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**Eurostat study on the long-term budgetary implications of pension costs**

# **EUROSTAT STUDY**

## **on the long-term budgetary implications of pension costs**

### **1. INTRODUCTION**

In the framework of discussion in the Council on the Commission report on Annex XI (mid-term review), the Council invited the Commission to undertake a study on the long-term budgetary implications of pension costs of staff of all EU institutions and agencies. The Commission has accepted this invitation and decided to submit this study to the Council.

This study addresses the major trends in staff pension expenditure over the next 50 years (2010-2059). Such a long projection period is normal practice and many Member States' studies have been conducted using a similar period.<sup>1</sup> The long term study allows the assessment of the long term effects of the current situation, whose impact will continue to evolve over the 50-year period.

The parameters and actuarial assumptions used in this study are such that they cover the whole period of the projection, although there may be certain short-term implications which they do not reflect. Therefore, the study cannot be used as a forecast of the exact amounts of pension expenditure in the short or medium term.

It is important to note that, due to the 50-year projection period, the calculations are highly sensitive to the assumptions used in the model. The parameters and actuarial assumptions – many of which are founded on past observations and provisions of the Staff Regulations of Officials and the Conditions of Employment of Other Servants are summarised in section 4 of this study.

Finally, in this study Eurostat analysed the impact of the 2004 reform on future pension costs by comparing the effect of the parameters applicable before the reform with that of the parameters introduced by the reform. The analysis shows that the reform has a significant effect in reducing future pension costs.

### **2. BASIC CONCEPTS OF THE PSEO**

The Pension Scheme of European Officials (PSEO) is financed on a "pay as you go" basis. Contributions to the scheme are not invested in a pension fund, but are counted as revenue in the European Union budget. Similarly, in accordance with Article 83(1) of the Staff Regulations, pension payments are charged to the Union budget and not to a pension fund. In addition, the Member States jointly guarantee the payment of such benefits under Article 83(1) of the Staff Regulations.

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<sup>1</sup> See for instance: "Pension schemes and projection models in EU-25 Member States", DG ECFIN occasional papers, N°15 November 2007.

The decision to operate such a scheme on an unfunded basis has certain necessary implications for how the budgetary impact is spread across time. It means that in its early years, the pension scheme produces net revenue, as active staff pay contributions but very few retired or invalid staff draw benefits. In the longer term, as active staff move into retirement, the pension cost will necessarily increase. The increase will continue until around the time that the pension scheme becomes "mature" – that is, until the number of deceased retirees in a given year balances the number of new beneficiaries.

### 3. KEY FINDINGS

The PSEO is not yet mature. This is because, even though the scheme has been in existence since 1962, the number of staff has grown over time in the context of successive enlargements. On the assumption that the active population will remain constant over the period 2010-2059, the number of beneficiaries of the scheme (old-age pensioners, invalids and survivors) will progressively increase from around 17 500 in 2010<sup>2</sup> to about 38 500 in 2046 and afterwards decline slightly to 36 500 in 2059 (see table 2 in section 5.1.2). Thus the scheme will only reach maturity in the 2040s. By 2059, the number of beneficiaries will have increased by 109% since 2010.

An implication of the fact that the scheme is not yet mature is that annual pension expenditure will grow over the projection period. Total pension expenditure (at constant prices) will grow from 1 235 million Euros in 2010 to peak at 2 490 million Euros in 2045, before falling to 2 259 million Euros in 2059 (see section 5.2.6). This represents an increase of 83% between 2010 and 2059. Pension expenditure is therefore projected to grow more slowly than the number of pensioners, largely due to the effects of the 2004 reform of the Staff Regulations (discussed further below).

In connection with this growth of pension expenditure, it is important to appreciate that the new pension expenditure due to a staff member retiring today has already been paid for<sup>3</sup>, in the form of the pension contributions paid during that staff member's period of service.

