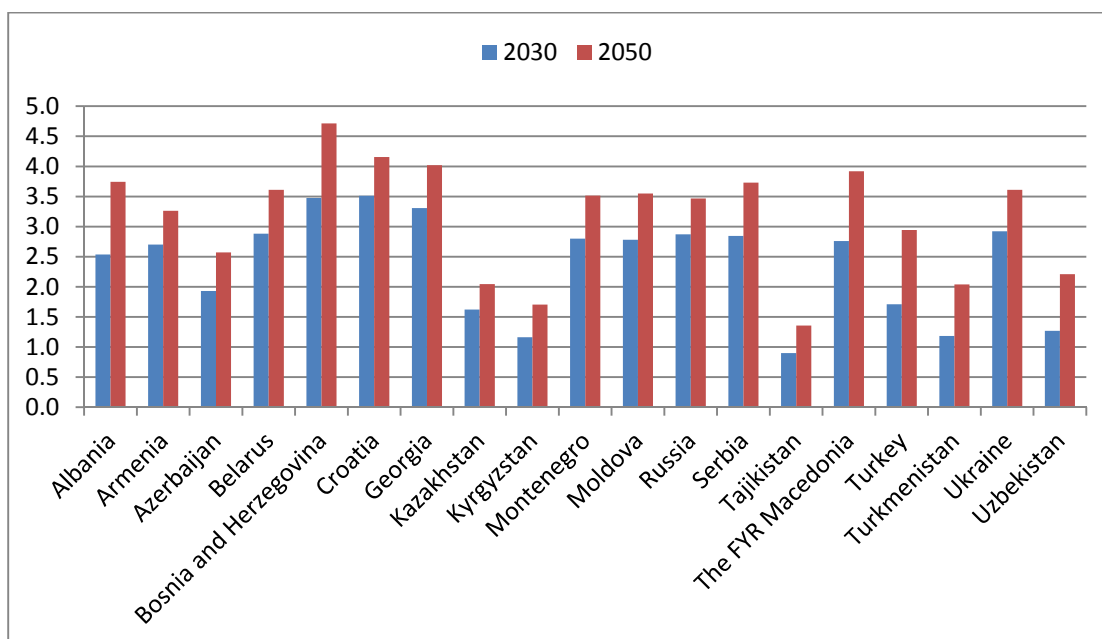
If the current public pension systems in some EECCA or SEE economies become unsustainable, then governments could reduce poverty in old age by establishing a social protection floor in the form of a noncontributory social pension to all elderly citizens. The level of social pensions for persons without alternative retirement incomes varies in the countries investigated, amounting e.g. to some 15 per cent of per capita GDP in Russia or 22 per cent in Croatia. The following figure illustrates projected budgetary costs of a noncontributory social pension for all persons in the age group 65+ years, assuming that it equals 15 per cent of per capita GDP. A lower level of 10 per cent of per capita GDP, advocated by World Bank (2007), seems to be inadequate for the countries investigated.

¹⁴ By contrast, participants in voluntary pension funds (denoted sometimes as the third pillar) are unlikely to be compensated by governments for poor investment performance and low payouts.

¹⁵ See e.g. the special chapter on the Russian pension system in OECD (2011b).

¹⁶ In Kazakhstan the pension benefits earned under the former PAYG system have been paid to retirees by the State Pension Payment Centre since the replacement of the system by a regime based on fully funded individual accounts in 1998 (Hinz, Zviniene and Vilamovska, 2005). After 2028 all public pensions are to be paid by the second pillar.

Figure 5
Cost of a social pension equivalent to 15 per cent of per capita GDP
Per cent of GDP



Source: ECE estimates.

Although the cost of a noncontributory social pension system is by no means negligible and increases in societies with ageing populations, it could improve the fiscal position of general government by eliminating the budgetary transfers and administrative costs associated with current pension schemes and means tested social assistance. Financing of pensions from general tax revenues rather than earmarked payroll contributions would also reduce labour costs and could thus increase employment.

V. Public healthcare trends

A number of studies have forecasted future health expenditure across different countries (OECD, 2006; EU, 2011; IMF, 2010; World Bank, 2007); in light of the known demographic factors and in combination with other cost pressures and economic aspects most predicted an upward trend in public healthcare spending. Population ageing can potentially imply increasing future levels of expenditure due to the simple fact that elderly tend to use more public healthcare services than working age persons. However, this gloomy prediction has been challenged by some experts, assuming that longevity gains translate into additional years of good health ("healthy ageing") and considering that major health costs come at the end of life ("morbidity compression"). This questions the practice of forecasting future health costs on the basis of the past distributions of expenditures by age. In fact, the relationship between health spending and age differs widely among advanced countries (for which there is data) and is most likely changing over time, influenced by the interplay of technological advance, health policies and institutions, and the resulting population health status. In light of these considerations it becomes clear that any health expenditure prediction is somewhat arbitrary.

