

Employment and Fiscal Policy Implications of Ageing in Eastern and Southeastern Europe, Caucasus and Central Asia

Background note by the UNECE secretariat¹

1. Introduction

The questionnaire attached seeks to collect comparable information on the social-security systems and their financial sustainability in countries of Eastern and Southeastern Europe, Caucasus and Central Asia. This would provide a realistic framework for an informed discussion of the national policies and programmes developed in that region in response to population ageing. In order to minimize the reporting burden, the questionnaire is presented in the electronic form (Excel file). It is similar to the questionnaire submitted in 2000 to the OECD countries participating in the Joint Project on the Public Finance Implications of Ageing.² This note explains how the questionnaire has been developed. Additional details are available from the Secretariat¹.

The latest revision of the UN World Population Prospects implies that all countries of Eastern and Southeastern Europe, Caucasus and Central Asia will experience population ageing over the period 2000-2050 (Table 1). 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 (Table 2). In these economies, the combination of an ageing and declining population is bound to have an adverse affect on the effective labor supply, threatening to undermine sustainability of their public pension and health systems.

In order to examine systematically the employment and fiscal implications of ageing in the countries investigated, it is desirable to utilize a comparable framework. Therefore, the Secretariat proposes a set of projections for population, employment and output trends in all these countries that are based on common assumptions. It also develops a uniform reporting framework for fiscal scenarios in the questionnaire. Subsequently, the national authorities are to provide a description of their age-related models (part A of the questionnaire) and produce the baseline and alternative fiscal projections, including sensitivity tests (parts C-K). More details pertaining to the questionnaire are provided in the instructions on the final page of this document. Following the receipt of completed questionnaires, the Secretariat analyzes the projections reported by national authorities and, if necessary, requests additional simulations.

The results of this process will be compared and presented by the Secretariat as a special study. This may well enhance the quality of policy-oriented discussions of ageing in these countries of the ECE region. It will also enable the policy makers in these countries to check the realism of the official long-term development programs.

2. A framework for assessment

The period of analysis should be sufficiently long to permit the examination of effects of the changing demographic trends on pensions and other age-related spending and the impact of recent social-security reforms. The available data and projections are available for the period

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1995-2050 that meets these requirements. National projections should be built along the following data sets (modules):

- Population projections
- Labour market trends
- Aggregate output growth
- Age-related fiscal trends

These four modules are presented in the form of an Excel spreadsheet and briefly described below.

Population projections

Module B.1 of the questionnaire describes demographic assumptions of the Secretariat that rely on the medium variant of the 2004 edition of the UN *World Population Prospects: The Second Revision*. If the authorities prefer to use their own demographic assumptions, they should report them in module B.2.

Labour market trends

Key labour market data (population and participation rates of 5-year age groups, the labour force and employment) are provided in module D that summarizes the baseline scenario of the secretariat. Estimates of participation rates for the male and female 5-year age groups until 2000 and their projections until 2020 have been recently completed by the ILO.³ It is assumed that the participation rates remain unchanged at their 2020 levels until 2050. Projections of employment are based on the assumption that the equilibrium rate of unemployment reaches 7 per cent in 2010 and remains constant in subsequent years. The level of employment in the base year (2000) is defined by the difference between the estimated labour force and unemployment. The labour force has been estimated with the aid of the ILO participation rates and the UN population projections mentioned above. Unemployment during 1995-2000 has been estimated by the Secretariat on the basis of Labour Force Survey measures for twelve countries (Armenia, Azerbaijan, Bulgaria, Croatia, Georgia, Kazakhstan, Kyrgyzstan, Republic of Moldova, Romania, Russian Federation, Serbia and Montenegro, and Ukraine). Unemployment in subsequent years is based on the assumption that the unemployment rate declines to 7 per cent by 2010 and remains constant thereafter. In some countries (Albania, Belarus, Bosnia and Herzegovina, FYR Macedonia, Tajikistan and Turkmenistan) no comparable employment measures could be estimated because comprehensive data on involuntary unemployment and informal employment are not available. Therefore, employment in these countries was derived while setting the unemployment rate to 7 per cent over the entire 1995-2050 period.

Aggregate output growth

Aggregate output growth is projected on the basis of labour productivity and employment developments in module D. The Secretariat assumes in its baseline that each economy takes advantage of productivity catch-up opportunities up to 2025. 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 country and the United States, α refers to the productivity growth trend of 1½ per cent per annum, t indexes time and β is a catch-up parameter.⁴ GDP levels in the base year are expressed in

³ For details, see the ILO Economically Active Population Estimates and Projections database, <http://laborsta.ilo.org>.