Under the "pay as you go" method of financing, staff contributions were not set aside in a pension fund, but were credited to the EU budget at the time they were collected and spent in accordance with the decisions of the budgetary authority. Thereby the budget was, in a sense, borrowing this money from the members of the scheme. For the rest, which would normally correspond to the employer's part of the contribution, no contribution was ever paid; instead Member States have undertaken a commitment to pay future pension benefits (to be charged to the Union budget) when the staff retires. As members of the PSEO reach retirement, the money needs to be repaid to them in the form of retirement benefits. It is therefore to be expected that the budgetary impact will increase as the scheme approaches maturity.

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<sup>2</sup> In this study, population data always refer to the 31<sup>st</sup> December of a given year, whereas expenditure is that of the whole year.

<sup>3</sup> Active staff paid the pension contributions for the pension rights they acquired.

Nevertheless, as noted above, action was taken in 2004 to limit the costs of the pension scheme for the future in the context of the reform of the Staff Regulations.<sup>4</sup> Some changes to the Staff Regulations were aimed directly at limiting the cost of pensions, such as the reduction in the pension accrual rate from 2% of final salary per year of service to 1.9% and the increase of the pensionable age from 60 to 63. There were also changes to the Staff Regulations which, while not directly related to pension cost, have an impact on the overall cost of pensions by limiting the final salaries on which pension benefits are calculated. These include the replacement of officials with contract agents<sup>5</sup>, and lower entry level salaries combined with a longer career path comprising more grades, but faster promotions.

An analysis of the impact of these changes, along with the replacement of "capital" with "country" correction coefficients and the faster promotion expected for staff under the New Staff Regulations, shows that the reform will have a significant effect in reducing pension costs.

The annual cost savings between 2010 and 2059 resulting from the 2004 reform of the Staff Regulations will increase over time and will reach 1 047 million Euros in 2059. This means that the total pension expenditure in 2059, which is now projected to increase by 83% as compared to 2010, would instead have increased by 168% without the reform of 2004. The total cost savings over 50 years are projected to be 24 785 million Euros. This may even understate the total savings from the reform, as it does not take into account savings from the changes to invalidity and survivors' pensions.

## **4. PARAMETERS AND ACTUARIAL ASSUMPTIONS**

### **4.1. Demographic assumptions**

#### *4.1.1. Population growth*

The projection is based on contributing staff and beneficiaries who are members of the pension scheme recorded as at 31 December 2008. Active staff are officials, temporary and contract agents, while beneficiaries are retired officials, temporary and contract agents, invalids and survivors (widow(er)s and orphans aged less than 26<sup>6</sup>). Parliamentary assistants are not included, as their statute entered into force after 31 December 2008.

The active population working in the European institutions and agencies has been growing since 2004, mainly due to the enlargement of the EU from 15 to 27 countries. This enlargement effect means that the years 2004-2008 should be seen as transitional, and the population growth during this period cannot be extrapolated for

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<sup>4</sup> The Staff Regulations were amended with effect from 1.5.2004. In this study, the Staff Regulations in force before 1.5.2004 are referred to as the "Old Staff Regulations" and staff recruited under the Old Staff Regulations as "Old Statute" staff. Similarly, the Staff Regulations in force from 1.5.2004 are referred to as the "New Staff Regulations", and staff recruited under the New Staff Regulations as "New Statute" staff.

<sup>5</sup> Contract agents have lower salary grid and on average shorter duration of contracts as compared with officials.

<sup>6</sup> For simplification purposes only orphans aged less than 26 are projected.

the 50-year projection period. Nor can future enlargements be forecasted in such a way as to allow their integration into the model.

In addition, the Commission, which is the biggest employer of the EU civil service (ca. 60%), in its 2007 report "Planning and optimising Commission human resources to serve EU priorities"<sup>7</sup>, committed to requesting no new posts for the period 2009-2013.

Thus, in the light of these observations, the growth rate of the active population has been set to zero for the whole projection. More precisely: the number of officials, temporary agents and contract agents under indefinite or fixed-term contracts as well as the number of staff per category (AD/AST for officials and temporary agents, function groups for contract agents) is constant.

This choice is justified since the implications in terms of human resources of establishing new EU bodies, such as the European External Action Service or future European agencies, are not fully known at this time and would be impossible to estimate. In addition, institutions other than the Commission may obtain a number of new posts during the 2009-2013 period. The impact of this is not assessed in this study.

