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Report on the 2012 update of the 2008 actuarial assessment of the Pension Scheme for European Officials (PSEO)

Accompanying the document

Proposal for a Council Regulation

adjusting, from 1 July 2012, the rate of contribution to the pension scheme of officials and other servants of the European Union

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1. INTRODUCTION

Article 83a and Annex XII of the Staff Regulations set out rules to guarantee the equilibrium of the PSEO (Pension Scheme of European Officials).

Annex XII lays down rules for implementing Article 83a of the Staff Regulations. In particular, it stipulates that:

- Eurostat is the authority responsible for the technical implementation of the Annex (see Article 13(1)),
- Eurostat will be assisted by one or more qualified independent experts in carrying out the actuarial assessments (see Article 13(2)),
- each year on 1 September, Eurostat is to submit a report on the assessment and updating referred to in Article 1 of the Annex (see Article 13(3)),
- any questions of methodology raised by the implementation of the Annex shall be dealt with by Eurostat in cooperation with national experts from the relevant departments of the Member States and the qualified independent expert or experts (see Article 13(4)).

Eurostat has drawn up the present report in accordance with the above legal requirements. The second five-yearly actuarial assessment of the pension scheme of the European civil service was carried out in 2008. This report sets out the results of the 2012 update of this 2008 actuarial assessment, based on the population of European officials as at 31 December 2011.

The report provides the information needed by the Commission to propose, if necessary, changes to the staff contribution rate in order to ensure the balance of the scheme.

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2. CONTRIBUTION RATE

The 2012 actuarial assessment of the Pension Scheme for European Officials (PSEO) indicates that, in order to guarantee the equilibrium of the scheme, the contribution rate necessary to finance one third of the benefits payable would be **9.9%** of the basic salary (or invalidity or termination of service allowance). This actuarial assessment has been made in accordance with the agreed methodology. It was discussed by the Article 83 Working Group at the 29 June 2012 meeting and has been reviewed and approved by independent actuarial consultants.

The 9.9% calculated contribution rate is one third of the ratio between the total of the service cost (1 132 million Euros) and the total of annual basic salaries (3 808 million Euros) (see Appendix I, Tables I and II). This rate is 1.1 percentage points lower than the one calculated in 2011 (11%) but not implemented. This change is analysed in point 4.

3. UPDATE OF THE ASSESSMENT OF THE ACTUARIAL BALANCE

The PSEO was assessed on the basis of the computation method set out in Chapter 2 of Annex XII of the Staff Regulations[1].

The following elements have been considered in the 2012 assessment:

– the population of contributing members at 31.12.2011,

– the update of the Real Discount Rate (RDR) (2.8% in 2011 and 2.6% in 2012),

– the update of the General Salary Growth Rate (GSG) (0,3% in 2011 and -0.2% in 2012),

– the update of the Individual Salary Progression rates (ISP),

– the update of the Invalidity Table.

More details about these updates are given in Appendix I.

4. ANALYSIS OF THE CONTRIBUTION RATE CHANGE

Changes to the pension contribution rate result from the combined effect of changes in the population structure and in actuarial assumptions. The separate impact of these changes in the officials' contribution rate change is not easy to determine due to their interdependency, although analysis of the actuarial assumptions allows a better understanding of the changes in contribution rate and its sensitivity to the various actuarial assumptions.

As indicated in point 2, the official’s pension contribution rate calculated this year (9.9%) is lower than the one calculated in 2011 (11.0%). This decrease (-1.1

[1] The methodology is further explained in a separate document available at Eurostat

percentage points) is mainly explained by the combined effect of the population evolution and actuarial assumptions update, the most important of which being the decreases of the GSG (0.3% in 2011 to -0.2% in 2012) and of the RDR (2.8% in 2011 to 2.6% in 2012).

Changes in actuarial assumptions and their impact on the contribution rate were presented in detail at the 29 June 2011 meeting of the Article 83 Working Group (see document 20120629 Art83_06). Further details are given in Appendix I.

4.1. Real Discount Rate (RDR)

The RDR (2.6%) used in 2012 calculation is lower than the one used in 2011 assessment (2.8%). The observed effect was a 0.5% increase of the calculated pension contribution rate.

4.2. General Salary Growth (GSG)

The GSG (-0.2%) used in 2012 calculation is lower than the one used for the 2011 assessment (0.3%). Consequently a -1.4% lowering effect was observed on the calculated pension contribution rate.

4.3. Individual Salary Progression (ISP)

ISP rates have been updated to take account of the observed promotion rates from 2005 to 2011 in accordance with methodology agreed at the June 2006 Art83 WG meeting. This update is further explained in Appendix I.

The ISP update had no material impact on the pension contribution rate.

4.4. Invalidity table

The invalidity table was updated with the most recently observed invalidity rates (2011). The new invalidity table (2011 EU Invalidity table) is thus an average of 5 years invalidity rates (2007 – 2011). The use of this updated table had no material impact on the pension contribution rate (see further explanation in appendix I, point 8.3).

4.5. Life table (healthy persons)

According to the Staff Regulations the life table may be updated only on the occasion of the five-yearly actuarial assessment[2]. The current ICSLT (International civil servants life table) was updated on the occasion of the 2008 actuarial assessment and this table, 2008 ICSLT, must be used at least until the next five-yearly assessment in 2013.

The life table used in the 2012 calculation is thus identical to that used in the 2011 calculation and there is no impact on the calculated contribution rate due to a change in the table.

[2] Article 9(2) of Annex XII to the Staff Regulations.

4.6. Life table (invalid persons)

It is normal actuarial practice to consider life expectancy of invalids as slightly shorter than that of healthy persons (e.g. EuroControl applies the mortality rate corresponding to a healthy person 3 years older than an invalid's age). Eurostat has applied this actuarial practice since the 2008 pension assessment.

