



ECONOMIC POLICY COMMITTEE

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Budgetary challenges posed by ageing populations:

the impact on public spending on pensions, health and long-term care for the elderly and possible indicators of the long-term sustainability of public finances

EXECUTIVE SUMMARY

This report, along with the country fiche prepared by national authorities, is available on the web-sites of the Economic Policy Committee and the Directorate General for Economic and Financial Affairs of the European Commission.

http://europa.eu.int/comm/economy_finance/epc_en.htm
http://europa.eu.int/comm/economy_finance/publications/european_economy/reportsandstudies0401_en.htm

AIM OF THE REPORT

There is a growing recognition that ageing populations will pose major economic, budgetary and social challenges in coming decades. In particular, ageing could lead to significant pressures to increase public spending, making it difficult for Member States to maintain sound and sustainable public finances – this is of added importance in economic and monetary union.

This report, prepared by a working group on ageing populations (AWG) attached to the Economic Policy Committee (EPC), presents projections for public spending on pensions, health and long-term care. It also examines how these projections could be used to help assess the overall sustainability of public finances. The projections were made on the basis of a demographic forecast provided by Eurostat and agreed assumptions on key economic parameters (participation rates, unemployment, productivity growth and real interest rates). For pensions, national authorities used their own models or sub-contracted this work to national research institutes, whereas for health and long-term care a common methodology was used. The aim of the projection exercise is to achieve broad consistency across Member States while recognising that full comparability is not possible. As with all long-term forecasts, caution must be exercised when interpreting results.

The analysis and results can usefully feed into the various policy processes on ageing populations that are evolving at EU level. In particular, it could provide input for the reports to be examined by the forthcoming Laeken and Barcelona European Councils on the quality and sustainability of pensions and on orientations in the field of health care and long-term care for the elderly. Moreover, the projections can, in response to the decision of the Stockholm European Council, be used in the review of the quality and sustainability of public finances under the Broad Economic Policy Guidelines and the Stability and Growth Pact. Finally, in accordance with the principle of subsidiarity, the report could feed into the open-method of co-ordination in the field of pensions.

THE DEMOGRAPHIC OUTLOOK

Large demographic changes are underway ...

Large changes in the size and composition of the population will take place in all Member States in the coming decades. In the central scenario of Eurostat, fertility rates remain well below levels needed to replace the population or to stabilise its age structure, life expectancy increases for both men and women by approximately one year every decade, and net inward migration continues. As a result of these demographic changes:

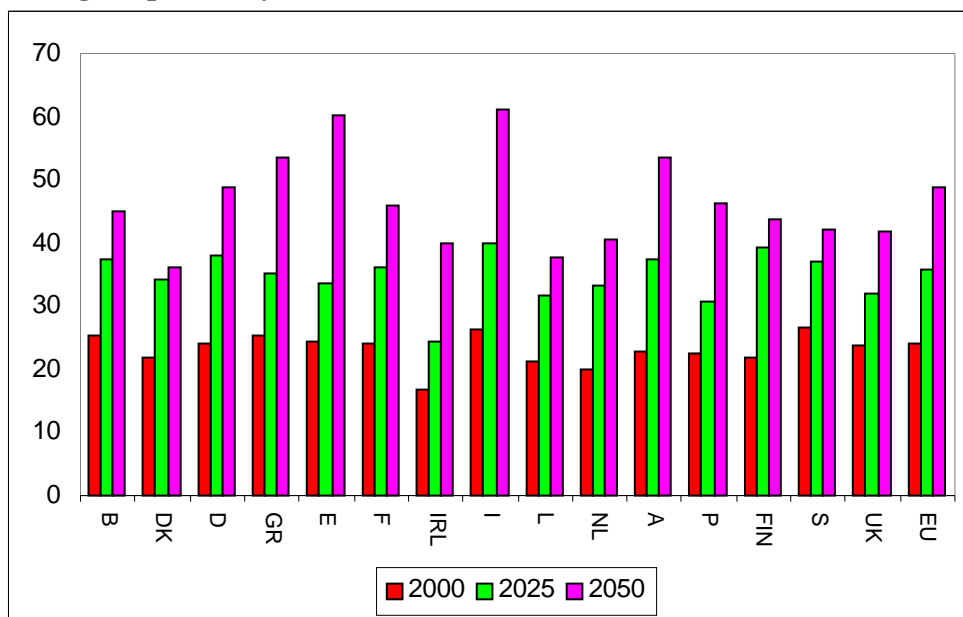
- the size of the EU population will fall from 376 million in 2000 to 364 million in 2050. Big declines will take place in Italy, Spain and Germany whereas increases are projected in France, Ireland, Luxembourg and the UK;
- the number of young persons (aged between 0 and 14) will fall from 69 million in 2000 to 58 million in 2050;
- the working-age population (aged between 15 and 64) will fall by some 20%, from 246 million in 2000 to 203 million in 2050.