#### 4.1.2. *Life table*

In order to be in compliance with other official statistics produced by Eurostat, this life table is the same as that used for the calculation of the pension liability and pension contribution rate: the International Civil Servant Life Table 2008 (ICSLT 2008). This table is the result of the cooperation between Eurostat and the Joint Pension Administrative Section (attached to the OECD). The ICSLT 2008 was adopted by the Article 83 Working Group at its June 2008 meeting.

#### 4.1.3. *Invalidity table*

The invalidity table is the "EU 2008 invalidity table" (also used for the calculation of the pension contribution rate). It is updated annually by injecting the latest available data and calculating a 5-year moving average.

#### 4.1.4. *Retirement table*

The retirement table shows the probability that an individual will retire before a certain age. The appropriate retirement table depends upon the individual's status. In practice, a distinction is made between Old Statute staff, New Statute staff and New Statute invalids (this last category being assumed to retire at 65).

For each age class of active staff a specific retirement table has been built, taking into account both the pensionable age as defined in the Staff Regulations, and observations for all the institutions. By doing this, retirement ages are progressively raised and are therefore consistent with Article 22 of Annex XIII to the Staff Regulations.

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<sup>7</sup> Report from the Commission SEC(2007) 530.

#### 4.1.5. *Age breakdown of newcomers*

Newcomers enter the projection model with ages according to statistics observed for all the institutions since 2004. In a second step, the probabilities of joining the institutions at a given age are smoothed over a three-year period.

#### 4.1.6. *Marital status and sex ratio*

These data are used for the purpose of breaking down widow(er)s generated by both the active and retired population. The information has been retrieved on the basis of observations between 2004 and 2008, and between 2005 and 2008, respectively.

#### 4.1.7. *Children*

Assumptions related to dependent children need to be made in order to project the orphan population. The statistics as to the average number of children per staff member or beneficiary and their average age correspond to the family situation as at 31 December 2008.

### **4.2. Economic assumptions**

#### 4.2.1. *Collective salary progression due to seniority and promotions*

Salaries of active staff increase throughout their career due to seniority in step (every two years) and promotions granted after a variable number of years in the same grade.

For the purposes of calculating the pension contribution rate and the total pension liability, an "Individual Salary Progression" rate is calculated for each member of staff according to grade, step and the number of years remaining before the assumed retirement age. It is not possible to use Individual Salary Progression rates in the context of this model, as the population is projected only by age class and not by grade and step.

Instead, "Collective Salary Progression" rates by age are defined, whose level depends on the corresponding average basic salary. These increases take account, on the one hand, of the provisions of Annex IB to the Staff Regulations, and on the other hand, of certain career limitations imposed to AST-C, AST-D and AST-1 staff<sup>8</sup>.

#### 4.2.2. *Annual salary adjustments*

The annual salary adjustment policy is defined in Article 65 and Annex XI to the Staff Regulations. It is difficult to determine the appropriate figure for the 50-year projection period based on observations, because different average specific indicators are obtained depending on the length of the time series. The average specific indicator for the period 1991-2008 is 0%; however the most recent period 2004-2008

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<sup>8</sup> Article 10 of Annex XIII lists the applicable promotion rates for AST-C and AST-D. In addition, account is also taken of a draft Commission Decision aiming to link the type of post held to the corresponding highest grade attainable, without prejudice to the final decision of the Commission and the decisions of other institutions to follow the Commission's restrictive approach.

shows a negative trend (-0.5%). Therefore, it has appeared realistic to set the net annual change in the salary scales (specific indicator) to 0% over the 50 years of the projection period.

#### 4.2.3. *Annual inflation*

The forecast is made at constant prices to facilitate comparability over the years, by isolating the variables that have real influence on the pension expenditure, that is, the population structure and the long term impact of the 2004 reform.

#### 4.2.4. *Basic salaries at recruitment*

The basic salaries of the population at 31 December 2008 are extracted from the Eurostat database. Basic salaries of newcomers are built on past observations (2005 - 2008) and then corrected for statistical reasons by means of a linear regression in order that they increase linearly until the maximum retirement age<sup>9</sup>.