For example, one of the obstacles in predicting the impact of ageing on healthcare expenditures is estimating the demand for long term care as this is very sensitive to assumptions made about future rates of disability and dementia as well as the availability of formal care. Studies in developed countries have shown that assuming constant prevalence of disability may be optimistic and that to avoid escalating long term care costs it will be necessary to invest in cost effective delivery of public health services and management of chronic conditions that moderate disability or slow down the progression of dementia. This means that to contain the costs related to ageing and attaining a “healthy ageing” process will imply – in any case – significant investments in the health sector.

Another important factor influencing health spending is the introduction of new – and often more costly – technology and medicaments. In developed countries, technological progress has been driving health spending often at rates faster than GDP. New medical progress could represent a cost pressure factor also for transition economies due to the fact that many of these countries experienced the collapse of their domestic pharmaceutical sector and are importing more expensive supplies. Moreover, most of these countries still need to invest in good primary health care. WHO (2007) acknowledges that in post-Soviet newly independent states “expenditure on health declined in the 1990s to levels that make running a basic system virtually impossible in several countries. More recently, funding levels have stabilized or even increased, but significant improvements in health outcomes have not followed.”¹⁷ In fact, current statistics on life expectancy and infant mortality suggests that an increase in the level and effectiveness of health spending would be urgently needed for improving population’s health.

Figure 6 shows the public and private health expenditures as a percentage of GDP in the years 2000 and 2009. Public expenditures in SEE and EECCA countries are much lower than the average public expenditure in EU-15 countries (8 per cent of GDP) whereas private expenditures are in general much higher, implying greater inequality in care access. Older people are among the most affected by health exclusion facing challenges in terms of appropriate long-term care services which are neither fully hospital-based nor reliant on informal family and kinship care.¹⁸ In the last decade public health spending as a percentage of GDP has increased in most countries with some exceptions (Belarus, The former Yugoslav Republic of Macedonia, and Turkmenistan); out of pocket payments increased or remained constant through the decade in most countries.

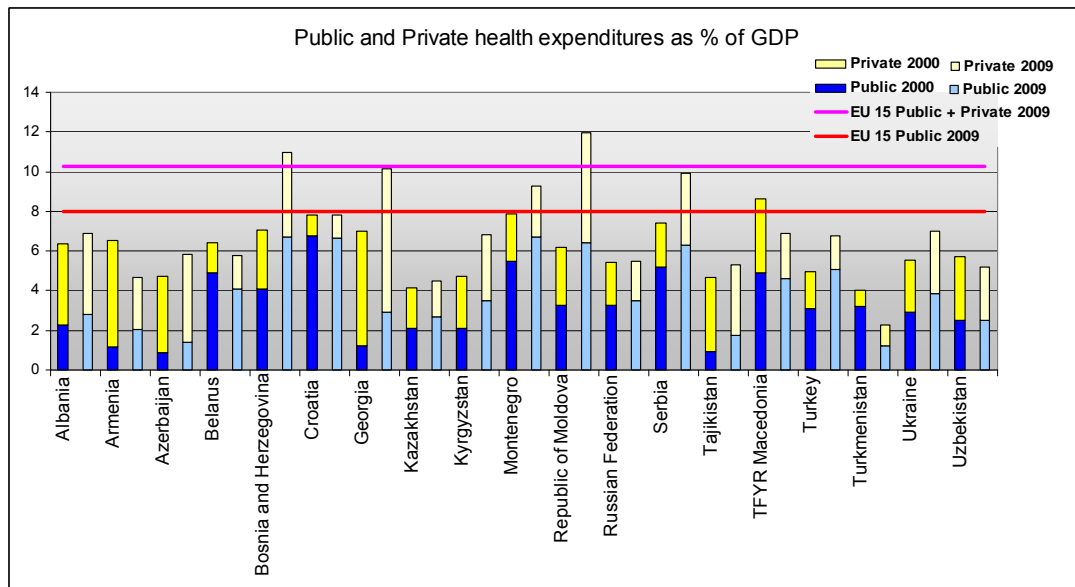
Public health policy clearly includes many measures that benefit health but are not necessarily included in the health expenditure data. However, health expenditures do serve as a valid proxy for the priority health has in the public policy agenda. A study putting 2003 levels of health expenditure in SEE and EECCA countries within a more global picture (WHO, 2007) finds that “apart from a number of South Eastern European countries, the majority of EECCA countries were spending less than other countries at similar levels of

