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**COMMISSION STAFF WORKING DOCUMENT**

**Eurostat Report on the 2013 update of the 2012 actuarial assessment of the Pension Scheme for European Officials (PSEO)**

*Accompanying the document*

**Proposal for a Council Regulation**

**adjusting, from 1 July 2013, 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)).

Certain articles of Annex XII expired on 30 June 2013. Eurostat has drawn up the present report in accordance with the above legal requirements.

The first and the second five-yearly actuarial assessments of the pension scheme of the European civil service were carried out in 2004 and 2008 respectively.

This report sets out the results of the 2013 five-yearly actuarial assessment, based on the population of European officials as at 31 December 2012.

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 2013 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 **10.3%** of the basic salary (or invalidity or termination of service allowance). This actuarial assessment has been made in accordance with the agreed methodology.

The 10.3% calculated contribution rate is one third of the ratio between the service cost (1 166 million Euros) and the annual basic salaries (3 755 million Euros) (see Appendix I, Tables I and II). This rate is 0.4% higher than the one calculated in 2012 (9.9%) but not implemented: the change is analysed in point 4.

Moreover the new RDR and GSG update and pension assessment, have been reviewed and approved by independent actuarial consultants.

## **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<sup>1</sup>.

The following elements have been considered in the 2013 assessment:

- the population of contributing members at 31.12.2012,
- the update of the Real Discount Rate (RDR),
- the update of the General Salary Growth Rate (GSG),
- the update of the Individual Salary Progression rates (ISP),
- the update of the Life Table,
- 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.

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<sup>1</sup> The methodology is further explained in a separate document available at Eurostat

As indicated in point 2, the official's pension contribution rate calculated this year (10.3%) is higher than the one calculated in 2012 (9.9%). This 0.4% increase is mainly explained by the combined effect of the population evolution and actuarial assumptions update, the most important of which being the RDR increase (2.6% in 2012 to 2.7% in 2013) and the Life Table update.

Changes in actuarial assumptions and their impact on the contribution rate were presented in detail at the 28 June 2013 meeting of the Article 83 Working Group (see document 20120628 Art83\_05). Further details are given in Appendix I.

#### **4.1. Real Discount Rate (RDR)**

The RDR (2.7%) used in 2013 calculation is higher than the one used in 2012 assessment (2.6%). The observed effect was a -0.3% decrease of the calculated pension contribution rate.

#### **4.2. General Salary Growth (GSG)**

The GSG (-0.2%) used in 2013 calculation is the same than the one used for the 2012 assessment. Consequently no impact 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 2012 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 (2012). The new invalidity table (2013 EU Invalidity table) is thus an average of 5 years invalidity rates (2008–2012). The use of this updated table made the pension contribution rate decrease by 0.1% (see further explanation in appendix I, point 8.3).

#### **4.5. Life Table (healthy persons)**

According to the Staff Regulations the life table can only be updated on the occasion of the five-yearly actuarial assessment<sup>2</sup>. Despite the fact that the related article of the Staff Regulations is no longer in force since 1 July 2013, it was considered appropriate to move from the 2008 ICSLT (International Civil Servants Life Table) to the ICSLT2013 Provisional Life Table which is a dynamic table better reflecting the new trend of life expectancies.

The life table update led to a 0.6% increase of the calculated contribution rate.

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<sup>2</sup> 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.

The observed impact on the calculated pension contribution rate due to a change in the table is included in the 0.6% increase described in the preceding paragraph.

#### **4.7. Assumed retirement age**

Assumed retirement ages by staff category groups were first estimated for the 2004 pension assessment, and 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 identical to those used since 2004 and will be updated following an eventual amendment of the related legal provisions; 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 has been updated (2 years compared to 3 years applied since 2004) to reflect observations made. The test showed that on average married men are 1.9 years older than their partners and married women 2.6 years younger than their partners.

The update of the average difference in age had no material impact on the calculated pension contribution rate.

#### **4.9. Probability of being married for men and women**

The probabilities of being married at retirement for officials and ex-officials aged more than 59, have been reassessed in 2013 and updated probabilities were presented at the June 2013 meeting of the Article 83 Working Group. The changes proposed involve passing from 84% to 81% for males, and from 38% to 49% for females.