- the numbers of elderly persons (aged 65 and over) will rise significantly from 61 million in 2000 to 103 million in 2050. The biggest part of that increase will occur amongst the very old (persons aged 80 and above), whose numbers will triple in size over that period.

... which will lead to big increases in old age dependency ratios.

As shown on the graph below, the old-age dependency ratio will more than double from some 24% in 2000 to 49% in 2050 for the EU. In other words, the EU will move from having 4 to only 2 persons of working age for every elderly person. There are striking differences across Member States with the highest dependency ratios of some 60% in 2050 projected for Spain and Italy.

Old-age dependency ratio in EU Member States, 2000-2050



Population aged 65+ as % of population aged 15 to 64

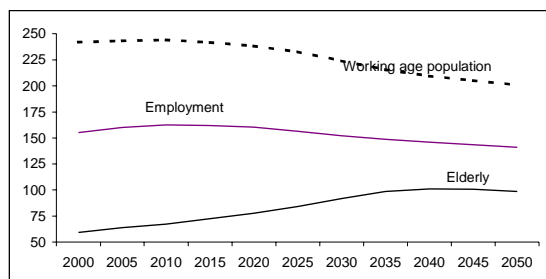
Source: Eurostat, central scenario

Higher employment can only partly offset changes in the labour market ...

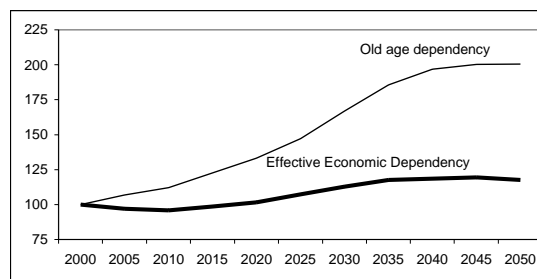
When considering pension expenditure in particular, the key variable is not so much the old-age dependency ratio, but rather the balance between economically active and inactive persons. The negative impact of demographic developments on this balance can be partially offset if more persons of working age participate in the labour market and if unemployment rates are lower.

This is illustrated in the “current policy” scenario, where the AWG assumed that unemployment rates would fall to their structural levels, that female participation rates would continue to increase, and that the historical trend towards lower effective retirement ages would be reversed. Based on these assumptions, the graph on the left below shows that the EU working-age population will decline by some 40 million by 2050, but the number of persons employed will remain broadly stable until 2035 and thereafter fall by 10 million. Whereas the old-age dependency ratio for the EU is projected to double in coming decades, the economic dependency ratio (which measures the number of inactive persons as a percentage of persons employed) will only increase by one fifth (see graph on the right).

Active and inactive persons (millions)



Index of dependency ratios (2000 = 100)



Notes: Working age population is the number of persons aged between 15 and 64.

The elderly population is the number of persons aged and above.

Old age dependency ratio = population aged 65+ as % of population aged 15 to 64

Economic dependency ratio = inactive persons aged 15+ as % of number of persons employed

Source: Commission calculations based on projections of EPC working group on ageing populations.