It is assumed that the recruitment policy for administrators is not homogeneous. While in the institutions administrators are generally recruited at grade AD5, in the agencies the entry grade is often higher.

#### 4.2.5. *Contract length for non-permanent staff*

It is assumed that contract and temporary agents with a fixed term contract cannot work within the EU institutions more than 6 years.

However, there are some staff who can cumulate several short-term contracts over a period of more than 6 years. The limited data available in the Eurostat database as at 31 December 2008 does not allow these staff to be identified. In the future, Eurostat and EU agencies will have to collaborate closely with a view to collecting further relevant information to better monitor the career path of non-permanent staff.

#### 4.2.6. *Survivors' pensions*

Widows, widowers and orphans are projected by using probabilities of being married, the life table and the average number of children per active staff member or beneficiary (see sections 4.1.2, 4.1.6 and 4.1.7 above). In addition it is assumed that wives are aged 3 years younger than their husbands (this assumption is also used in the calculation of the pension contribution rate). New widow(er)s are distributed according to the sex distribution table. Finally, widowhood pensions are calculated according to the reversion rate defined in the Staff Regulations, whereas it is assumed that the average orphan's pension remains stable over the projection period.

#### 4.2.7. *Transfers in*

Transfers in (i.e. payment into the PSEO of the actuarial equivalent of pension rights earned outside it) for future newcomers are not integrated in the projection model as they can be seen as neutral from a budgetary point of view.

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<sup>9</sup> Article 52 of the Staff Regulations states that in exceptional cases officials may retire at age 67.



In any event, future transfers in are difficult to estimate. This is in part because of the change in the characteristics of the population since 2004 (the level of transfers made in the past by EU-15 staff cannot simply be extrapolated for those of EU-12). In addition, the transfer of pension rights is not yet possible from all Member States.

#### 4.2.8. *Transfers out*

Transfers out (i.e. payment to external pension schemes of the actuarial equivalent of pension rights earned in the PSEO) are difficult to estimate in the short term due to the administrative difficulties encountered in making external pension schemes accept incoming transfers. This situation is likely to improve following a call for expression of interests launched by the Commission in 2008. However, it is impossible to foresee how fast accumulated pending files will be processed.

The solution adopted is to assume that all persons awaiting their transfers out at 31 December of a given year benefit from the payment of the actuarial equivalent of their pension rights the following year, regardless of the number of files to be processed. The effect of this is that the corresponding annual expenditure may be very instable in the first years of the projection. For this reason, the cost of transfers out is integrated into the heading "Other pension headings", which gathers volatile or minor expenses (see further section 5.2 below).

#### 4.2.9. *Correction coefficients*

Expenditure related to correction coefficients is estimated for pension rights acquired prior to the 2004 reform by Old Statute staff. Projecting this heading requires having strong working hypotheses such as variations of purchasing power parities cancelling each other out in the long term. It should be noted that the estimation is also made sensitive to other parameters such as exchange rate evolution and place of retirement residence chosen by retirees.

### 4.3. **Parameters relating to the impact of the 2004 reform**

The Eurostat study analysing the impact of the 2004 reform of the Staff Regulations assessed the effect of six aspects of the reform (detailed below at points 4.3.1 to 4.3.6) on pension costs.

The approach taken was to estimate the extra pension costs which would be incurred by 2059 if these six provisions of the New Staff Regulations were replaced with those contained in the Old Staff Regulations.

It should be noted that only the six aspects specifically mentioned here were taken into account in the study. Several features of the 2004 reform were not addressed, in particular the evolution of the pension contribution rate (including updates to the mortality and invalidity tables) and the consequences of the reform on invalidity and survivor-related pension costs. The additional savings associated with these items could be sizeable.

It should also be noted that the simulations are meaningful at the most aggregated level. This point is of utmost importance. In fact, from a statistical point of view the parameters described above are interrelated. To emphasise this point, the simulation shows the last four, interdependent factors (points 4.3.3 to 4.3.6) on a pooled basis.

The interdependence of these parameters means that analysing their impact *ceteris paribus* may lead to biased results. Nevertheless, despite their potential statistical uncertainty, single impacts are provided in section 5.3 in a synthesis of the simulations.