¹⁷ In the post-Soviet transition, most of these countries had to reduce hospital facilities (Chubrik et al, 2011) and underwent health system reforms. The transition crisis implied a substantial decline in life expectancy. During the 2000s most of the former Soviet republics improved in terms of the life expectancy indicator; however, life expectancy is now much lower than in the EU-15 (10 years or more) and the new member states. For more details see Shelburne and Trentini (2009).

¹⁸ UNDP (2011) reports that “the probability of not consulting a health professional when seriously ill is higher for those over 65 and for those with lower levels of education. Reasons include lack of money to pay for treatment; reliance on self-treatment; or distance to reach a health facility.”

economic development. At the same time, a comparatively high share of total health expenditure is paid privately at the point of service, implying that a comparatively low share of health expenditure is financed from public sources despite the formal role of governments in providing universal access to health care.”

Figure 6
Public and private health expenditures, per cent of GDP

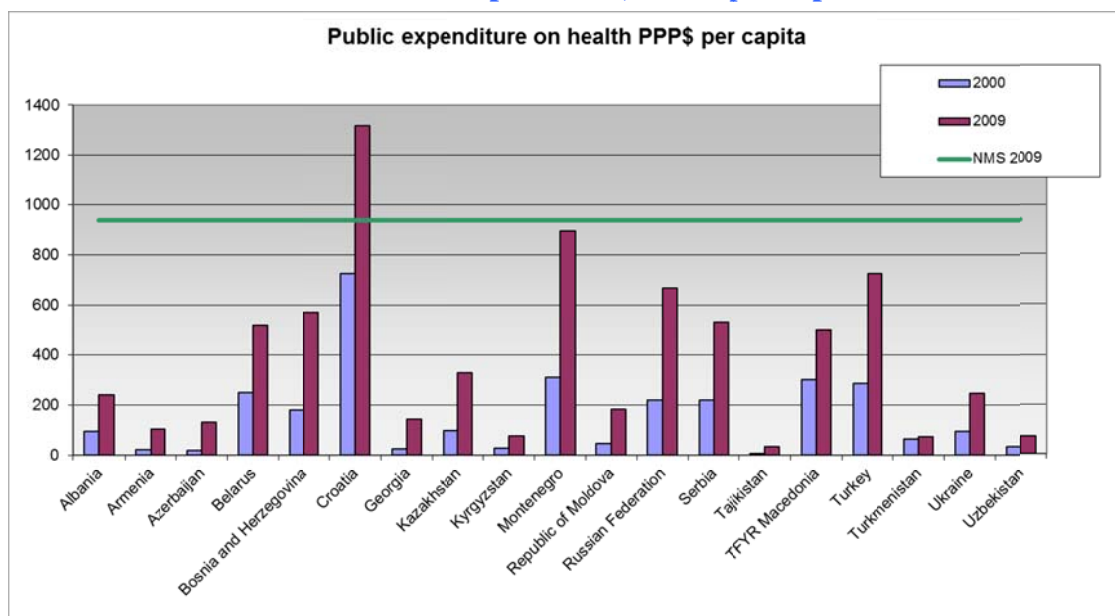


Source: WHO Europe Health for All dataset.

Health expenditures expressed as a percentage of GDP are the result of the trends in both health spending and GDP. Figure 7 shows the amount of public health spending per capita in PPP US dollars; this allows for a better understanding of the evolution of real expenditure in different countries. SEE countries have expenditures similar or not too different from the NMS average (except Albania), while the EECCA countries with the exception of Russia and Belarus, are well below one-half of the NMS average.¹⁹

¹⁹ The old EU member states (EU 15) average public health spending in 2009 was about 3 times the NMS one.