The projected improvements in labour market performance are supposed to rely on policies already in place (“no change in policy” scenarios). While in most Member States the assumed increases in participation rates and reductions in structural unemployment rates are in line with past reforms and trends, policy actions may be needed in some countries to achieve such improvements. For example, achieving higher female participation rates may require additional public expenditures (or tax incentives) on child-care facilities: also, to increase the participation rates of older workers and raise the effective retirement age, pensions and tax systems may need to be reformed to provide better incentives to remaining in the labour force.

PENSIONS PROJECTIONS

Spending on public pensions will increase in all Member States ...

To assess the impact on public finances, the AWG first examined how ageing populations will affect public spending on pensions and other replacement revenues for older persons. The projections therefore cover old-age pensions, early retirement pensions, disability and survivors pensions as well as other replacement income for persons aged over 55. However, some Member States were not able to make projections for all these items (which inevitably affects reported pension spending as a share of GDP), and hence the coverage is not fully comparable across countries. It should also be noted that these projections are for pensions spending before taxes, which could be significant in some countries.

Overall, the results indicate that spending on public pensions will increase by between 3% and 5% of GDP in most Member States but there are very large differences in the timing and scale of changes across countries. The UK is the only Member State to actually project a decrease in public pension spending as a share of GDP. Relatively low increases of between 2% and 3% of GDP are projected in Italy, Luxembourg and Sweden. The countries that face the biggest challenges on pension expenditure are Spain and Greece, where increases in spending of 8% and 12% of GDP are projected respectively.

Public pension expenditures (including public replacement revenues) to people aged over 55 before taxes (as a % of GDP)

	2000	2010	2020	2030	2040	2050	peak change
B	10,0	9,9	11,4	13,3	13,7	13,3	3,7
DK 1)	10,5	12,5	13,8	14,5	14,0	13,3	4,1
D	11,8	11,2	12,6	15,5	16,6	16,9	5,0
EL	12,6	12,6	15,4	19,6	23,8	24,8	12,2
E	9,4	8,9	9,9	12,6	16,0	17,3	7,9
F	12,1	13,1	15,0	16,0	15,8		4,0
IRL 2)	4,6	5,0	6,7	7,6	8,3	9,0	4,4
I	13,8	13,9	14,8	15,7	15,7	14,1	2,1
L	7,4	7,5	8,2	9,2	9,5	9,3	2,2
NL 3)	7,9	9,1	11,1	13,1	14,1	13,6	6,2
A	14,5	14,9	16,0	18,1	18,3	17,0	4,2
P	9,8	11,8	13,1	13,6	13,8	13,2	4,1
FIN	11,3	11,6	12,9	14,9	16,0	15,9	4,7
S	9,0	9,6	10,7	11,4	11,4	10,7	2,6
UK	5,5	5,1	4,9	5,2	5,0	4,4	-1,1
EU	10,4	10,4	11,5	13,0	13,6	13,3	3,2

Note: For most Member States, these projections include most public replacement income for persons aged 55 and over. Note that the coverage is not fully comparable across countries

(1) For Denmark, the results include the semi-funded labour market pension (ATP). Excluding the ATP, the peak increase would be 2.7% of GDP.

(2) Results for Ireland are expressed as a share of GNP.

(3) For the Netherlands the second tier is quite well developed. Such characteristics have a direct positive effect on the public pension scheme by reducing the burden of ageing populations on first tier pensions. However, there is also an important indirect implications: taxes on future pension benefits (which are drawn from the private funds) are expected to be quite high and may partially counterbalance the rise in public pension benefits.

Source: EPC working group on ageing populations.

... and demographic changes are the main driving force, but these are partly offset by declining benefits.

It is possible to identify the four main driving forces behind the projected increases in pension spending, as shown in the two subsequent tables below. The first table shows the percentage change between 2000 and 2050 in four key ratios that are driving spending on pensions, and the second table estimates the impact of such changes on the level of public spending on pensions.

A rising old-age dependency ratio is the main force behind increased levels of public pension spending: the demographic changes on their own would account for additional public spending in the EU of 6.1% of GDP over the 2000 to 2040 period. Further pressure (0.5% of GDP) for increased spending also results from a rise in the share of elderly persons that are eligible to receive pensions: this is mainly due to the growth in pension entitlements accruing to women.