In order to establish the individual impact of each parameter, two scenarios were drawn up for each. "*Scenario a) Actual situation*" involves forecasting population and incomes according to the Staff Regulations provisions at 31 December 2008. "*Scenario b) Hypothetical situation*" is a fictional situation where it is assumed that the aspects of the reform mentioned below did not enter into force in 2004.

#### 4.3.1. *Correction coefficients*

a) *Actual situation: "country" correction coefficients are applied to pension rights acquired before 1 May 2004.*

b) *Hypothetical situation: "capital" correction coefficients are applied to all pension rights.*

An average intra-EU correction coefficient was calculated taking into account the breakdown of retirees according to their place of residence and the "capital" correction coefficients at 1 July 2008. This average value was estimated at 6% over the projection period and it was implicitly assumed that there are no significant differences in average pension level among places of residence, and that economic parities and exchange rates are stable over the projection period.

The overall impact of the application of correction coefficients is limited by the fact that around 50% of retirees live in Brussels or Luxembourg, where correction coefficients do not apply.

#### 4.3.2. *Introduction of contract agents*

a) *Actual situation: FGI, FGII, FGIII and FGIV contract agents are recruited as from 1 May 2004.*

b) *Hypothetical situation: institutions recruit officials instead of FGII, FGIII and FGIV contract agents<sup>10</sup>.*

FGII, FGIII and FGIV contract agents at 31 December 2008 were replaced by officials. FGII were combined (by age class) with AST1's, FGIII with AST3's and FGIV with AD's.

There is no function group of officials which is equivalent to FGI contract agents in the model used for the projection. It is therefore assumed that FGI contract agents would have been recruited from 1 May 2004, and so they do not play any role in the impact analysis.

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<sup>10</sup> It should be noted that contract agents also replaced auxiliary staff referred to in Article 3 of the CEOS, who were affiliated to a national social security scheme and were thus not included in the PSEO.

#### 4.3.3. *Salary progression due to seniority and promotions*

a) *Actual situation: annual salary progression rates are based on Annex IB and Annex XIII provisions.*

b) *Hypothetical situation: annual salary progression rates for officials are estimated on the basis of observations prior to 2004.*

Data at 31 December 2008 show that average salary progression rates by age class observed before 2004 were lower than those derived from the strict application of Annex IB and Annex XIII to the New Staff Regulations.

The rates for scenario b) as well as scenario a) were built by setting a specific rate for each grade.

#### 4.3.4. *Entry level salary*

a) *Actual situation: basic salaries at recruitment are based on observations between 2004 and 2008 and smoothed.*

b) *Hypothetical situation: basic salaries at recruitment are those effective before 2004 and smoothed.*

As expected, basic salaries at recruitment for officials and temporary agents were higher before 2004. Data were extracted and smoothed so that projections of basic salaries in 2059 were consistent with figures observed at 31 December 2008.

For the purposes of the simulation, the basic salaries by age of New Statute officials and temporary agents at 31 December 2008 were simply substituted with the entry salaries which they would have received had they been appointed under the Old Staff Regulations.<sup>11</sup>

#### 4.3.5. *Pension accrual rate*

a) *Actual situation: the pension accrual rate is 2% or 1.9% depending on the date of entry into service.*

b) *Hypothetical situation: the pension accrual rate is 2% for all officials and temporary staff.*

This parameter simply assesses the consequences of reducing the accrual rate by 0.1 percentage points.

#### 4.3.6. *Retirement table*

a) *Actual situation: the retirement table takes account of the transitional measures defined in Annex XIII to the New Staff Regulations.*

b) *Hypothetical situation: the retirement table is that of the Old Staff Regulations.*

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<sup>11</sup> This is of course an approximation since appointments and promotions occurred throughout the period 2004-2008.

For the purposes of scenario b), the retirement table applicable to Old Statute staff (see point 4.1.4 above) was applied to all staff.