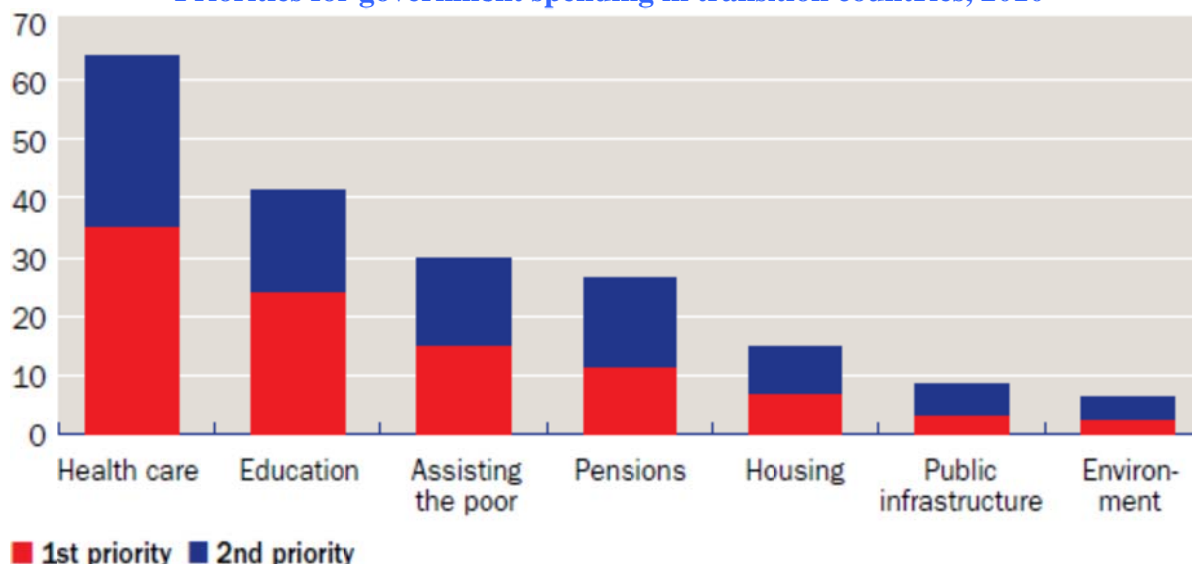
Figure 7
Public health expenditure, PPP \$ per capita



Source: WHO Europe Health for All dataset.

The extremely low public spending in a number of countries is reflected in poor health outcomes and resulting concerns of the public about the healthcare system.²⁰ According to the latest EBRD survey on life in transition countries, citizens' rating of public healthcare systems is lower than in western economies. It is therefore not surprising that their highest priority for government spending is the healthcare sector (figure 8).

Figure 8
Priorities for government spending in transition countries, 2010



Source: Life in Transition Survey II, EBRD (2011).

Note: Data corresponds to percentage of respondents' first and second preferences for priority additional government spending

²⁰ There are of course exceptions like Albania and Moldova where public spending is low but health outcomes are relatively good.

Forecasting health care expenditure

The factors driving healthcare expenditure in advanced economies can be broadly ascribed to:

- (i) demographic trends and the costs related to an ageing population: the establishment of long term care facilities, the simple fact that the elderly consume on average more health services than their younger counterparts;
- (ii) non-demographic factors like technology, increasing incomes driving higher demand for health services, health policies and institutions. These factors are also known as Excess Cost Growth (ECG): the excess of growth in real per capita health expenditure over the growth in real per capita GDP after controlling for the effect of demographic change.

For advanced economies ECG has been driving health spending in the past decades and is expected to continue pushing public expenditure upwards, while ageing – in spite of the bleak demographic trends – will only account for very limited cost increases, assuming that much of the gains in longevity will be spent in good health.

For non-advanced economies there are relatively few studies trying to project health expenditures; however, there is some evidence pointing to the fact that for emerging economies ECG will be a relevant source of cost pressure.²¹ This might be brought about by the provision of services previously not covered, the adoption of modern health care technologies, and in some cases the replacement of external resources of financing with domestic ones. For example, many EECCA countries are not yet ready to efficaciously treat non-communicable and/or chronic diseases such as cancer, diabetes and heart disease which account for most of the total disease burden in the region (WHO, 2012). Moreover, it is likely that in the transition countries with dismal health outcomes, rising incomes will raise citizen's expectations of healthcare quality pushing for an increase in public health spending. These non-demographic factors would then perhaps impact more on health policies than the demographic trends described in the previous section.

In the following table we report some projections of public health expenditure/GDP ratios assuming an ECG of 1 per cent yearly and the average cost of health services for the elderly (+65) of about 3.9 times (3.2 for women) the average cost for younger persons (0-64). This is roughly in line with the age-spending profile estimated by the European Commission for new member states (Przywara, 2010). We also report the ratios which were required for these countries to reach by 2050 a per capita expenditure similar to the average observed in the NMS or for the most advanced economies (the SEE without Albania, Russian Federation and Belarus) in the EU-27 in 2009.