Percentage changes in ratios driving public pension expenditure, 2000 to 2050

	Old-age			
	dependency	Employment	Eligibility	Benefit
B	62	-7	7	-16
DK	39	0	4	-12
D	65	-6	14	-20
EL	76	-18	7	29
E	109	-21	16	-5
F	73	-6	4	-34
IRL	100	-11	18	-4
I	91	-19	-9	-27
L	56	-53		
NL	75	-6	2	3
A	93	-12	-17	-16
P	71	-8	-19	7
FIN	70	-1	-9	-1
S	46	-5	8	-21
UK	60	1	-2	-49
EU	73	-10	2	-21

Note: The results shows the increase/decrease in public spending on pensions as a % of GDP caused by changes in the following four factors. The “Dependency” ratio is the population aged 55+ as % of Population aged 15 to 64. The (inverse) “Employment” ratio is the population aged 15 to 64 as % of the number of persons employed. The “Eligibility” Ratio is the number of pension beneficiaries as % of persons aged 55+. The “Benefit” ratio the average pension as a % of GDP per person employed.

Source: EPC working group on ageing populations

This pressure for increased spending on public pensions is partly offset by changes in the employment rate (-1% of GDP). An even greater offsetting effect, some 2.5% of GDP, results from a decline in the benefit ratio (average pension as a ratio of output per worker): this fall stems from reforms introduced in the 1980s and 1990s that curtailed the generosity of pensions, and in some countries from an increase in the number of households with two pensions of a lower level. In particular, the move towards indexation to prices of pensions appears to have an especially important effect.

The four factors driving public pension spending

	Dependency	Employment	Eligibility	Benefit	Total	Residual
B	5,2	-0,9	0,9	-2,0	3,3	0,0
DK	4,1	-0,2	0,5	-1,7	2,7	0,1
D	6,2	-0,7	2,0	-2,7	4,8	0,2
EL	9,9	-3,6	1,4	4,0	11,7	0,5
E	8,2	-2,4	2,0	-0,3	7,5	0,5
F	7,7	-0,9	0,7	-3,6	3,9	-0,1
IRL	4,5	-0,9	1,4	-0,7	4,3	0,1
I	9,5	-3,1	-1,4	-4,9	0,2	0,0
L						
NL	5,4	-0,6	0,5	0,2	5,5	0,2
A	10,5	-2,2	-3,0	-2,9	2,4	0,1
P	6,7	-1,1	-2,4	0,1	3,3	0,1
FIN	6,6	-0,1	-1,3	-0,1	5,0	-0,3
S	3,9	-0,5	0,8	-2,6	1,7	0,0
UK	2,4	0,0	-0,1	-3,4	-1,0	-0,1
EU	6,4	-1,1	0,6	-2,8	3,1	-0,2

Notes: The figure for the EU is the weighted average for countries reporting results.

Source: Commission calculations based on projections by the EPC working group on ageing populations.

The substantial fall in the benefit ratio is not equivalent to a fall in the more commonly used measure of the replacement rate (i.e. the average pension as a % of average wage),

nor does it imply that the purchasing power of pensions will fall in real terms. But it does highlight the importance of considering distributional questions, both between the active and inactive population and also between different age-groups of the elderly population.

When considering the economic situation of the elderly, it is necessary to look at all sources of revenues and not just public pensions (these issues need to be addressed at the micro level, not by macroeconomic analysis). There are distinct issues for the two ends of the income distribution scale. At the bottom end, the information available in this report needs to be supplemented by an analysis of social assistance and other measures to combat social exclusion. At the top end, the information needs to be considered in the context of individual saving behavior and the characteristics of non-pension sources of income.

The results are relatively robust to changes in the assumptions.