Since the life table used in the 2012 calculation is identical to the one used in the previous calculation, no impact on the calculated pension contribution rate due to a change in the table was observed.

4.7. Assumed retirement age

Assumed retirement ages by staff category groups were first estimated for the 2004 pension assessment, and were presented at the June 2004 meeting of the Article 83 Working Group. As provided for in paragraph 3 of Article 83(a) of the Staff Regulations these assumed retirement ages were checked in 2008, on the occasion of the second five-yearly actuarial assessment, and no change was proposed for the following five-year period.

The assumed retirement ages are therefore identical to those used since 2004; no impact on the calculated contribution rate due to a change in assumed retirement age was observed.

4.8. Average difference between men and women

The average age difference between married men and women (3 years) that has been applied since 2004 in actuarial calculations was checked in 2008, and found to be supported by observation. The test showed that on average married men are 3.01 years older than their partners and married women 3.18 years younger than their partners.

Since the average difference in age is unchanged, no impact on the calculated pension contribution rate due to a change in this age difference was observed.

4.9. Probability of being married for men and women

The probabilities of being married for officials and ex-officials aged more than 59 were reassessed in 2008 and updated probabilities were presented at the June 2008 meeting of the Article 83 Working Group. No change was proposed at the 29 June 2012 meeting of the Article 83 Working Group.

Since the probability of being married is unchanged, no impact on the calculated pension contribution rate from a change in probabilities of being married for men and women was observed.

4.10. Loading factor for orphan's and divorced spouse's pension

Current actuarial practice is to add 10% to a payable reversion pension to allow for the pension payable to orphans after the death of the surviving spouse (or of the official if there is no surviving spouse) and any pension payable to divorced spouses.

Eurostat estimates that the impact of this factor on the contribution rate is minor and does not consider an update to this assumption necessary at the present time.

Since the loading factor for pensions payable to orphans and divorced spouses is unchanged, no impact on the calculated pension contribution rate due to a change in the loading factor was observed.

4.11. Methodological changes

No methodological changes have been implemented in the occasion of the 2011 pension assessment, thus no impact on the pension contribution rate was observed.

4.12. Population change effect

The yearly population change has had a material impact (-0.2%) on the pension contribution rate calculated this year.

5. COMPUTATION SYSTEM

5.1. Variables used in the assessment

In general, two kinds of variables are used in the actuarial calculation:

Parameters: These are values mainly linked to the application of the Staff Regulations. These values change according to certain conditions related to the individual situation of each official (e.g. the annual accrual rate is 1.9% for staff recruited from 01.05.2004 and 2% for those recruited before this date). These values can be clearly established.

Actuarial assumptions: These are values that are not known and cannot be established exactly, such as the invalidity table, the ISP table, the probability of being married at the retirement date, the loading factor for orphans and divorced spouses. The values of these actuarial assumptions are estimated in accordance with general actuarial practices. They were discussed with national experts from the Member States at the annual meetings of the Article 83 Working Group, and reviewed by independent actuarial consultants.

A summary of the main variables used (parameters and actuarial assumptions) is given in Appendix I, Tables III and IV.

5.2. Demographic parameters

The reference population is made up of contributing members of the PSEO including:

- active officials,
- members whose pension contribution is optional (e.g. officials who have taken leave on personal grounds or parental leave),
- invalids who receive an invalidity allowance under Article 78 of the Staff Regulations,

- Beneficiaries of an allowance for termination of service.

56 239 contributing members were recorded at 31.12.2011, which represents a net increase of 1 354 participants compared to the previous year (at 31.12.2010, 54 885 were used in the 2011 actuarial assessment).

The contributing members increase is the net effect of the increase due to the new contributing members (+2 839) and the decrease linked to members who left the scheme of became pensioners (-1 485).

A breakdown of the reference population by Institution or Agency is included in Appendix I, Table VII and a pyramid of ages in Figure I.

5.3. Economic parameters

In accordance with Articles 10 and 11 of Annex XII to the Staff Regulations, the Real Discount Rate (RDR) and the General Salary Growth (GSG) are calculated in the 2012 update as the average of the corresponding rates for the 12 preceding years (for more information see Appendix I to this report, points 9.1 and 9.2 and Tables XII and XIII).

5.4. Technical implementation of Annex XII to the Staff Regulations

Technical questions raised by the implementation of Annex XII are dealt with by Eurostat in cooperation with national experts from the relevant departments of the Member States participating in the Working Group on Article 83 of the Staff Regulations.

Eurostat also exchanges relevant information on actuarial issues with international organisations such as the ISRP (International Service for Remunerations and Pensions), EPO (European Patent Office) and EuroControl.

5.5. Independent examination

In accordance with Annex XII, Article 13, of the Staff Regulations, Eurostat was assisted by a qualified independent expert with regard to the methodological implementation and the definition and calculation of the corresponding actuarial assumptions.

The independent expert then conducted an actuarial examination of the contribution rate calculated by Eurostat. This examination consisted in confirming the relevance and reliability of the actuarial processes and assumptions used in accordance with the methodology described in Annex XII to the Staff Regulations.

For the aspects not described explicitly in Annex XII, the independent expert checked their compliance with generally accepted actuarial practices. Concerning actuarial assumptions, the independent expert carried out investigations to ensure that the underlying data provided by Eurostat were used correctly.

A summary of the assessment by the independent expert is included in Appendix II to this report.