## 5. SYNTHESIS OF ECONOMIC AND DEMOGRAPHIC PROJECTIONS

### 5.1. Population

#### 5.1.1. Active population

The active population is assumed to remain constant throughout the period (see point 4.1.1 above) and equals 49 207, broken down as follows.

*Table 1: The active population is constant*

Type of active population	Number of staff at 31st December of each projection year
Officials	34 509
Temporary agents	7 044
Contract agents	7 654
Total	49 207

#### 5.1.2. Non-active population

The projection of pensioners includes retired officials, temporary agents and contract agents, invalids, widow(er)s and orphans.

This population grows by 109% between 2010 and 2059 but stabilizes in the 2040s. This rise is the result of two combined factors: the relative youth of the PSEO and the recruitment policy effective in the past.

*Table 2: Projection of the number of pensioners*

Projection year	Number of pensioners at 31st December	Annual variation	Projection year	Number of pensioners at 31st December	Annual variation	Projection year	Number of pensioners at 31st December	Annual variation
2010	17 471	4.4%	2027	30 628	2.4%	2044	38 431	0.4%
2011	18 277	4.6%	2028	31 323	2.3%	2045	38 511	0.2%
2012	19 083	4.4%	2029	31 998	2.2%	2046	38 526	0.0%
2013	19 926	4.4%	2030	32 674	2.1%	2047	38 444	-0.2%
2014	20 781	4.3%	2031	33 335	2.0%	2048	38 313	-0.3%
2015	21 660	4.2%	2032	33 930	1.8%	2049	38 149	-0.4%
2016	22 449	3.6%	2033	34 538	1.8%	2050	37 974	-0.5%
2017	23 215	3.4%	2034	35 093	1.6%	2051	37 797	-0.5%
2018	23 968	3.2%	2035	35 613	1.5%	2052	37 620	-0.5%
2019	24 700	3.1%	2036	36 050	1.2%	2053	37 445	-0.5%
2020	25 432	3.0%	2037	36 460	1.1%	2054	37 273	-0.5%
2021	26 172	2.9%	2038	36 855	1.1%	2055	37 105	-0.4%
2022	26 926	2.9%	2039	37 203	0.9%	2056	36 943	-0.4%
2023	27 682	2.8%	2040	37 500	0.8%	2057	36 787	-0.4%
2024	28 417	2.7%	2041	37 801	0.8%	2058	36 641	-0.4%
2025	29 181	2.7%	2042	38 069	0.7%	2059	36 506	-0.4%
2026	29 903	2.5%	2043	38 277	0.5%			

## 5.2. Pension expenditure

The expenditure forecast carried out covers all pension-related expenditure under heading 5 (Administration) of the Multiannual Financial Framework. Figures provided in the tables below show the major trends that are expected over the next 50 years.

Total pension expenditure (at constant prices) will peak at 2 490 million Euros in 2045. Afterwards the pension scheme will be mature and the number of beneficiaries will not grow any further. In fact, the number will slightly decline, by around 5%. This, combined with the 4% decrease of the average official's (and temporary agent's) pension will lead to a drop in pension expenditure, which will amount to 2 259 million Euros in 2059.

Tables 3 to 8 give projected expenditure broken down as follows:

- Retirement pensions;
- Invalidity pensions and allowances;
- Survivor pensions;
- Other headings.

"Other headings" includes correction coefficients, JSIS (Joint Sickness Insurance Scheme) employer's contribution, transfers out, severance grants and financial aid to surviving spouses. This category comprises elements that are residuals or are hard to forecast owing to their inherent volatility.

As already noted, correction coefficients are linked to economic parities and are therefore changeable (see section 4.2.9). Transfers out are also highly volatile (see section 4.2.8). Therefore, table 6 gives a projection of pension expenditure on retirement, invalidity and survivor pensions and allowances, but without taking into account "other headings". On this projection, pension expenditure rises to a maximum of 2 326 million Euros in 2045, before falling back to 2 117 million Euros in 2059.