For countries which are assumed to have comparatively low GDP growth rates and very low initial health spending levels, health expenditures will grow relatively little with respect to GDP. In the SEE only Albania will have a public health expenditure/GDP percentage below 5 by 2050 while all the other countries will approach ratios between 6.5

²¹IMF (2010) predicts that excess cost growth in emerging Europe will follow the average level observed in advanced countries over 1980-2008 of about 1 per cent of GDP. A World Bank study on Russian health system predicts an increase of public spending to 6 per cent of GDP already by 2020 (World Bank 2008). Chubrik et al (2011) expect per capita spending in all economies of the Former Soviet Union to increase significantly to improve lagging health outcomes.

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and 12.3. In the EECCA the picture is more varied with countries that had a ratio below 2 in 2010 (Armenia, Azerbaijan, Tajikistan, and Turkmenistan) maintaining public health expenditure/to GDP ratios below 5 per cent, while the remaining economies would experience more pronounced increases. In any case, our model implies that ageing will not play a major role in the evolution of public health spending in any of these countries until the mid-century.

It is interesting to note that for all countries investigated a more rapid convergence scenario implies much more substantial increases in public health spending. Under this scenario, by 2050 EECCA countries will have real per capita health expenditure similar to the NMS (EU-27) in 2009. This does not imply that in 2050 EECCA and NMS per capita health expenditure will be the same, but rather that they will be similar depending on how fast NMS expenditures would have grown between 2009 and 2050. It is difficult to predict which of the above scenarios is more likely to happen; this will also depend on the development process of these countries and the fiscal space they will have to increase healthcare investment. In any case, the impact will be profound. Even if the costs incurred in the period before death account for a disproportionate share of lifetime health expenditure, increased longevity will always lead to higher lifetime health costs.

Table 5.9
Projection of public health expenditure, per cent of GDP

	2010	2020	2030	2040	2050
Albania	1.8	2.0	2.4	2.7	3.0
due to ageing %		4.1	12.7	17.7	23.3
convergence to NMS		6.7	10.4	13.3	15.1
Armenia	2.0	2.2	2.6	2.8	3.1
due to ageing %		2.7	11.7	12.3	16.9
convergence to NMS		4.3	5.7	6.6	7.1
Azerbaijan	1.3	1.6	2.1	2.4	2.9
due to ageing %		1.5	12.0	15.3	18.5
convergence to NMS		2.9	4.1	5.1	5.8
Belarus	4.4	4.7	5.3	5.7	6.3
due to ageing %		2.6	9.6	12.3	16.5
convergence to EU27		7.0	8.8	10.1	10.9
Bosnia and Herzegovina	6.9	7.7	8.8	9.5	10.2
due to ageing %		6.3	14.5	19.6	24.4
convergence to EU27		8.8	9.9	10.5	10.5
Croatia	6.5	7.3	8.2	9.0	9.8
due to ageing %		5.0	10.0	12.7	15.8
convergence to EU27		7.5	8.2	8.6	8.8
Georgia	3.3	3.4	3.8	3.9	4.1
due to ageing %		3.8	12.4	15.7	18.6
convergence to NMS		5.5	6.5	7.0	7.2
Kazakhstan	2.8	3.5	4.3	5.0	6.0
due to ageing %		2.4	7.9	10.2	12.8
convergence to NMS		4.1	5.1	5.9	6.6
Kyrgyzstan	3.2	3.9	4.9	6.1	7.3
due to ageing %		0.8	6.9	10.5	13.5
convergence to NMS		9.5	14.3	18.0	21.1
Montenegro	6.6	7.6	8.7	9.7	10.8
due to ageing %		5.3	10.7	13.2	17.4
convergence to EU27		8.7	10.2	11.2	11.8
Moldova	7.2	7.8	8.6	8.8	9.5
due to ageing %		5.6	12.7	14.3	19.8
convergence to NMS		11.5	14.2	15.7	16.5