APPENDIX I - COMPUTATION

6. RELEVANT FIGURES FOR CALCULATING THE CONTRIBUTION RATE

Table I. Breakdown of the contribution rate

Service cost	Total contribution rate (3/3)	Staff contribution rate (1/3)
Service cost for retirement	27.0%	9.0%
Service cost for invalidity	1.7%	0.6%
Service cost for death	1.0%	0.3%
Total service cost	**29.7%**	**9.9%**

Table II. Service cost and total amount of annual basic salaries

Service cost	Total (EUR million)	%
- Service cost for retirement	1 029	90,9%
- Service cost for invalidity	64	5,7%
- Service cost for death	39	3,4%
Total service cost	**1 132**	**100,0%**
Total annual basic salaries and invalidity and termination allowances	**3 808**	

7. SUMMARY OF MAIN VARIABLES

The following tables show the values of the main parameters (see Table III) and actuarial assumptions (see Table IV) used for the PSEO actuarial assessment. Please note that the tables only present an overview of the main variables and are not exhaustive. Please refer to the Staff Regulations and their annexes for precise and complete information.

Table III. Parameters used in the actuarial assessment

Parameter	Value
Legal source	Staff Regulations in force from 01.05.2004
Reference date for the population (Annex XII Article 1)	**31.12.2011**
Maximum official retirement age (Staff Regulations Article 52)	65 (67 on an exceptional basis)
Minimum official retirement age (Staff Regulations Article 52 and Annex XIII Article 22)	63 or before for officials in service before 01.05.2004
Minimum age for early retirement (Staff Regulations Article 52, Annex VIII Article 9 and Annex XIII Article 23)	55 or before for officials in service before 01.05.2004
Category and grade for the minimum subsistence figure (Annex VIII Article 6)	first step of grade 1
Maximum retirement pension (Staff Regulations Article 77)	70% of the basic salary at the retirement date
Annual accrual rate (Article 77 of the Staff Regulations and Article 21 of Annex XIII)	1.9% or 2% for officials recruited before 01.05.2004
Bonus for officials in service after the normal retirement age (Annex VIII Article 5 and Annex XIII Article 22)	Barcelona incentive
Minimum retirement pension (Staff Regulations Article 77)	4% of the minimum subsistence figure per year of service
Invalidity allowance (Staff Regulations Article 78)	70% of the basic salary
Minimum invalidity allowance (Staff Regulations Article 78)	100% of the minimum subsistence figure
Reversion pension (Staff Regulations Article 79 and Annex VIII Article 18)	60% of the retirement pension
Minimum reversionary pension (Staff Regulations Article 79 and Annex VIII Article 18)	35% of the last basic salary
Survivor's pension (Staff Regulations Article 79 and Annex VIII Article 17)	60% of the retirement pension that would have been payable to the official
Minimum survivor's pension (Staff Regulations Article 79)	35% of the last basic salary or minimum subsistence figure

Table IV. Actuarial assumptions

Actuarial assumption	Value
Average age difference between married men and women	3 years
Probability of being married for men	84%
Probability of being married for women	38%
Marital status	status at evaluation date
Coefficient for orphan's and divorced spouse's pension	10%
Annex VIII coefficient (correction coefficient)	0,0%
Assumed retirement age	63 to 64
Expected inflaction rate over the duration of the scheme	2,3%
Nominal Discount rate (NDR)	4,9%
Real Discount rate (RDR)	2,6%
General salary growth (GSG)	-0,2%
General pension revaluation (GPR)	-0,2% (equal to the GSG)
Individual salary progression (ISP)	2011 ISP Table
Mortality table (healthy members)	2008 ICSLT
Mortality table	Mortality rate of a person 3y older than an healthy member
Invalidity table	2011 EU Invalidity Table

Some of the assumptions have changed compared to the 2011 actuarial assessment. The following table summarises these changes:

Table V. Changes in actuarial assumptions

Assumption	Assessment	
	31.12.2010	31.12.2011
Real Discount Rate (RDR) (1)	2.8%	2.6%
General Salary Growth (GSG) (1)	0.3%	-0.2%
ISP-1. Individual Salary Progression of Officials, recruited before 01.05.2004 (2)	1.5%	1.2%
ISP-2. Individual Salary Progression of Officials, recruited from 01.05.2004 onwards (2)	1.3%	1.3%
ISP-3. Individual Salary Progression of Temporary Agents (3)	1.6%	1.6%
ISP-4. Individual Salary Progression of Contract Agents (3)	1.0%	1.0%
ISP-5. Individual Salary Progression of Parliamentary Assistants (4)	0.0%	0.0%
Life	2008 ICSLT	2008 ICSLT
Invalidity	2010 EU Invalidity table	2011 EU Invalidity table

(1) Average of 12 years preceding the year of the assessment
(2) Average of individual rates weighted by population as at 31.12.2011
(3) Single estimated rate
(4) No individual salary progression is envisaged

8. DEMOGRAPHIC PARAMETERS

8.1. Reference population

Annex XII, Article 1 of the Staff Regulations stipulates that the actuarial assessment shall be carried out in each year *n*, on the basis of the population of active members of the PSEO at 31 December of the previous year (*n-1*). Moreover, Article 9 of Annex XII provides that the population of participants in the scheme is to be collected annually by the Commission using information received from the different institutions and agencies whose staff are members of the scheme.

In accordance with these rules, the reference population is taken to be the staff at 31 December 2011 of the 51 institutions and agencies (same number recorded at 31 December 2010) whose officials are members of the PSEO.