The update of the probability of being married had no material impact on the calculated pension contribution rate.

#### **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 2013 pension assessment, thus no impact on the pension contribution rate was observed.

#### **4.12. Population change effect**

The yearly population change had a material impact (+0.3%) 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.



57 024 contributing members were recorded at 31.12.2012, which represents a net increase of 785 participants compared to the previous year (56 239 contributing members recorded at 31.12.2011).

The contributing members increase is the net effect of the increase due to the new contributing members (+3 268) and the decrease linked to members who have left the scheme or became pensioners (-2 483).

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**

Due to the expiry of articles 10 and 11 of Annex XII to the Staff Regulations on 30 June 2013, the Real Discount Rate (RDR) and the General Salary Growth (GSG) have been calculated in compliance with best actuarial practices. A moving average of the corresponding rates for the 16 preceding years has been used to make those two assumptions more stable and in line with the proposal on the Staff Regulations reform<sup>3</sup>. Considered their strong impact on the pension contribution rate, this latest will also be less variable (more details are provided in Appendix I, 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 were 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 of the Coordinated Organisations), 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 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

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<sup>3</sup> It is proposed setting to 30 the number of years mentioned in Article 4(6), 10(2) and 11(2) of the Annex XII of the SR, This change being implemented in a transitional period starting by 16 years in 2014 in accordance with Article 11a of the Annex XIII.

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**

<b>Service cost</b>	<b>Total contribution rate (3/3)</b>	<b>Staff contribution rate (1/3)</b>
Service cost for retirement	28.7%	9.6%
Service cost for invalidity	1.2%	0.4%
Service cost for death	1.1%	0.4%
<b>Total service cost</b>	<b>31.0%</b>	<b>10.3%</b>

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

<b>Service cost</b>	<b>Total (EUR million)</b>	<b>%</b>
- Service cost for retirement	1 079.4	92.6%
- Service cost for invalidity	46.3	4.0%
- Service cost for death	40.2	3.5%
<b>Total service cost</b>	<b>1 166.0</b>	<b>100.0%</b>
<b>Total annual basic salaries and invalidity and termination allowances</b>	<b>3 755.5</b>	

## 7. SUMMARY OF MAIN VARIABLES

The following tables show the values of the main parameters (see Table III) and actuarial assumptions (see Table IV). 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**

<b>Parameter</b>	<b>Value</b>
Legal source	Staff Regulations in force from 01.05.2004
Reference date for the population (Annex XII Article 1)	<b>31.12.2012</b>
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 XII 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**

Item	Value
<b>Economic assumptions</b>	
Salary grid	In force from 01.07.2010
Real discount rate (RDR)	2.7%
General salary growth (GSG)	-0.2%
General pension revaluation (GPR) (equal to GSG)	-0.2%
Individual salary progression (ISP)	2013 ISP Table
Coefficient for orphan's and divorced spouse's pension	10%
Annex VIII coefficient (correction coefficient)	0.0%
<b>Demographic assumptions</b>	
Mortality table (healthy people)	2013 ICSLT
Mortality table (Invalids)	2013 ICSLT + 3 years old
Invalidity table	2013 EU Invalidity Table
Current marital status	Status at evaluation date
Probability of men being married at retirement age	81%
Probability of women being married at retirement age	49%
Average age difference between an official and his / her partner	2 years
Assumed retirement age	63 to 64
Turnover	2013 T1 and T2 tables

Some of the assumptions have changed compared to the 2012 actuarial assessment. The following table summarises these changes:

**Table V. Changes in actuarial assumptions**

Assumption	Assessment	
	31.12.2011	31.12.2012
Real Discount Rate (RDR) (1)	2.6%	2.7%
General Salary Growth (GSG) (1)	-0.2%	-0.2%
ISP-1. Individual Salary Progression of Officials, recruited before 01.05.2004 (2)	1.2%	1.6%
ISP-2. Individual Salary Progression of Officials, recruited from 01.05.2004 onwards (2)	1.3%	2.0%
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	2013 ICSLT Provisional
Invalidity	2012 EU Invalidity table	2013 EU Invalidity table

(1) Average of 12 years preceding the year of the 2012 assessment. Avg. of 16y in 2013 assessment

(2) Average of individual rates weighted by population as at 31.12.2012

(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 2012 of the 51 institutions and agencies (same number recorded at 31 December 2011) whose officials are members of the PSEO.