The AWG ran a number of sensitivity tests as well as a projection to gauge the impact on pension spending of raising employment rates to the target levels set by the Lisbon European Council of March 2000. Overall, the average impact of the sensitivity tests on results appears to be relatively modest and does not alter the main conclusions of the “current policy” scenario. The main lesson to be drawn is that higher employment (and to a lesser extent higher productivity growth) can mitigate, but not fully offset, the increase in pension spending as a share of GDP due to ageing populations.

Overall conclusions on pensions and the need for future projections.

The projections clearly show that notwithstanding reforms during the 1990s, ageing populations will lead to a substantial increase in public spending on pensions in most Member States on the basis of current policies. Moreover, the design of pension systems plays a crucial role in determining the scale of the budgetary impact. Further reforms may be needed in some Member States to ensure the financial sustainability of public pension systems, and thus enable them to continue meeting their social objectives and to respond to changing societal needs.

This common projection exercise has proved extremely valuable in terms of improving the cross-country comparability of projections, raising awareness of the challenges facing Member States’ pension systems, and clarifying the approaches to modelling age-related expenditures. Recent decisions of the European Council make it likely that projections of this type will be regularly requested again in the future, and it is essential that lessons be drawn from this projection exercise

The AWG considers that an annual common projection exercise is unnecessary. However, a common projection exercise at EU level should usefully take place periodically to take account of the latest demographic projections, any reforms to pensions systems and improvements in projection models. Member States could also submit revised projections if major reforms are made to their pension systems during the intervening years. In deciding the frequency of common projection exercises, sufficient time should be allowed so that any new projections provide substantial value-added: however, the interval between projections should not be so long as to lose the considerable expertise that has been built up in this current projection exercise.

Enhancing the comparability of projections.

In the event of a decision to carry out further projections, it is imperative that every effort be made to improve the quality and comparability of projections so that they provide a reliable and transparent picture of the budgetary challenge facing Member States. To this end:

- an extended analysis of the inputs and assumptions could be undertaken at the start of the next projection exercise. This could involve having an in-depth discussion of the population projections with demographers and improving the consistency of labour market and macroeconomic assumptions;
- national authorities need to consider whether additional resources should be devoted to making long-run budgetary projections, given that they are likely to form part of the regular EU work programme;
- the projections should be extended to include revenues to pension systems, taking the specific financing arrangements of the different countries into account, as this would allow for an estimate to be made of the projected financial balance of pensions systems. Account could also be taken of tax revenues from pensions, and the interaction of public and private systems;
- further analysis on the feasibility and usefulness of the best means to measure pension liabilities could be carried out, and especially whether they should be recorded on an accrued basis to reflect the contingent liabilities of government, i.e. the ‘implicit’ pension debt;
- the analysis on distributional questions could be developed further.