Table VI. Institutions and Agencies in the PSEO

Abbr.	Institutions or assimilated organisations
COR	COMMITEE OF THE REGIONS
CONSIL	COUNCIL OF THE EUROPEAN UNION
CDCE	COURT OF AUDITORS
COJED	COURT OF JUSTICE OF EUROPEAN COMMUNITIES
CSC	ECONOMIC AND SOCIAL COMMITTEE
CEC	EUROPEAN COMMISSION
EDPS	EUROPEAN DATA PROTECTION SUPERVISOR
EO	EUROPEAN OMBUDSMAN
EUROPARL	EUROPEAN PARLIAMENT

Abbr.	Agencies
ACER	AGENCY FOR THE COOPERATION OF ENERGY REGULATORS
ASO	EUROPEAN ASYLUM SUPPORT AGENCY
BEREC	THE BODY OF EUROPEAN REGULATORS FOR ELECTRONIC COMMUNICATIONS
CDT	TRANSLATION CENTRE FOR BODIES OF THE EUROPEAN UNION
CEDEFOP	EUROPEAN CENTRE FOR THE DEVELOPMENT OF VOCATIONAL TRAINING
CEPOL	EUROPEAN POLICE COLLEGE
CFCA	COMMUNITY FISHERIES CONTROL AGENCY
CPVO	COMMUNITY PLANT VARIETIES OFFICE
EAA	EXECUTIVE AGENCY FOR THE PUBLIC HEALTH PROGRAM
EAR	EUROPEAN AGENCY FOR RECONSTRUCTION
EAS	EUROPEAN EUROPEAN EXTERNAL ACTION SERVICE
EASA	EUROPEAN AVIATION SAFETY AGENCY
EASO	EUROPEAN ASYLUM SUPPORT OFFICE
EBA	EUROPEAN BANKING AUTHORITY
ECHA	THE EUROPEAN CHEMICALS AGENCY
EEA	EUROPEAN ENVIRONMENT AGENCY
EFRA	EUROPEAN MONITORING CENTRE FOR RACISM AND XENOPHOBIA
EFSA	EUROPEAN FOOD SECURITY AUTHORITY
EIGE	EUROPEAN INSTITUTE FOR GENDER EQUALITY
EIOBA	EUROPEAN INSURANCE AND OCCUPATIONAL PENSION AUTHORITY
EMCDDA	EUROPEAN MONITORING CENTRE FOR DRUGS AND DRUG-ADDICTION

Abbr.	Agencies (next)
EMEA	EUROPEAN AGENCY FOR THE EVALUATION OF MEDICAL PRODUCTS
EMSA	EUROPEAN MARITIME SAFETY AGENCY
ENISA	EUROPEAN NETWORK AND INFORMATION SECURITY AGENCY
EPA	EUROPEAN INSURANCE AND OCCUPATIONAL PENSIONS AUTHORITY
ERC	EUROPEAN RESEARCH COUNCIL EXECUTIVE AGENCY
ESA	EURATOM SUPLY AGENCY
ESMA	EUROPEAN SECURITIES AND MARKET AUTHORITY
ETF	EUROPEAN TRAINING FOUNDATION
EUROFOUND	EUROPEAN FOUNDATION FOR THE IMPROVEMENT OF LIVING AND WORKING CONDITIONS
EUROJUST	JUDICIAL COOPERATION
EUROPOL	EUROPEAN POLICE OFFICE
ITER	THE EUROPEAN JOINT UNDERTAKING FOR ITER AND THE DEVELOPMENT OF FUSION ENERGY
OHIM	OFFICE FOR HARMONISATION IN THE INTERNAL MARKET
OSHA	EUROPEAN AGENCY FOR SAFETY AND HEALTH AT WORK
REA	RESEARCH EXECUTIVE AGENCY
TNT-T	THE TRANS-EUROPEAN TRASNPORT NETWORK EXECUTIVE AGENCY
ARTEMIS	ARTEMIS JOINT UNDERTAKING
EACEA	EDUCATION, AUDIOVISUAL AND CULTURE EXECUTIVE AGENCY
EACI	EXECUTIVE AGENCY FOR CONPETITIVENESS AND INNOVATION
ECDC	EUROPEAN CENTRE FOR DISEASE PREVENTION AND CONTROL
EIT	EUROPEAN INSTITUTE OF INNOVATION AND TECHNOLOGY
ENIAC	ENIAC JOINT UNDERTAKING
ERA	EUROPEAN RAILWAYS AGENCY
FCH	FUEL CELLS AND HYDROGEN JOINT UNDERTAKING
FRONTEX	AGENCY FOR THE MANAGEMENT OF OPERATIONAL CO-OPERATION AT EXTERNAL BORDERS OF MEMB
GSA	THE EUROPEAN GNSS SUPERVISORY AUTORITY
IMI	INNOVATIVE MEDICAMENTS INITIATIVE JOINT UNDERTAKING
JET	JOINT EUROPEAN TORUS (J.E.T.)
SKY	CLEAN SKY JOINT UNDERTAKING
SMA	EUROPEAN SECURITIES AND MARKETS AUTHORITY
SSR	SESAR JOINT UNDERTAKING

As approved by the Article 83 Working Group at its meeting of 7 June 2004, the term “active members of the PSEO” is considered in the wide sense to be synonymous with “contributing members of the PSEO”. Consequently, the reference

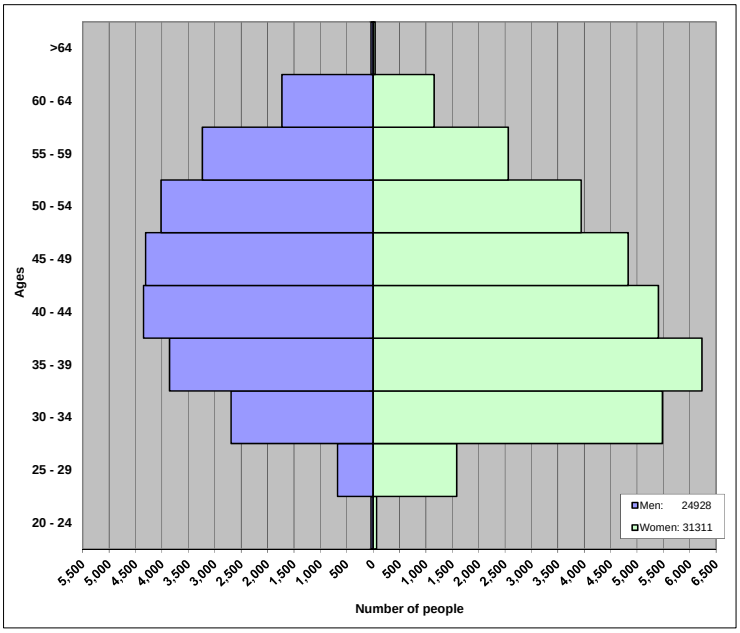
population includes not only officials in "active employment" but also officials in one of the other administrative statuses set out in Article 35 of the Staff Regulations, plus invalids who receive an invalidity allowance and beneficiaries of an allowance for termination of service.