⁴ For a more detailed discussion of the catch-up model, see UNECE, *Economic Survey of Europe*, 2004 No. 1, Box 4.2.1 on p. 102.

comparable purchasing parity terms estimated by the OECD for most economies and reported in the World Penn Tables. The PPPs for four countries (Bosnia and Herzegovina, Serbia and Montenegro, Uzbekistan and Turkmenistan) have been estimated by the Secretariat. After 2025 it is assumed that labour productivity increases at the trend growth rate of 1½ per cent per year. If the authorities prefer to use their own productivity growth projections, then these should be reported in the alternative baseline scenario in part E of the questionnaire. It would be helpful to specify the underlying assumptions either in the spreadsheet or in a separate note.

Age-related fiscal trends

Depending on their choice of the baseline, the authorities should report the age-related public expenditure, fiscal balances and public debt in either module D or module E or both. Real wages should grow in line with the labour productivity growth projected by the UNECE (see above) or by the authorities. If the fiscal models consider explicitly the development of the public debt burden, the Secretariat proposes that a real interest rate be linked to growth of real GDP. This would make national results more comparable. It would be also very helpful if more detailed information on pensions could be provided in module C. The Secretariat would also appreciate receiving information on detailed characteristics of the retirees in supplementary tables that appear in the last two sheets of the questionnaire.

3. Sensitivity tests and policy simulations

Sensitivity tests

The fiscal outcomes are likely to be influenced strongly by the choice of key demographic, labour market and productivity assumptions. Three sensitivity tests are included in the Secretariat's questionnaire.

The first sensitivity test (sheet F) is based on an increase in life expectancy at 65 by one year over the values projected in the medium variant of the UN *World Population Prospects* that are reported in the questionnaire (sheet B). In addition, the authorities might want to test the sensitivity of the fiscal balance to changes in the projected fertility rates and other demographic variables.

The second sensitivity test (sheet G) is based on the decrease of projected employment by 5 per cent. The outcome of the test depends on the particular model used for the simulation of fiscal outcomes. The authorities might also want to test the sensitivity of fiscal balance to changes in the structural unemployment rates and age-gender specific participation rates.

The third sensitivity test (sheet H) is based on the assumption of slower labour productivity growth that is consistent with a catch-up factor of 1 per cent operating until 2010 and subsequent growth along the long-term trend of 1.5 per cent per annum. The authorities might want to perform additional tests based on different catch-up factors and assumptions about the pace of technical progress.

Policy simulations

Baseline projections for age-related spending should include effects of the policies legislated by the end of 2004. The Secretariat's questionnaire includes three policy simulations that are described below.

The first policy simulation (sheet I) assumes a gradual increase of the statutory retirement age by 6 months per year that starts in 2010 and continues until the limit of 65 years is reached for both men and women. Transparency of the results would be enhanced if the authorities

provided additional information on their assumptions concerning the relationship between statutory and effective retirement ages. They might also want to perform additional simulations that reveal effects of alternative policy measures on statutory and effective ages of retirement with the aid of the basic framework for assessment provided by the Secretariat.

The second policy simulation (sheet J) assumes a switch towards a CPI-based indexing of retirement benefits from 2010 onwards. While this type of indexing is likely to improve notionally the fiscal balance, it would be helpful if the simulation results were to include the changing replacement rates (ratios of average pensions to pensionable earnings) so that the political feasibility of this approach to pension indexing could be explored. The authorities might want to simulate fiscal outcomes with the aid of other indexing methods, e.g. Swiss indexing that increases pensions by the average of the consumer price level and wage growth rates.

The third policy simulation (sheet K) is based on the assumption of policies that increase from 2010 inflows of able-bodied migrants by 0.25 per cent of the population per year. It is important that the simulation takes into account that the immigrants and their children are likely to acquire permanent residence status and accrue entitlements to pensions and other benefits over time.

Table 1. Median age 2000-2050

	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Albania	27.1	28.3	29.4	30.9	32.6	34.6	36.6	38.4	39.9	40.9	42.0
Armenia	30.3	31.7	33.0	34.4	36.5	38.9	41.6	44.2	46.3	47.5	47.6
Azerbaijan	25.7	27.5	29.2	31.1	33.2	35.6	37.9	40.2	41.3	41.7	42.1
Belarus	36.5	37.8	38.7	39.7	41.0	42.8	44.8	46.9	48.6	49.1	48.4
Bosnia and Herzegovina	35.8	38.0	40.1	41.8	43.3	44.8	46.1	47.5	48.6	49.1	49.5
Bulgaria	39.6	40.6	41.5	42.8	44.3	46.1	47.7	49.3	50.7	51.4	51.2
Croatia	39.0	40.6	41.9	43.0	44.1	45.4	46.7	47.8	48.5	48.9	48.8
FYR Macedonia	32.5	34.2	36.0	37.7	39.4	41.2	42.8	44.3	45.6	46.3	46.5
Georgia	34.5	35.5	37.2	38.6	40.0	41.7	43.8	46.0	48.0	49.8	50.4
Kazakhstan	28.0	29.4	30.8	32.3	34.1	36.5	38.5	40.1	40.9	41.4	42.1
Kyrgyzstan	22.6	23.8	25.3	27.1	29.1	31.1	33.0	34.7	36.3	37.9	39.5
Moldova	31.6	33.0	34.6	36.5	38.6	41.0	43.5	46.0	47.9	49.2	49.6
Romania	34.8	36.7	38.5	40.2	42.2	44.2	46.0	47.8	49.6	50.1	50.1
Russia	36.4	37.3	37.9	38.8	40.0	41.7	43.4	45.0	44.9	43.8	43.5
Serbia and Montenegro	35.5	36.5	37.6	38.8	40.1	41.4	42.7	43.8	44.5	44.8	45.0
Tajikistan	18.4	19.3	21.0	22.8	24.5	26.2	28.0	29.8	31.7	33.5	35.4
Turkmenistan	21.7	23.3	25.0	27.1	29.1	31.3	33.3	34.8	36.2	37.5	38.8
Ukraine	37.5	39.0	39.9	41.1	42.5	44.1	46.1	48.2	50.3	51.6	51.9
Uzbekistan	21.0	22.6	24.3	26.3	28.4	30.6	32.6	34.3	35.8	37.4	38.9