	2010	2020	2030	2040	2050
Russia	3.5	4.0	4.5	4.8	5.4
due to ageing %		4.4	10.8	12.2	16.5
convergence to EU27		5.2	6.3	7.1	7.7
Serbia	4.3	4.8	5.3	5.9	6.5
due to ageing %		4.3	7.9	11.7	16.5
convergence to EU27		7.0	8.7	9.8	10.5
Tajikistan	1.8	2.2	2.9	3.5	4.3
due to ageing %		0.5	5.4	8.1	11.1
convergence to NMS		9.3	15.0	19.4	23.0
The FYR Macedonia	4.4	5.1	5.8	6.5	7.3
due to ageing %		5.4	11.4	16.5	22.0
convergence to EU27		7.4	9.4	10.7	11.5
Turkey	5.3	6.2	7.1	7.9	8.7
due to ageing %		4.3	10.6	16.8	23.0
convergence to EU27		8.1	10.4	12.2	13.5
Turkmenistan	1.1	1.3	1.6	2.0	2.3
due to ageing %		1.8	7.8	12.5	17.7
convergence to NMS		3.1	4.5	5.6	6.4
Ukraine	3.9	4.0	4.3	4.6	5.0
due to ageing %		1.8	6.7	8.9	13.6
convergence to NMS		5.1	5.8	6.2	6.4
Uzbekistan	2.4	2.9	3.7	4.4	5.2
due to ageing %		1.9	8.5	13.6	19.1
convergence to NMS		7.4	11.2	13.9	15.9

Source: ECE estimates

The fiscal space to increase public health spending varies across the countries; for oil exporting countries it will be easier to invest in public health systems, the others should concentrate their efforts on making substantial improvements in efficiency in order to reduce the health gap with advanced economies. In particular, governments should focus interventions on preventive strategies which can reduce the impact of ageing on long term care. This is especially important for ages before retirement with a view to improving their employment rates.

Summing up, there are several sources of cost pressure for health spending in SEE and EECCA countries which include but are not driven only by ageing. On the contrary, the most important ones seem to be related with the necessity of improving health outcomes and with rising citizens' expectations about the quality and accessibility of health services.

VI. Alternative scenarios

High participation and employment rates are conducive to social cohesion and can enhance the sustainability of social security systems, providing that the bulk of employment is legitimate and payroll taxes paid. As pointed out earlier, a number of the emerging economies investigated have relatively high shares of informal employment. This poses a problem for the financing of public pension and health systems.

Another problem is posed by relatively low participation and employment rates, especially in SEE economies. Table 10 shows that employment rates consistent with our baseline scenario exceed the 70-per cent mark over the entire period projected only in Kazakhstan. In the case of Russia, the population ageing process is projected to reduce the aggregate employment rate below 70 per cent after 2030. The employment-population ratios

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in the other economies investigated are unlikely to reach 70 per cent without effective pro-employment policies.

Table 10
Employment-population ratio (15-64 years), per cent

	1990	2000	2010	2015	2020	2025	2030	2035	2040	2045	2050
Eastern Europe, Caucasus and Central Asia											
ARM	69.1	67.9	60.5	62.8	63.8	63.4	64.2	64.6	64.6	64.2	63.8
AZE	61.0	63.6	64.1	65.9	66.3	64.0	63.6	63.9	64.3	63.3	61.6
BLR	73.0	65.9	62.2	64.0	64.9	64.4	64.2	63.5	63.0	62.1	62.1
GEO	65.2	63.0	64.3	66.6	67.9	67.4	67.3	67.6	68.1	68.5	68.3
KAZ	72.0	72.3	73.5	75.0	74.8	72.4	72.2	72.8	73.5	73.9	73.4
KGZ	67.7	66.0	66.5	68.0	69.0	68.2	68.0	68.3	68.7	68.3	67.8
MDA	71.3	62.1	44.1	47.3	50.9	51.0	51.0	50.9	50.7	50.3	49.6
RUS	73.1	67.5	69.3	70.7	71.3	70.7	70.6	69.8	69.1	68.4	68.5
TJK	67.1	66.7	65.3	65.8	66.4	67.0	67.5	67.8	68.3	68.4	68.3
TKM	60.2	60.8	60.4	61.4	61.5	61.7	61.9	61.8	61.8	61.8	61.6
UKR	69.1	63.4	63.8	65.9	67.6	67.1	66.5	65.6	64.9	64.4	64.7
UZB	59.6	59.8	60.7	62.0	63.1	63.2	63.4	63.3	63.4	63.1	62.8
South-Eastern Europe											
ALB	64.5	63.7	63.2	63.0	63.1	64.1	64.6	64.6	64.2	63.0	62.4
BIH	47.0	48.8	51.8	52.2	52.9	53.2	53.3	52.9	52.0	51.0	50.8
HRV	61.7	61.1	61.3	62.2	63.8	63.7	63.3	62.6	62.1	62.0	62.4
MKD	57.1	57.2	61.2	62.7	64.3	64.5	64.3	64.0	63.4	62.9	62.6
MNE	57.1	60.0	60.1	61.3	62.7	63.1	63.3	63.1	62.7	62.3	62.1
SRB	57.0	59.7	60.3	61.8	63.5	63.6	63.3	62.9	62.5	62.2	62.1
TUR	57.3	49.5	50.2	50.3	50.6	50.3	50.0	49.8	49.6	49.4	49.4