Personnel data were collected from the NAP[3], from Sysper2[4] and directly from institutions and agencies, and imported into the Eurostat database. The data were checked to ensure a high level of quality. The actuarial assessment is based on the output from the Eurostat database at the reference date.

Table VII. Reference population by institution or agency

Institution or Agency	31.12.2010		31.12.2011	
	Total	%	Total	%
European Commission	31 703	58%	30 523	54%
European Parliament	7 871	14%	7 932	14%
Council of the European Union	3 207	6%	3 257	6%
Court of Justice of the European Communities	2 184	4%	2 165	4%
Court of Auditors	1 002	2%	942	2%
Economic and Social Committee	807	1%	820	1%
Committee of the Regions	601	1%	583	1%
Other institutions and decentralised Community agencies	7 510	14%	10 017	18%
Total	**54 885**	**100%**	**56 239**	**100%**

Figure I. Reference population by age



[3] The NAP (New Application for Pay) application is a centralised database that has been created to produce the monthly salary and pension forms for all institutions and agencies. This database contains a large part of the personnel data, particularly amounts paid and pension contributions.

[4] Sysper2 is the IT system to manage personal data of the Commission staff. It is also used by PMO (Pay Master Office) to manage pensions and transfers of pension rights of the staff of EU institutions and agencies

8.2. Assumed retirement age

As stipulated in Article 4 of Annex XII to the Staff Regulations, it is assumed that all retirements will occur at a fixed average age (*r*). The average retirement age may be different according to the group of staff.

Table VIII. Assumed retirement age and Barcelona incentive by age group of officials

Staff group (age and years of service as at 30.04.2004)		Annual accrual rate	Barcelona incentive	Barcelona incentive maximum	Normal retirement age	Assumed retirement age (4)	
			(1)	(2)	(3)	Actives	Invalids
Group 1	Old Staff Regulations	2.00%	(5)		60	**63**	**65**
Group 2	>= 50 years old or >= 20 years of service	2.00%			60	**63**	**63**
Group 3	40 - 49 years old and < 20 years of service	2.00%	3.00%	4.50%	61	**63**	**63**
Group 4	35 - 39 years old and < 20 years of service	2.00%	2.75%	4.00%	62	**63**	**63**
Group 5	30 - 34 years old and < 20 years of service	2.00%	2.50%	3.50%	63	**64**	**64**
Group 6	< 30 years old and < 20 years of service	2.00%	2.00%	-	63	**64**	**64**
Group 7	New officials (after 30.04.2004)	1.90%	2.00%	-	63	**64**	**64**

(1) The Barcelona incentive corresponds to an increase in pension expressed as a percentage of the last basic salary (Article 5 of Annex VIII and Article 22 of Annex XIII).

(2) The Barcelona incentive maximum is a percentage of the total pension rights acquired by an official at the age of 60 (Article 5 of Annex VIII and Article 22 of Annex XIII).
For example, the Barcelona incentive for officials aged between 40 and 49 is 3% of the last basic salary but not exceeding 4.5% of the pension rights acquired by those officials at the age of 60.

(3) The age in this column is the simple average of ages from the table detailed in Article 22 of Annex XII, rounded to entire year. This average is calculated only to facilitate the presentation in this table.
In practice, institutions apply the table detailed in Article 22 of Annex XIII when calculating individual rights. Eurostat does not use this column when calculating the contribution rate for pension; assumed retirement ages detailed in columns (4) are used instead.

(4) In accordance with to Article 3 of Annex XII, it is assumed that all retirements (except for invalidity) will occur at a fixed average age.
This column shows these average ages by staff group, which have been deduced from the observations in accordance with Article 9 of Annex XII.

(5) Officials, aged 50 years or over or with 20 or more years service as at 30/04/2004, who remain in service after the normal retirement age are entitled, for each year worked after that age, to an increase in
their pension equal to 5% of the amount of the pension rights acquired at the age of 60 (the same premise was applied in the past under the former Staff Regulations)..

Please note that pension incentives (called Barcelona incentive since 2004) are based on acquired pension rights in groups 1 and 2 above (Old Staff Regulations), while they are based on the last basic salary for groups 3 to 5 (New Staff Regulations).

The assumed retirement ages detailed in the two right columns in the table VIII were estimated on the occasion of the 2004 pension assessment and were presented at the June 2004 meeting of the Article 83 Working Group. These assumed retirement ages have been used in pension assessments since 2004.

8.3. Invalidity table

A first invalidity table (2004-EU Invalidity table) was used in the 2004 assessment. According to decision taken at the Art83 Working Group at its 26th June 2007 meeting, this table must be updated each year to take account of the evolution of beneficiaries of an *invalidity allowance* (the new category of population according to the new Staff Regulation in force from the 1st May 2004).

A moving average of 5 years of invalidity observation is used: the number of invalids recorded in 2006 (108) has been replaced by the number recorded in 2011 (96) in the moving 5 years average of invalidity observations. Thus the total of invalids in this 5-year period decreased from 483 to 471 invalids.

The following table shows the number of invalids from 2007 to 2010.