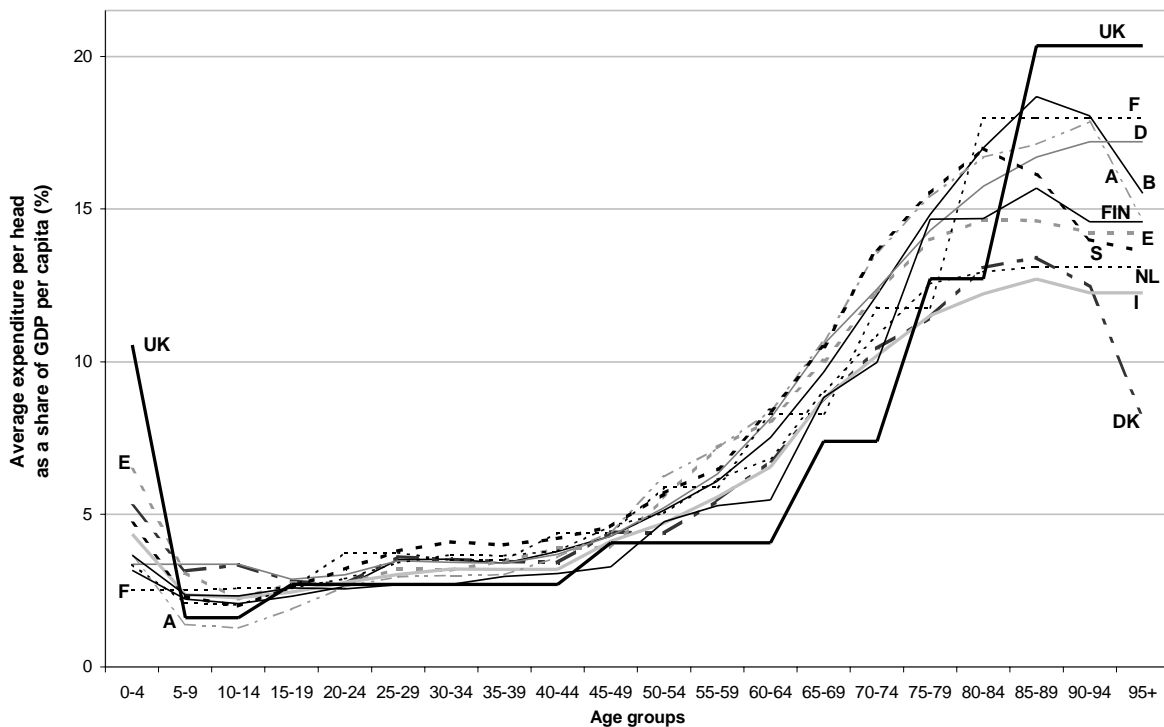
PROJECTIONS ON THE IMPACT OF AGEING ON HEALTH AND LONG-TERM CARE EXPENDITURE

The report provisionally presents projections of the impact of demographic changes on public expenditure on health and long-term care in EU Member States during the first half of the current century, produced by the AWG. The projections were carried out using a common methodology, and commonly agreed macroeconomic and demographic assumptions identical to those used for the pensions exercise.

Ageing and health care and long-term care expenditures appear to be highly related at first sight ...

At first sight, ageing and health and long-term care expenditures appear to be highly related - most Member States currently spend between 30-40% of total health expenditures on elderly persons (i.e. those aged over 65), as well as making expenditures on long-term care for the elderly. Moreover the pattern of average expenditures across age groups at a given point of time follows a well-defined pattern across countries. In particular, expenditures per head increase with age, and are particularly high for the oldest age groups, as can be seen in the graph below, which is for health expenditures only.

Age profiles for public expenditure per head on health care



The age-profiles for expenditures per head on long-term care show a similarly distinct pattern across Member States – there is little or no expenditure before old age, and then rapidly increasing levels of expenditure at higher ages. Moreover, the levels of expenditure per head for long-term care for elderly persons are much greater than for health care in some Member States– reaching a peak of around 80-90% of GDP per capita in one or two countries.

Thus, the ageing of populations would be an important driver of health and long-term care expenditures in the coming decades. However, other factors also come into play in the determination of the evolution of health expenditure.

Projections were run using the age-specific expenditure profiles ...

The aim of the AWG projections was to measure the demographic impact of changing populations on public expenditure on health and long-term care. As such the current pattern of expenditures across age groups – as defined by age-related expenditure profiles discussed above - were matched to future demographic projections to generate projections of public expenditures. Separate projections for health and long-term care expenditures were run as they are expected to follow different trends in the future.

... however the picture is far more complicated.

Demographic changes have not been significant drivers of increasing levels of health and long-term care expenditures in recent decades, but rather demand and supply factors have prevailed. The impact of non-demographic factors has not been explicitly modelled in the projections exercise. Instead simple cost assumptions have been made for the development of expenditures per head which implicitly include these other factors. However, these cost assumptions may be considered to be conservative in a long-term historical perspective. Furthermore, in a dynamic perspective the link between ageing

and health and long-term care needs is more complex than implied by looking at age-related profiles estimated at a single point in time. Increasing life expectancy and associated improvements in the health status of elderly persons, are likely to lead to shifts in age-related expenditure profiles over time, both for health care and for long-term care.

Accordingly, the results of the projections would be best interpreted as a snapshot of the possible impact of demography, which face both upside and downside risks.

The results of the baseline projections show a possible significant impact of demographic changes on future expenditure levels on health and long-term care ...