Source: UN, *World Population Prospects: The 2004 Revision*, medium variant.

Table 2. Total dependency ratio 2000-2050

	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Albania	59.6	54.5	50.3	49.3	51.0	53.6	54.2	53.6	52.8	53.4	57.1
Armenia	56.0	49.0	40.5	39.7	43.9	49.1	52.1	50.8	50.9	55.0	63.8
Azerbaijan	58.3	49.0	40.7	38.8	41.5	45.1	48.1	48.7	49.4	51.4	56.1
Belarus	47.8	42.5	38.7	38.9	42.4	46.3	49.9	50.8	53.8	58.3	66.5
Bosnia and Herzegovina	42.4	43.9	44.2	44.3	47.6	51.1	54.9	57.9	61.7	66.1	70.9
Bulgaria	47.2	44.0	43.1	46.3	48.9	51.0	52.6	55.1	60.5	68.5	75.7
Croatia	48.2	48.7	46.7	48.4	52.9	57.6	61.2	63.5	66.0	70.3	75.3
FYR Macedonia	47.3	44.3	41.4	41.8	45.0	48.4	51.1	53.6	56.7	61.3	66.8
Georgia	51.7	49.7	44.0	43.3	45.6	50.1	55.2	56.7	58.7	62.5	69.1
Kazakhstan	52.6	46.3	42.1	41.4	44.3	46.3	47.8	46.8	48.3	51.6	56.0
Kyrgyzstan	67.9	60.2	52.1	49.2	47.6	46.6	45.8	45.0	46.3	48.1	50.8
Moldova	47.8	39.7	35.2	35.5	39.8	44.1	46.1	46.0	48.6	54.7	64.4
Romania	46.6	43.3	41.9	42.6	45.1	47.3	46.8	51.9	57.6	66.4	72.7
Russia	44.0	40.9	38.8	42.3	46.5	50.2	52.3	52.7	55.5	59.8	65.6
Serbia and Montenegro	49.4	47.9	45.7	46.6	50.0	52.1	53.7	55.4	57.8	61.2	65.3
Tajikistan	84.3	75.0	64.1	57.4	54.6	52.9	50.5	46.6	43.6	42.2	43.7
Turkmenistan	68.2	57.4	48.0	45.8	45.1	44.6	43.6	42.6	43.4	45.8	49.1
Ukraine	46.8	44.9	41.9	42.7	46.5	50.4	53.7	54.8	58.7	64.2	73.3
Uzbekistan	71.2	61.1	51.6	48.6	46.9	45.3	43.9	43.0	44.2	46.1	48.8

Note: ratio of population 0-14 and 65+ per hundred population 15-64

Source: UN, *World Population Prospects: The 2004 Revision*, medium variant.

Annex.

This annex proposes a series of steps to complete the questionnaire presented in the Excel file entitled AM_quest.xls. Please note that even partially completed questionnaires would be most appreciated by the UNECE secretariat.

1. Open sheet A of the Excel file and answer as fully as possible parts A1, A2, A3 and A4.
2. Open sheet B and, if necessary, complete part B2.
3. Open sheet C and complete parts C1, C2 and C3.
4. Open sheet D and complete part D4.
5. If you have a different baseline scenario, please open sheet E and complete parts E1, E2, E3 and E4.
6. Open sheet F and complete parts F1, F2, F3 and F4.
7. Open sheet G and complete parts G1, G2, G3 and G4.
8. Open sheet H and complete parts H1, H2, H3 and H4.
9. Open sheet I and complete parts I1, I2, I3 and I4.
10. Open sheet J and complete parts J1, J2, J3 and J4.
11. Open sheet K and complete parts K1, K2, K3 and K4.
12. Open the final sheet and complete the supplementary table 1.