Table IX. Invalids by year

Year	Invalids
2007	88
2008	89
2009	93
2010	105
2011	96
Total	**471**

The decrease in the number of invalids, in conjunction with the increase of the active population makes the probability of becoming an invalid lower than in the past.

The 2007 to 2011 invalidity observations have been used to update the invalidity table by sex (EU-2011 Invalidity table). The following table, which is an extract from the unisex version of the table, is only for presentation purposes: the complete table by sex is used in computations.

Table X. EU-2011 Invalidity Table (Extract)

Age	Invalidity probabilities of becoming invalid at age x
x	q'_x
20	0.000040
25	0.000061
30	0.000159
35	0.000459
40	0.001092
45	0.001887
50	0.003220
55	0.005091
60	0.003603
65	0.002098

8.4. Life table of healthy persons

The life table used for the calculation was updated in 2008 (2008 ISCLT table) on the occasion of the five-yearly assessment of the actuarial balance of the pension scheme. The methodology used to set up this life table was presented to the Article 83 Working Group at the 27 June 2008 meeting (document 20080627 Art83_05, available from Eurostat). The 2008 ISCLT life table must be used at least until the next five-yearly assessment in 2013.

Consequently, the 2008 ICSLT has been used in the 2012 pension assessment.

The following table is an extract from this table:

Table XI. 2008 ICSLT

Age	Men		Women	
	Dying probability	Life expectancy	Dying probability	Life expectancy
x, y	q_x	e_x	q_y	e_y
40	0.00063370	44	0.00054775	46
45	0.00106107	39	0.00092086	42
50	0.00176523	35	0.00152344	37
55	0.00282667	30	0.00242203	32
60	0.00481751	25	0.00372321	28
65	0.00838934	21	0.00605132	23
70	0.01458993	17	0.01074871	19
75	0.02531453	13	0.01863843	15
80	0.04374552	10	0.03307728	12
85	0.07506895	8	0.05836406	9
90	0.12727809	5	0.10193574	6

8.5. Life table of invalids

It is normal actuarial practice to consider life expectancy of invalids as slightly shorter than that of healthy persons (e.g. EuroControl applies the mortality rate corresponding to a healthy person 3 years older than an invalid's age). Eurostat has also applied this actuarial practice since the 2008 pension assessment.

The use of this approach makes hardly any change in the contribution because the probability of an active staff member becoming invalid is very small.

The implementation of this approach in the 2012 pension assessment had a negligible impact, close to 0 percentage points, on the pension contribution rate.

8.6. Average age difference between men and women

The average age difference between married men and women (3 years) that has been applied from 2004 in actuarial calculations should be used in future assessments. The result of a test based on population from 2004 to 2007 confirmed this actuarial assumption showing that on average married men are 3.01 years older than their partners and married women 3.18 years younger than their partners.

8.7. Probability of being married for men and women

In 2008 Eurostat analysed the recent population of officials and ex-officials older than 59 years and calculated the probability of them being married. The probabilities found for men and women are: 0.84 for men (0.8 to one decimal place) and 0.38 for women (0.4 to one decimal place).

These updated probabilities have been used in yearly pension assessments since 2008.

9. ECONOMIC PARAMETERS

9.1. Real Discount Rate (RDR)

Annex XII, Article 10 of the Staff Regulations provides that:

1. The interest rates to be taken into consideration for the actuarial calculations shall be based on the observed average annual interest rates on the long-term public debt of Member States as published by the Commission. An appropriate consumer price index shall be used to calculate the corresponding interest rate net of inflation as needed for the actuarial calculations.

2. The effective annual rate to be taken into consideration for the actuarial calculations shall be the average of the real average interest rates for the 12 years preceding the current year.

Consequently, real discount rates (RDR) from 2000 until 2011 have to be used in the 2012 assessment of the PSEO.

Nominal discount rate (NDR): **4.9%.** This is the average of 2000 to 2011 nominal rates of euro area zero-coupon (government bonds) yield with a maturity of 21 years, 21 years being the duration of the scheme and the rate in 2011 as produced by the ECB being 4.9%.

Inflation rate (IR): **2.3%.** This is the average of 2000 to 2011 of an appropriate consumer price index, the EU HICP in 2011 being 3.1%.

Real discount rate (RDR): **2.6%** (2.8% in the assessment at 31.12.2010)**.** It is the average of 2000 to 2011 real discount rates, the latest being calculated as "100*(100+NDR)/(100+IR)-100)".

Table XII. Real Discount Rate (RDR)

Year	Nominal rate (NDR)	Inflationrate (IR)	Real discount rate (RDR)
	(1)	(2)	(3)
~~1999~~	~~5.6~~	~~1.1~~	~~4.5~~
2000	5.9	2.4	**3.4**
2001	5.7	2.5	**3.1**
2002	5.5	2.2	**3.2**
2003	5.1	2.0	**3.0**
2004	5.0	2.1	**2.8**
2005	4.0	2.2	**1.8**
2006	4.2	2.2	**2.0**
2007	4.5	2.3	**2.2**
2008	4.8	3.7	**1.1**
2009	4.7	1.0	**3.7**
2010	5.0	2.1	**2.8**
2011	4.9	3.1	1.7
~~Aver. 1999 - 2010~~	~~5.0~~	~~2.1~~	~~2.8~~
Aver. 2000 - 2011	**4.9**	**2.3**	**2.6**

(1) Till 1998: long-term government borrowing rates. Since 1999: Euro zero-coupon government bond curve with a maturity of 21 years.

(2) Till 1998: National Accounts private consumption deflator. Since 1999: Harmonised Index of Consumer Prices (HICP).