**Table VI. Institutions and Agencies in the PSEO**

Abbr.	Institutions or assimilated organisations	Abbr.	Agencies (next)
COR	COMMITTEE OF THE REGIONS	EMEA	EUROPEAN AGENCY FOR THE EVALUATION OF MEDICAL PRODUCTS
CONCIL	COUNCIL OF THE EUROPEAN UNION	EMSA	EUROPEAN MARITIME SAFETY AGENCY
CDCE	COURT OF AUDITORS	ENISA	EUROPEAN NETWORK AND INFORMATION SECURITY AGENCY
COJED	COURT OF JUSTICE OF EUROPEAN COMMUNITIES	EPA	EUROPEAN INSURANCE AND OCCUPATIONAL PENSIONS AUTHORITY
CSC	ECONOMIC AND SOCIAL COMMITTEE	ERC	EUROPEAN RESEARCH COUNCIL EXECUTIVE AGENCY
CEC	EUROPEAN COMMISSION	ESA	EURATOM SUPPLY AGENCY
EDPS	EUROPEAN DATA PROTECTION SUPERVISOR	ESMA	EUROPEAN SECURITIES AND MARKET AUTHORITY
EO	EUROPEAN OMBUDSMAN	ETF	EUROPEAN TRAINING FOUNDATION
EUROPARL	EUROPEAN PARLIAMENT	EUROFOUND	EUROPEAN FOUNDATION FOR THE IMPROVEMENT OF LIVING AND WORKING CONDITIONS
Abbr.	Agencies	EUROJUST	JUDICIAL COOPERATION
ACER	AGENCY FOR THE COOPERATION OF ENERGY REGULATORS	EUROPOL	EUROPEAN POLICE OFFICE
ASO	EUROPEAN ASYLUM SUPPORT AGENCY	ITER	THE EUROPEAN JOINT UNDERTAKING FOR ITER AND THE DEVELOPMENT OF FUSION ENERGY
BEREC	THE BODY OF EUROPEAN REGULATORS FOR ELECTRONIC COMMUNICATIONS	OHIM	OFFICE FOR HARMONISATION IN THE INTERNAL MARKET
CDT	TRANSLATION CENTRE FOR BODIES OF THE EUROPEAN UNION	OSHA	EUROPEAN AGENCY FOR SAFETY AND HEALTH AT WORK
CEDEFOP	EUROPEAN CENTRE FOR THE DEVELOPMENT OF VOCATIONAL TRAINING	REA	RESEARCH EXECUTIVE AGENCY
CEPOL	EUROPEAN POLICE COLLEGE	TNT-T	THE TRANS-EUROPEAN TRANSPORT NETWORK EXECUTIVE AGENCY
CFCA	COMMUNITY FISHERIES CONTROL AGENCY	ARTEMIS	ARTEMIS JOINT UNDERTAKING
CPVO	COMMUNITY PLANT VARIETIES OFFICE	EACEA	EDUCATION, AUDIOVISUAL AND CULTURE EXECUTIVE AGENCY
EAA	EXECUTIVE AGENCY FOR THE PUBLIC HEALTH PROGRAM	EACI	EXECUTIVE AGENCY FOR COMPETITIVENESS AND INNOVATION
EAR	EUROPEAN AGENCY FOR RECONSTRUCTION	ECDC	EUROPEAN CENTRE FOR DISEASE PREVENTION AND CONTROL
EAS	EUROPEAN EUROPEAN EXTERNAL ACTION SERVICE	EIT	EUROPEAN INSTITUTE OF INNOVATION AND TECHNOLOGY
EASA	EUROPEAN AVIATION SAFETY AGENCY	ENIAC	ENIAC JOINT UNDERTAKING
EASO	EUROPEAN ASYLUM SUPPORT OFFICE	ERA	EUROPEAN RAILWAYS AGENCY
EBA	EUROPEAN BANKING AUTHORITY	FCH	FUEL CELLS AND HYDROGEN JOINT UNDERTAKING
ECHA	THE EUROPEAN CHEMICALS AGENCY	FRONTEX	AGENCY FOR THE MANAGEMENT OF OPERATIONAL CO-OPERATION AT EXTERNAL BORDERS OF MEMB
EEA	EUROPEAN ENVIRONMENT AGENCY	GSA	THE EUROPEAN GNSS SUPERVISORY AUTHORITY
EFRA	EUROPEAN MONITORING CENTRE FOR RACISM AND XENOPHOBIA	IMI	INNOVATIVE MEDICAMENTS INITIATIVE JOINT UNDERTAKING
EFSA	EUROPEAN FOOD SECURITY AUTHORITY	JET	JOINT EUROPEAN TORUS (J.E.T.)
EIGE	EUROPEAN INSTITUTE FOR GENDER EQUALITY	SKY	CLEAN SKY JOINT UNDERTAKING
EIOBA	EUROPEAN INSURANCE AND OCCUPATIONAL PENSION AUTHORITY	SMA	EUROPEAN SECURITIES AND MARKETS AUTHORITY
EMCDDA	EUROPEAN MONITORING CENTRE FOR DRUGS AND DRUG-ADDICTION	SSR	SESTAR 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<sup>4</sup>, from Sysper2<sup>5</sup> 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.