	TOTAL HEALTH AND LONG-TERM CARE		HEALTH CARE		LONG-TERM CARE	
	2000	the range of increase in per cent of GDP between 2000 and 2050	2000	the range of increase in per cent of GDP between 2000 and 2050	2000	the range of increase in per cent of GDP between 2000 and 2050
B	6.1%	2.1 - 2.4	5.3%	1.3 - 1.5	0.8%	0.8
DK	8.0%	2.7 - 3.5	5.1%	0.7 - 1.1	3.0%	2.1 - 2.5
D (1)			5.7%	1.4 - 2.1		
EL (1)			4.8%	1.6 - 1.7		
E (1)			5.0%	1.5 - 1.7		
F	6.9%	1.7 - 2.5	6.2%	1.2 - 1.9	0.7%	0.5 - 0.6
IRL (2)	6.6%	2.5	5.9%	2.3	0.7%	0.2
I	5.5%	1.9 - 2.1	4.9%	1.5 - 1.7	0.6%	0.4
NL	7.2%	3.2 - 3.8	4.7%	1.0 - 1.3	2.5%	2.2 - 2.5
A	5.8%	2.8 - 3.1	5.1%	1.7 - 2.0	0.7%	1.0 - 1.1
P (1)			5.4%	0.8 - 1.3		
FIN	6.2%	2.8 - 3.9	4.6%	1.2 - 1.8	1.6%	1.7 - 2.1
S	8.8%	3.0 - 3.3	6.0%	1.0 - 1.2	2.8%	2.0 - 2.1
UK	6.3%	1.8 - 2.5	4.6%	1.0 - 1.4	1.7%	0.8 - 1.0
EU (weighted average) (3)	6.6%	2.2 - 2.7	5.3%	1.3 - 1.7	1.3%	0.9 - 1.0

Notes:

(1) There are no results for long-term care for these Member States.

(2) Weights are calculated according to the Member States for which results are available. Therefore for health care it is a weight for the EU-14, and for long-term care, and total expenditure on health and long-term care the average is for 10 Member States.

The results of the baseline projections show that the demographic impact of ageing populations on health and long-term care systems could lead to significant pressures on the public finances over the long-term. Under the baseline scenarios public spending on health and long-term care is projected to increase by between 1.7 and 3.9 percentage points of GDP in countries reporting results for both expenditure components.

For health care, demographic changes would lead to increased public spending in the range of 0.7 to 2.3 percentage points of GDP over the next fifty years, with three Member States projecting increases above 2 percentage points. For long-term care, ageing would lead to increases in expenditure ranging from 0.2 to 2.5 percentage points of GDP - the increase is highest in those Member States which have strong traditions of formally provided long-term care, and thus have relatively high initial levels of expenditure.

With the exception of a few Member States, increases in expenditures in the more traditional health care sector are not very large relative to the current level of spending.

On the other hand, increases in spending on long-term care in several Member States over the projection period could be dramatic. However, given the sharp rise in the numbers of the very old and the projected increases in labour market participation, particularly among females, even those Member States which project only relatively small increases in long-term care expenditure might face sharp increases in public expenditure in this sector. This would be the case if labour market and societal shifts forced policy changes which led to increased formal provision of long-term care.

INDICATORS OF THE SUSTAINABILITY OF PUBLIC FINANCES

The sustainability of public finances: intuitively obvious but difficult in practice ...

Based on the projections above, public spending on pensions, health and long-term care could rise by between 4 and 8 per cent of GDP in most EU Member States in coming decades, and even larger increases are projected in some countries. A comprehensive assessment of the budgetary cost of ageing would also need to take into account other age-related expenditures, for example concerning population groups such as children, and the impact of ageing on tax revenues. Nonetheless, it is clear that the budgetary impact of ageing is substantial, making it more difficult for Member States to comply with the budgetary requirements of EMU. The AWG was requested to consider how its age-related expenditure projections could help in the assessment of the long-term sustainability of public finances, and in particular to look at whether indicators could be developed to this end.