(3) The following formula is used: RDR = 100*(100+NDR)/(100+IR)-100

9.2. General Salary Growth (GSG)

As for the discount rate, Annex XII contains specific rules for calculating General Salary Growth. Article 11 stipulates on the one hand that the annual change in salary scales to be used for the actuarial calculations must be based on the specific indicator (SI) and on the other hand that the effective annual rate is the average of the net SIs for the 12 years preceding the current year.

As the net SI applied in 2011 is -3.5%, the 12-year moving geometric average from 2000 to 2011 (GSG) is **-0.2**% (a value of 0.3% was used in the 2011 assessment).

Table XIII. General Salary Growth

Year	SI
~~1999~~	~~1.8~~
2000	-0.1
2001	0.6
2002	1.7
2003	1.1
2004	-1.2
2005	0.0
2006	0.2
2007	0.0
2008	-1.3
2009	2.8
2010	-2.2
2011	-3.5
~~GSG (Aver. 1999 - 2010)~~	~~0.3~~
GSG (Aver. 2000 - 2011)	**-0.2**

The decrease of the GSG (-0.2% used in this assessment instead of 0.3% used in the assessment at 31.12.2010) makes the contribution rate decrease by -1.4% if other assumptions remained stable.

9.3. Individual Salary Progression (ISP)

1.1.1 Population groups

The Individual Salary Progression (ISP) refers to the salary increase due to the career advancement of EU officials, i.e. promotions and seniority steps.

The ISP has a significant impact on the contribution rate, though less than that of the RDR and GSG.

With the introduction of the new Staff Regulations on 1.5.2004, the career progression of EU officials has been completely reviewed. Annex XIII of these Staff Regulations includes transitional measures which made the determination of this assumption quite complicated.

The active population is divided into five homogeneous groups according to their status.

1.1.2 ISP rates

The following table shows ISP rates used in the 2010 and 2011 assessments:

Table XIV. Average ISP rates by group of population

ISP groups		Average ISP rate by group		
		31.12.2010	31.12.2011	Change
1	Officials recruited before 01.05.2004	1.5%	1.2%	-0.3%
2	Officials recruited from 01.05.2004 onwards	1.3%	1.3%	0.0%
3	Temporary agents	1.6%	1.6%	0.0%
4	Contract agents	1.0%	1.0%	0.0%
5	PA. Fixed contract. Art 130	0.0%	0.0%	0.0%

ISP rates in the table above are the average of ISP rates weighted by the population in each group. These average rates are calculated for publication purposes only, the detailed rates by grade and years to retire being used in computation at individual level.

ISP of officials changed slightly in comparison with these used in the assessment at 31.12.2010. This change has no material impact on the pension contribution rate.

9.4. Turnover

1.1.3 Turnover definition

Active members of the PSEO (officials, temporary staff, contract staff and parliamentary assistants) will definitely stop activity one day for several reasons and eventually leave the pension scheme.

To facilitate computation, turnover has been divided in two types:

- Turnover due to end of contract validity (**T1**),

- Turnover due to voluntary and unexpected losses (**T2)**. This mainly concerns resignation before the end of a contract, dismissal for incompetence and disappearance.

Losses due to other unexpected reasons (invalidity and death) and voluntary decisions (mainly secondment, retirement, non active status according to Article 41 of SR, leave on personal grounds, leave for military service, parental or family leave) are excluded from the definition of turnover (these causes of leaving are already computed in another way).

1.1.4 T1. Turnover due to contract validity expiration

Two assumptions have been used:

- The ratio of indefinite contracts to fixed-length contracts.

- Average duration of contracts in years.

The following table shows the rates of both assumptions above by contract type, these rates being based on observations:

Table XV. T1 rates by contract types

Contract Types		T1 (end of contract)	
		F2I (CDI / CDD)	Contract Duration Average
		1	2
AI1	FP. Contract with indefinite duration		(2)
BF1	TA. Fixed term contract. Art 8 and Art 2 (a)		5.4
BF2	TA. Fixed term contract. Art 8 and Art 2 (b)		5.0
BF3	TA. Fixed term contract. Art 8 and Art 2 (d)		5.5
BI1	TA. Contract with indefinite duration. Art 8 and Art 2 (a)	0.27	(2)
BI2	TA. Contract with indefinite duration. Art 8 and Art 2 (c)		(2)
DF1	CA. Fixed term contract. Art 85 and Art 3a		8.1
DF2	CA. Fixed term contract. Art 88 and Art 3b		2.6
DI1	CA. Contract with indefinite duration. Art 85 and Art 3a	0.07	(2)
EF1	PA. Fixed term contract. Art 130		4.4

Column 1: Fix contracts became Indefinite at the end of the fix period (e.g. BI1 compared to total contracts (BF1 + BI1))
Column 2: Contract duration is limited to 35 in indefinite contracts (AI1, BI1, BI2 and DI1)
(2): Non applicable to indefinite contracts

1.1.5 T2. Turnover due to voluntary and unexpected losses

The number of active staff who left institutions due to resignation, dismissal for incompetence and disappearance in the year N has been compared to the active population in the year N-1 to obtain the yearly T2 by contract type. The rate to be used in the actuarial calculation has been computed as the average of the losses in the last six years (2006 to 2011) compared to active staff in 2005 to 2010.

Table XVI. T2 rates by contract types

Contract Type		T2
AI1	FP. Contract with indefinite duration	0.005
BF1	TA. Fixed term contract. Art 8 and Art 2 (a)	0.051
BF2	TA. Fixed term contract. Art 8 and Art 2 (b)	0.057
BF3	TA. Fixed term contract. Art 8 and Art 2 (d)	0.063
BI1	TA. Contract with indefinite duration. Art 8 and Art 2 (a)	0.031
BI2	TA. Contract with indefinite duration. Art 8 and Art 2 (c)	0.032
DF1	CA. Fixed term contract. Art 85 and Art 3a	0.018
DF2	CA. Fixed term contract. Art 88 and Art 3b	0.099
DI1	CA. Contract with indefinite duration. Art 85 and Art 3a	0.073
EF1	PA. Fixed term contract. Art 130	0.116

The change of turnover rates T1 and T2 this year has no significant impact (-0.1%) on the pension contribution rate.