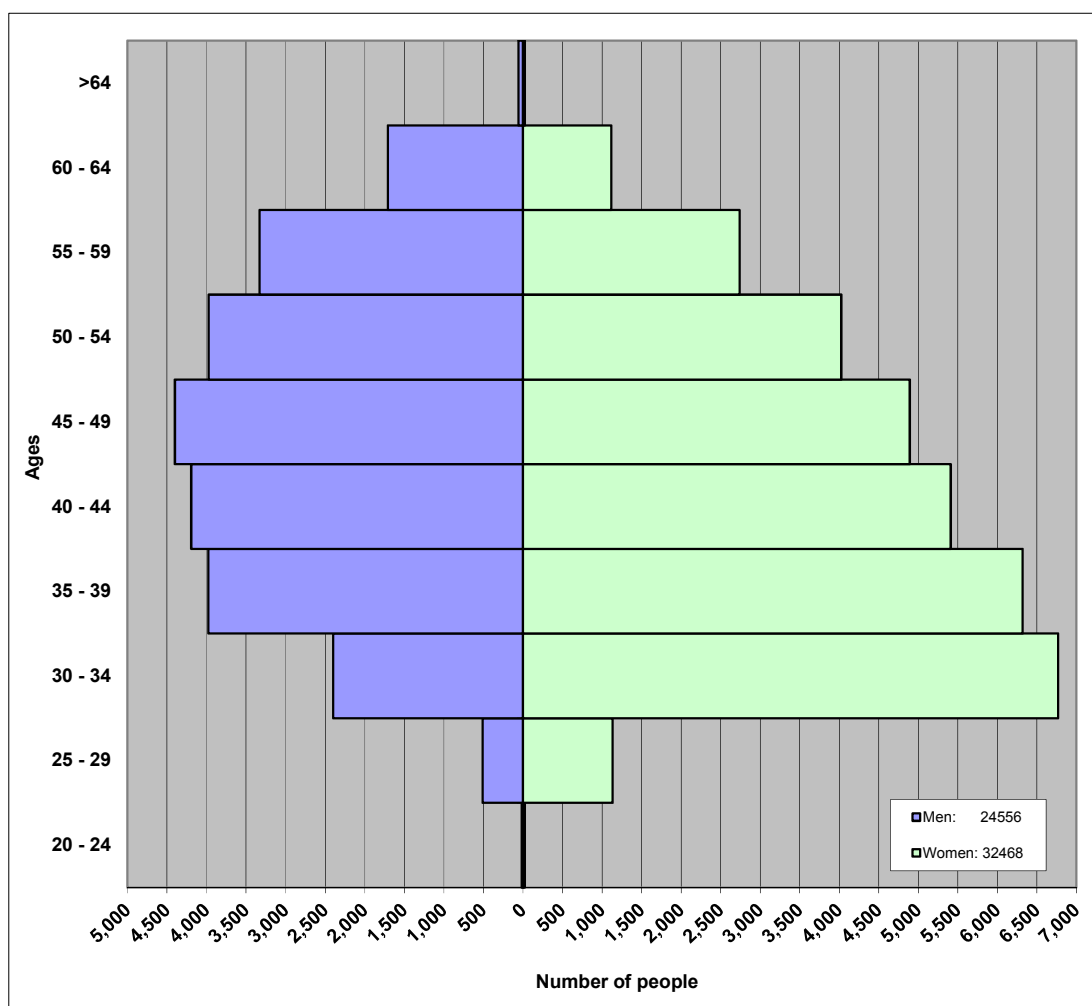
<sup>4</sup> The NAP (New Application for Pay) application is a centralised database that has been created to produce the monthly salary and pension forms for all institutions and agencies. This database contains a large part of the personnel data, particularly amounts paid and pension contributions.