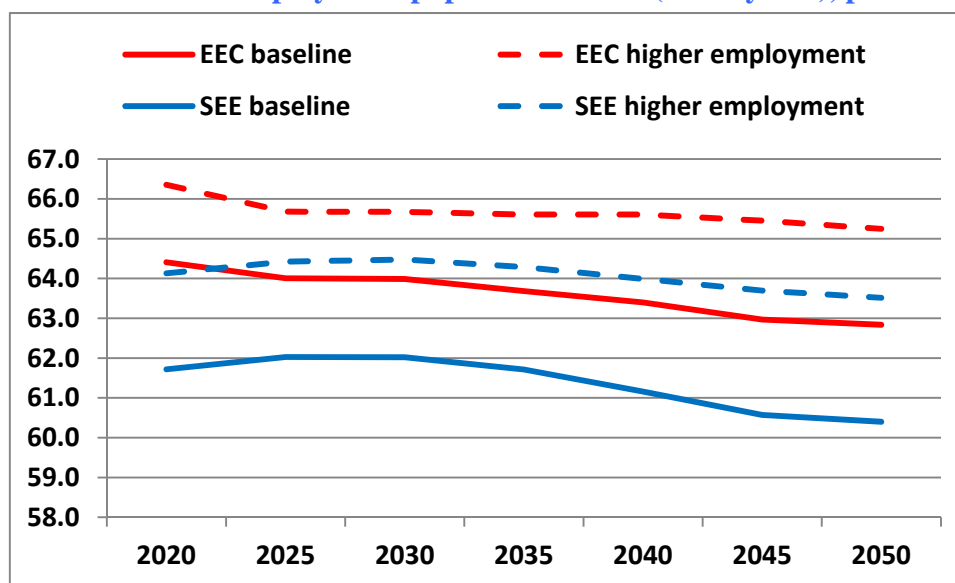
Source: ILO statistics and ECE estimates.

The example of the EU Lisbon strategy indicates that policies can help increase labour supply and employment successfully. The strategy targeted *inter alia* employment rates of the population aged 15-64 years and of older workers (aged 54-64 years). The EU employment rate increased from 62 per cent in 2000 to 66 per cent in 2008 before it has been reduced by the global financial crisis to 64 per cent by 2010. Nevertheless, the EU employment rate is projected to increase gradually to 68.7 per cent by 2050 (EC, 2011). The employment rate of older workers increased continuously from 37 per cent in 2000 to 46 per cent by 2010 and is expected to keep increasing in subsequent decades.

In the countries investigated employment rates increase in line with the increasing participation rates projected by the ILO up to 2020. These projections are based on recent trends and policies (ILO, 2011 b). As mentioned above, six EECCA countries (Armenia, Belarus, Georgia, Republic of Moldova, Russian Federation and Ukraine) and six SEE countries (Albania, Bosnia and Herzegovina, Croatia, Montenegro, Serbia and The former Yugoslav Republic of Macedonia) are likely to experience rapid population ageing over the next few decades. In order to reduce growth of economic dependency ratios, governments of these countries should adopt ambitious policies with a view to increasing the comparatively low participation and employment rates of older population cohorts. Participation rates of female cohorts over 55 years are particularly low but could be raised by adjusting the statutory retirement age of women to parity with males and reducing incentives for early retirement. Simulations based on the assumption of an increase of participation rates of older female to those of male workers indicate that the average increase in aggregate employment rates over the baseline levels would rise from some 2 per cent in 2020 to almost 2½ per cent in Eastern Europe and the Caucasus (without Azerbaijan) and from 2½ per cent to over 3 per cent in South-Eastern Europe (without Turkey).

Figure 9 compares the employment rates consistent with the baseline and higher employment scenarios in Eastern Europe and the Caucasus (EEC) and South-Eastern Europe. The relatively strong impact of higher female participation rates in SEE economies on aggregate employment rates reflects the comparatively low level of participation rates of older female workers in countries of the region. In spite of the higher employment rates associated with the mobilization of older workers, employment *levels* would start declining from the 2020s (albeit more slowly than in the baseline scenario) due to the impact of rapid population ageing.

Figure 9
Alternative employment-population ratios (15-64 years), per cent



Source: ECE projections.