9.5. Loading factor for orphan's and divorced spouse's pension

Current actuarial practice is to add 10% to a payable reversion pension to allow for the pension payable to orphans after the death of the surviving spouse (or of the official if there is no surviving spouse) and any pension payable to divorced spouses. Eurostat estimates that the impact of this factor on the contribution rate is minor and the same assumption has been used in the 2011 actuarial assessment.

10. ANNUITIES

Articles 6 to 8 of Annex XII to the Staff Regulations refer to the annuities used in the calculation. The values of these annuities according to age are presented below. These were calculated by sex and then aggregated by weighted averages only for presentation in this report.

The table below was calculated using:

- the Real Discount Rate (RDR) from Table XII,
- the General Salary Growth (GSG) from Table XIII,
- an assumed retirement age (r) equal to 64 years of age for officials younger than 35 on the reference date (31.12.2003) and equal to 63 years of age for the others,

Table XVII. Some annuities in accordance with Articles 6 to 8 of Annex XII to the Staff Regulations

Age	Immediate deferred		Immediate temporary		Age	Immediate annuity at age y
	annuity at age x	reversionary annuity at ages x and y	annuity at age x	reversionary annuity at ages x and y		
x	${}_{m\|}a_x$	${}_{m\|}a_{xy}$	a_x	a_{xy}	y	a_y
21	4,899242	0,718630	26,260384	0,254617	21	31,833127
25	5,308594	1,160548	24,779962	0,278019	25	30,746411
30	6,137150	1,253527	22,741496	0,278850	30	29,536636
35	7,445991	1,595564	19,961651	0,261250	35	28,059108
40	8,522135	1,918554	17,297921	0,255103	40	26,427902
45	9,820874	2,180285	14,306024	0,227747	45	24,670967
50	11,291756	2,575876	10,942157	0,177811	50	22,682307
55	13,034030	3,009815	7,154873	0,104261	55	20,505024
60	15,190133	3,346189	2,865001	0,026529	**60**	**18,192256**
63	16,631260	3,722760	0,000000	0,000000	**63**	**16,631260**

x age of the official
y age of the official's partner
$m = r - x$ number of years between the official's age and the assumed retirement age
$y = x \pm 3$ partner's age according to the sex of the official.
${}_{m|}a_x$ is described in Annex XII of the Staff Regulations, Article 6 § 3a
${}_{m|}a_{xy}$ is described in Annex XII of the Staff Regulations, Article 6 § 3b
a_x is described in Annex XII of the Staff Regulations, Article 7 § 2a
a_{xy} is described in Annex XII of the Staff Regulations, Article 7 § 2b
a_y is described in Annex XII of the Staff Regulations, Article 8 § 2

11. IMPACT OF CHANGES IN DEMOGRAPHIC AND ECONOMIC PARAMETERS IN THE CALCULATION OF THE PENSION CONTRIBUTION RATE

The yearly change in the calculated contribution rate is explained by the combined effect of changes in population, methodology, assumptions and other variables used. The calculated change: -1.1% (9.9% obtained in the present assessment against 11% in the assessment at 31.12.2010) is mainly explained by the decreases of the GSG and of the RDR.

The following table summarises the impact of these changes.

Table XVIII. Explanation of the change in calculated pension contribution rates at 31.12.2010 and 31.12.2011

Items	Remark	Change breakdown	
Change in assumptions	Population at 31.12.2011 and assumptions 2011 instead of 2012		-0.9
- RDR	- Assumptions 2012 but RDR 2011	0.5	
- GSG	- Assumptions 2012 but GSG 2011	-1.4	
- ISP	- Assumptions 2012 but ISP 2011	0.0	
- Invalidity	- Assumptions 2012 but Invalidity 2011	0.0	
- Turnover	- Assumptions 2012 but Turnover 2011	-0.1	
Changes on population and other changes			-0.2
Total change			**-1.1**

APPENDIX II – INDEPENDENT EXAMINATION

An independent expert conducted an actuarial examination of the contribution rate calculated by Eurostat. This examination confirmed the relevance and reliability of the actuarial processes and assumptions used in accordance with the methodology described in Annex XII to the Staff Regulations. For the elements not described explicitly in this Annex, the independent expert checked their compliance with generally accepted actuarial practices. Regarding the actuarial assumptions, the independent expert carried out tests to ensure that the underlying data provided by Eurostat were used correctly.

The independent expert report concluded that:

"… as an independent expert, has conducted an actuarial examination of the 2012 update of the actuarial assessment of the pension scheme referred to in Article 83a (3) of the new Staff Regulations for which Eurostat endorsed the technical responsibility towards the Commission according to the Annex XII "Rules for implementing Article 83a of the Staff Regulations". This examination consisted in confirming the relevance and the reliability of the actuarial processes and assumptions used in accordance with the methodology described in Annex XII to evaluate the contribution rate of officials.

For the aspects explicitly mentioned in Annex XII, we did not detect any elements likely to cast doubt that the calculations determined by Eurostat are not compliant with the rules of Annex XII

For the aspects not described explicitly in Annex XII, we have checked their compliance with the generally accepted actuarial practices and we did not detect any significant difference with the methodology and the assumptions we would have chosen ourselves to perform the calculations.

… has no reason to doubt that the official's contribution rate (9.9%) calculated by Eurostat is a sufficiently accurate estimate of the reality of the Pension Scheme of the European Officials (PSEO)".

The complete independent expert report on the actuarial examination of the contribution rate is available from Eurostat.