<sup>5</sup> 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

**Table VII. Reference population by institution or agency**

Institution or Agency	31.12.2011		31.12.2012	
	Total	%	Total	%
European Commission	30 523	54%	30 634	54%
European Parliament	7 932	14%	8 644	15%
Council of the European Union	3 257	6%	3 087	5%
Court of Justice of the European Communities	2 165	4%	1 997	4%
Court of Auditors	942	2%	897	2%
Economic and Social Committee	820	1%	756	1%
Committee of the Regions	583	1%	545	1%
Other institutions and decentralised Community agencies	10 017	18%	10 464	18%
<b>Total</b>	<b>56 239</b>	<b>100%</b>	<b>57 024</b>	<b>100%</b>

**Figure I. Reference population by age**





## 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
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.

As no changes were made to this assumption, no impact could be observed to the pension contribution rate.

### 8.3. Invalidation 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 26<sup>th</sup> June 2007 meeting, this table must be updated each year to take account of the evolution of beneficiaries of an invalidity allowance (category of population created with the new Staff Regulation in force from the 1<sup>st</sup> May 2004).

A moving average of 5 years of invalidity observation is used: the number of invalids recorded in 2007 (88) has been replaced by the number recorded in 2012 (116) in the 5 years moving average of invalidity observations. Thus the total of invalids in this 5-year period increased from 471 to 499 invalids.

The following table shows the number of invalids from 2008 to 2012.

**Table IX. Invalids by year**

Year	Invalides
2008	89
2009	93
2010	105
2011	96
2012	116
<b>Total</b>	<b>499</b>

The 2008 to 2012 invalidity observations have been used to update the invalidity table by sex (EU-2013 Invalidity Table). The table below is an extract from the unisex version of the table for presentation purposes only, whereas the complete table by sex was used in computations.

**Table X. EU-2013 Invalidity Table (Extract)**

Age	Invalidity probabilities of becoming invalid at age x
x	$q'_x$
20	0.000031
25	0.000055
30	0.000148
35	0.000367
40	0.000818
45	0.001337
50	0.002626
55	0.004019
60	0.002855
65	0.001647

The use of the EU-2013 Invalidity Table made the pension contribution rate decrease by 0.1%, maintained unchanged the other assumptions.

#### 8.4. Life table of healthy persons

The life table used for the calculation was updated in 2013 (ICSLT2013 Provisional Life Table) on occasion of the five-yearly assessment of the actuarial balance of the pension scheme, last five-yearly update having been done in 2008.

The methodology used to set up this life table was presented to the Article 83 Working Group at the 28 June 2013 meeting (document 20130628 Art83\_05, available from Eurostat).

This new Life Table has replaced the 2008 ICSLT Life Table which had been used in 2008 to 2012 pension assessments 2008 to 2012.

A future life expectancy trend has been introduced thus moving from a periodic (static) to a prospective (dynamic) Life Table.

The following table is an extract from this table.

**Table XI. ICSLT2013 Provisional**

Age x, y	Men		Women	
	Dying probability	Life expectancy	Dying probability	Life expectancy
	$q_x$	$e_x$	$q_y$	$e_y$
40	0.00050383	45	0.00043549	48
45	0.00105788	40	0.00091810	43
50	0.00188832	36	0.00162967	38
55	0.00315549	31	0.00270378	33
60	0.00507284	27	0.00392054	29
65	0.00822061	22	0.00592961	24
70	0.01330716	18	0.00980366	20
75	0.02170234	15	0.01597887	16
80	0.03643236	11	0.02754759	13
85	0.06072529	8	0.04721225	9
90	0.10150263	6	0.08129243	7

The use of the ICSLT2013Prov made the pension contribution rate increase by 0.6%, maintained unchanged the other assumptions. The 0.6% variation is explained by the increase in life expectancies and the inclusion of a future life expectancy trend.