Note: EEC = Armenia, Belarus, Georgia, Republic of Moldova, Russian Federation, and Ukraine. SEE = Albania, Bosnia and Herzegovina, Croatia, Montenegro, Serbia, and The former Yugoslav Republic of Macedonia. Sub-regional averages are unweighted.

The direction and magnitude of fiscal effects of the increasing female labour supply are by no means obvious. Given the important role played by women in childcare and care for the aged, higher labour market participation would not be feasible without a transfer of such services from private households to alternative institutions that would have to be financed to some extent by the public sector.

The required investment in child and elderly care could be substantial in many countries of the region. After the transition crisis during which a large share of facilities were closed down many countries invested in pre-school services. As a result, preschool enrolment rates surpassed their pre-transition levels in Central Europe and Western EECCA but remained low and with no sign of substantial recovery in the Caucasus and Central Asia (UNICEF, 2009). On the other hand, the provision of institutional elderly care, i.e. nursing homes, hospices, and long-term residential care, is quite low even in Western countries (involving not more than 12-13 per cent of the elderly in Northern European countries, OECD 2011c) and is very limited in EECCA and SEE countries.

Other policy scenarios, based on alternative assumptions about labour market participation rates or demographic patterns, could be developed with the aid of model simulations. Given the sensitivity of such simulations to changes in behavioural and demographic parameters, it would be prudent to increase effective retirement ages by eliminating early retirement options or making them less attractive. The sustainability of social security systems could be further improved by facilitating immigration with a view to increasing labour supply. Simulations suggest that moderate increases in net immigration could increase employment and restore fiscal balance of social security systems. Immigration is already important for the labour market in Russia and other resource-rich EECCA economies while the source countries – mainly resource-poor economies of the sub-region – benefit from inflows of worker remittances. However, immigration would be also beneficial to countries like Ukraine. Simulations based on our pension model suggest that moderate net inflows of young immigrant workers (50,000 per year) could eliminate the Ukrainian PAYG deficit by 2030 and keep it close to zero until 2050. A more detailed discussion of immigration and other issues that should be addressed by international cooperation is beyond the scope of this paper.

VII. Concluding remarks

This paper argues that population ageing presents significant challenges for EECCA and SEE countries. Although the ageing process is less advanced than in Western Europe, the rapid pace of demographic change in Emerging Europe and Central Asia is projected to double or even treble the national old-age dependency ratios over the period 2010-50. The adverse impact of ageing on effective labour supply is expected to be particularly strong in countries of the Caucasus (except Azerbaijan), Eastern Europe, and South-Eastern-Europe (except Turkey).

The overall sustainability of pension systems in countries with a relatively advanced demographic transition will depend on their capacity to fully utilize diminishing labour resources. The increase of effective retirement age of both men and women is a key precondition for increasing participation and employment rates, providing that governments reduce incentives to retire early and improve incentives to work in the formal sector. In some countries even high employment rates may not be sufficient to balance the revenues and expenditures of PAYG systems so that downward adjustments in replacement rates would be needed to make social security sustainable. Policy makers should ensure however that retirement benefit levels do not decline below the minimum specified in the 1952 ILO social security convention. The investment performance of the second pillar defined benefit systems has been disappointing to date in the EECCA and SEE countries that introduced them in late 1990s or early 2000s. Although the performance of these systems may well improve in the longer run, it is unlikely that they will play more than a supplementary role in the provision of public pension benefits in the foreseeable future.

In some countries of the region the contribution-based public pension systems may become unsustainable due to the diminishing number of contributors and rising number of retirees with social security entitlements. In such countries authorities should probably consider the establishment of a social protection floor for the elderly in the form of noncontributory social pensions. The financing of universal social pension from the general revenue would reduce labour costs in the formal sector and could stimulate job creation.

Ageing will have important consequences for healthcare systems as well. However, at least in the near future, the priorities for EECCA and SEE countries' health spending will be set predominantly by the necessity of improving health outcomes and the rising citizens' expectations about the quality and accessibility of health services. These countries' ability to invest in public health will vary a lot depending on their development process and the fiscal space they will have. While for oil exporting countries it will be easier to increase public investment, all of them should concentrate their efforts on making substantial improvements in efficiency in order to reduce the health gap with advanced economies and contain cost pressures. Preventive strategies aiming at improving the population health status and attaining a "healthy ageing" process could have positive effects on the employment rates especially of pre-retirement workers, contributing in this way to the efforts to increase labour market participation and ease the pressure on pension systems.

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