... so the AWG took a pragmatic approach.

The AWG took a pragmatic approach and assessed sustainable public finances in terms of compliance with the budgetary requirements of EMU, i.e. avoiding excessive deficits, keeping debt levels below the 60% of GDP reference value, and respecting the “close to balance or in surplus” requirement of the Stability and Growth Pact (SGP). Sustainability is *de facto* ensured provided budget balances respect the “close to balance or in surplus” target as it will lead to the virtual disappearance of public debt. However, the AWG recognises that the sustainability of public finances requires more than just avoiding deficits and the accumulation of public debt.

Sustainable public finances also entails keeping the tax burden at reasonable levels and ensuring that non-age related expenditures are not crowded-out by increased spending on pensions, health and long-term care. In this context, the AWG considered it useful to examine several indicators which would also cast light on the quality as well as the sustainability of public finances. While further analysis and dialogue is required on how to assess the sustainability of public finances, this report provides a useful basis for such a debate.

Two sets of indicators are suggested ...

A first indicator is generated by simply extrapolating budget balances and debt levels using the baseline age-related expenditure projections. This requires making a number of assumptions, for instance on the evolution of other age and non-age related expenditures, tax revenues and the interest-growth rate differential. It is then possible to verify whether the deficit and debt requirements are respected over the projection period. As revealed by stylised examples for an “average debt” country and a “high debt” country, the result hinges upon whether the starting primary surplus is sufficiently high for the fall in the interest burden over time to absorb the additional age-related expenditures. Given the sensitivity of the results to the underlying assumptions, a number of stress tests would need to be carried out. The report examines three options: (i) setting the initial total and primary budget balance at a more/less favourable level compared with the baseline scenario; (ii) assuming that age-related expenditure growth is above/below the level in the baseline scenario; and (iii) assuming a higher/lower interest-growth rate differential.

The second set of indicators considered by the AWG measure the degree of budgetary adjustment required to ensure that public finances are sustainable (defined as respect of the SGP). One such indicator considers the difference between the projected primary surplus based on the AWG projections and the ‘required’ primary surplus necessary to ensure a balanced budget in all years of the projection exercises. It is also possible to measure the net present value of the required primary surplus over the projection period and to calculate the average required primary surplus over the same period. Another indicator is a financing gap (sometimes referred to as a “tax” gap). This measures the difference between the current tax ratio (which is held constant over the projection period) and the constant tax ratio needed to achieve the same debt level in 2050 as would result from a continued balanced budget position over the projection period. A positive figure implies that there is a financing gap which has to be closed either by raising taxes or cutting age or non-age related expenditures.

... and several factors need to be taken into account in interpreting the indicators.

The AWG considers that several factors need to be taken into account when interpreting these indicators and drawing policy conclusions. First, any assessment of the sustainability of public finances should include an examination of the levels of budgetary aggregates as well as the changes in budgetary aggregates. This is necessary to capture the degree of budgetary effort which a country will need to sustain in order for public finances to be sustainable. For example, the large primary surpluses of high debt countries may allow them to absorb the increase in spending on pensions and health and long-term care, but they will need to maintain these surpluses over the long-run and especially before the budgetary impact ageing hits: this is possible, but challenging.

Second, a major challenge in using the indicators is their sensitivity to starting budget positions and underlying assumptions, in particular the interest-growth rate differential. Further work is needed both to minimise the sources of uncertainty and/or to get a better understanding of the likely direction and scale of changes to key variables. The uncertainty on the starting budget position can largely be overcome by taking the budget balance and debt levels for the base year from the stability and convergence programmes. As these indicators are driven by debt dynamics, the interest-growth rate differential is of paramount importance. The AWG could analyse the possible impact of ageing populations on key macroeconomic aggregates such as labour productivity growth,

aggregate savings and real interest rates. Inevitably, a degree of uncertainty will remain, but it might be possible to get a better understanding of the likely direction and scale of changes which could help in design of stress test.

Third, the AWG could consider whether alternative indicators of the sustainability of public finances, such as generational accounts, could be usefully developed at EU level.