#### 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 applied this actuarial practice since the 2008 pension assessment.

## **8.6. Average age difference between men and women**

A difference of age at retirement between married men and women of 2 years, has been applied in the present actuarial calculations.

The 2 years figure has replaced the 3 years which had been used in past assessments, as a result of observations made: the test showed that married men are 1.9 years on average older than their partners and married women 2.6 years younger than their partners.

This change had no significant impact on the pension contribution rate.

## **8.7. Probability of being married for men and women**

Eurostat has analysed the recent population of officials and ex-officials older than 59 years and calculated their probability of being married: results were 81% probability for men and 49% for women.

These updated probabilities have been used in the present pension assessment, however their impact on the pension contribution rate, was not material.

## **8.8. Turnover**

Active members of the PSEO will definitely stop activity one day and eventually leave the pension scheme.

Turnover has been divided in two types:

- Turnover due to end of contract validity (T1),
- Turnover due to voluntary and unexpected losses (T2).

Turnover ratios have been updated for the present pension assessment leading to a - 0.1% decrease of the pension contribution rate.

## **9. ECONOMIC PARAMETERS**

### **9.1. Real Discount Rate (RDR)**

Article 10 in Annex XII of the Staff Regulations has expired on 30 June 2013.

In the absence of a compelling legal basis, Eurostat made reference to the best actuarial practices and opted for a 16 years moving average for the computation of the RDR: the rationale for this choice was to make the RDR more stable which would also grant less variability of the pension contribution rate which is strongly affected by this parameter.

Furthermore the choice of a 16 years moving average, keeps into account recent developments as regards the relevant articles in the new text of the Staff Regulations which will represent the compelling legal basis since 1 January 2014<sup>6</sup>.

Consequently, real discount rates (RDR) from 1997 until 2012 have to be used in the 2013 assessment of the PSEO.

Nominal discount rate (NDR): 5.0%. This is the average of 1997 to 2012 nominal rates of euro area zero-coupon (government bonds) yield with a maturity of 21 years, 21 years being the duration of the scheme.

Inflation rate (IR): 2.2%. This is the average of 1997 to 2012 of an appropriate consumer price index

Real discount rate (RDR): 2.7% (2.6% in the assessment at 31.12.2011). It is the average of 1997 to 2012 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)
1997	6.1	2.1	3.9
1998	4.9	1.7	3.1
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	4.4	2.1	2.3
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
<b>2012</b>	<b>4.4</b>	<b>2.6</b>	<b>1.8</b>
<b>Average 16 years</b>	<b>5.0</b>	<b>2.2</b>	<b>2.7</b>

- (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:  $RDR = (1+NDR)/(1+IR)-1$  rounded to 1 decimal
- (4) Nominal rate estimated by Eurostat (data not available at ECB)
- (5) Provisional Inflation rate. The final rate will be available by the end of February 2009 (no

The 0.1% increase of the RDR (2.7% used in this assessment instead of 2.6% used in the assessment at 31.12.2011) made the contribution rate decrease by 0.3%, assumed stable the other assumptions.

<sup>6</sup> It is proposed to set to 30 the number of years mentioned in Article 4(6), 10(2) and 11(2) of the Annex XII of the SR, In accordance with Article 11a of the Annex XIII, this change will be implemented with a transitional period starting with 16 years in 2014

## 9.2. General Salary Growth (GSG)

Article 11 in Annex XII of the Staff Regulations has expired on 30 June 2013.

Article 11 of the Annex XII contained specific rules for calculating General Salary Growth, in particular stipulating 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.

In the absence of a compelling legal basis, Eurostat made reference to the best actuarial practices and opted for a 16 years moving average for the computation of the GSG: this choice was made in an attempt to render the GSG more stable and so the pension contribution rate which is highly dependent on this parameter.

Furthermore the choice of a 16 years moving average, keeps into account recent developments as regards the relevant articles in the new text of the Staff Regulations which will represent the compelling legal basis since 1 January 2014<sup>7</sup>.

The 16-year moving geometric average from 1997 to 2012 (GSG) is **-0.2%** (the same value was used in the 2012 assessment).

**Table XIII. General Salary Growth**

Year	SI
1997	0.7
1998	0.4
1999	1.6
2000	-0.2
2001	0.6
2002	1.7
2003	1.0
2004	-1.2
2005	0.0
2006	0.2
2007	0.0
2008	-1.3
2009	2.7
2010	-2.2
2011	-3.5
2012	-2.7
<b>Average 16 years</b>	<b>-0.2</b>

As the GSG did not change compared to the PSEO assessment at 31.12.2011, no impact on the contribution rate occurred.

<sup>7</sup> It is proposed to set to 30 the number of years mentioned in Article 4(6), 10(2) and 11(2) of the Annex XII of the SR, In accordance with Article 11a of the Annex XIII, this change will be implemented with a transitional period starting with 16 years in 2014.

### 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 may have a significant impact on the contribution rate, though lower 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 2011 and 2012 assessments:

**Table XIV. Average ISP rates by group of population**

ISP groups		Average ISP rate by group		
		31.12.2011	31.12.2012	Change
1	Officials recruited before 01.05.2004	1.2%	1.6%	0.4%
2	Officials recruited from 01.05.2004 onwards	1.3%	2.0%	0.7%
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 31.12.2012.

This change had 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, inactive 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 Type		Weight of indefinite contracts <sup>(1)</sup>	Contract duration in years (average)
A11	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)		5.2
BF3	TA. Fixed term contract. Art 8 and Art 2 (d)		5.6
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		8.2
DF2	CA. Fixed term contract. Art 88 and Art 3b		2.7
DI1	CA. Contract with indefinite duration. Art 85 and Art 3a	0.08	(2)
EF1	PA. Fixed term contract. Art 130		4.5

■ (1) Weight of fixed contracts becomes indefinite at the end of their period: Indefinite contract / (Fixed + Indefinite contracts)

■ (2) Data not relevant for contracts with indefinite duration

### 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 seven years (2006 to 2012) compared to active staff in 2005 to 2011.

**Table XVI. T2 rates by contract types**

Contract Types		T2 (other cause)
		3
A11	FP. Contract with indefinite duration	0.005
BF1	TA. Fixed term contract. Art 8 and Art 2 (a)	0.069
BF2	TA. Fixed term contract. Art 8 and Art 2 (b)	0.100
BF3	TA. Fixed term contract. Art 8 and Art 2 (d)	0.078
BI1	TA. Contract with indefinite duration. Art 8 and Art 2 (a)	0.039
BI2	TA. Contract with indefinite duration. Art 8 and Art 2 (c)	0.047
DF1	CA. Fixed term contract. Art 85 and Art 3a	0.033
DF2	CA. Fixed term contract. Art 88 and Art 3b	0.188
DI1	CA. Contract with indefinite duration. Art 85 and Art 3a	0.380
EF1	PA. Fixed term contract. Art 130	0.159

The change of T1 and T2 turnover rates had a low 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 2013 actuarial assessment.

**10. 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 +0.4% (10.3% obtained in the present assessment against 9.9% in the assessment at 31.12.2011) is mainly explained by the RDR increase, and Life Table update.

The following table summarises the impact of these changes.

**Table XVIII. Explanation of the change in calculated pension contribution rates at 31.12.2012 and 31.12.2013**

Items	Remark	Change breakdown	
<b>Change in assumptions</b>	Population at 31.12.2012 and assumptions 2012 instead of 2013		0.1
- RDR	- Assumptions 2013 but RDR 2012	-0.3	
- GSG	- Assumptions 2013 but GSG 2012	0.0	
- ISP	- Assumptions 2013 but ISP 2012	0.0	
- Mortality	- Assumptions 2013 but Mortality 2012	0.6	
- Invalidity	- Assumptions 2013 but Invalidity 2012	-0.1	
- Turnover	- Assumptions 2013 but Turnover 2012	-0.1	
- Difference age male/female	- Assumptions 2013 but DiffAge 2012	0.0	
- Prob Marriage	- Assumptions 2013 but Prob Marriage 2012	0.0	
<b>Changes in population and other changes</b>			0.3
<b>Total change</b>			<b>0.4</b>



## **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 2013 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 (10.3%) 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.