5.2.1. *Projection of retirement pension expenditure*

*Table 3: Projection of retirement pension expenditure*

Projection year	Old-age pensions	Annual variation	Projection year	Old-age pensions	Annual variation	Projection year	Old-age pensions	Annual variation
2010	715 M€	5.9%	2027	1 474 M€	3.2%	2044	1 947 M€	0.5%
2011	760 M€	6.2%	2028	1 518 M€	3.0%	2045	1 950 M€	0.2%
2012	804 M€	5.9%	2029	1 562 M€	2.9%	2046	1 946 M€	-0.2%
2013	851 M€	5.9%	2030	1 605 M€	2.8%	2047	1 933 M€	-0.7%
2014	898 M€	5.4%	2031	1 648 M€	2.7%	2048	1 915 M€	-0.9%
2015	944 M€	5.2%	2032	1 686 M€	2.3%	2049	1 895 M€	-1.0%
2016	989 M€	4.7%	2033	1 724 M€	2.3%	2050	1 875 M€	-1.1%
2017	1 033 M€	4.5%	2034	1 759 M€	2.0%	2051	1 855 M€	-1.0%
2018	1 077 M€	4.2%	2035	1 789 M€	1.7%	2052	1 836 M€	-1.0%
2019	1 119 M€	3.9%	2036	1 812 M€	1.3%	2053	1 818 M€	-1.0%
2020	1 161 M€	3.7%	2037	1 835 M€	1.2%	2054	1 801 M€	-0.9%
2021	1 204 M€	3.8%	2038	1 856 M€	1.2%	2055	1 785 M€	-0.9%
2022	1 249 M€	3.7%	2039	1 874 M€	1.0%	2056	1 771 M€	-0.8%
2023	1 294 M€	3.6%	2040	1 890 M€	0.8%	2057	1 757 M€	-0.7%
2024	1 338 M€	3.4%	2041	1 907 M€	0.9%	2058	1 746 M€	-0.7%
2025	1 384 M€	3.5%	2042	1 924 M€	0.9%	2059	1 736 M€	-0.6%
2026	1 429 M€	3.2%	2043	1 937 M€	0.7%			

5.2.2. *Projection of invalidity pension and allowance expenditure*

*Table 4: Projection of invalidity pension and allowance expenditure*

Projection year	Invalidity pensions and allowances	Annual variation	Projection year	Invalidity pensions and allowances	Annual variation	Projection year	Invalidity pensions and allowances	Annual variation
2010	208 M€	1.6%	2027	188 M€	-2.6%	2044	100 M€	-3.7%
2011	211 M€	1.3%	2028	183 M€	-2.7%	2045	97 M€	-3.2%
2012	213 M€	1.1%	2029	177 M€	-3.1%	2046	95 M€	-1.9%
2013	215 M€	1.1%	2030	171 M€	-3.6%	2047	94 M€	-0.9%
2014	216 M€	0.4%	2031	165 M€	-3.7%	2048	94 M€	-0.3%
2015	217 M€	0.6%	2032	158 M€	-4.1%	2049	94 M€	0.0%
2016	217 M€	0.0%	2033	151 M€	-4.2%	2050	94 M€	0.1%
2017	217 M€	-0.2%	2034	145 M€	-4.2%	2051	94 M€	0.2%
2018	216 M€	-0.5%	2035	140 M€	-3.6%	2052	94 M€	0.3%
2019	215 M€	-0.4%	2036	135 M€	-3.7%	2053	94 M€	0.3%
2020	214 M€	-0.7%	2037	130 M€	-3.6%	2054	95 M€	0.4%
2021	211 M€	-1.0%	2038	125 M€	-3.6%	2055	95 M€	0.3%
2022	209 M€	-1.3%	2039	121 M€	-3.2%	2056	95 M€	0.3%
2023	205 M€	-1.5%	2040	117 M€	-3.5%	2057	96 M€	0.3%
2024	202 M€	-1.8%	2041	112 M€	-4.0%	2058	96 M€	0.2%
2025	198 M€	-1.9%	2042	108 M€	-3.9%	2059	96 M€	0.2%
2026	193 M€	-2.5%	2043	104 M€	-3.9%			

5.2.3. *Projection of survivor pension expenditure*

*Table 5: Projection of survivor pension expenditure*

Projection year	Survivor pensions	Annual variation	Projection year	Survivor pensions	Annual variation	Projection year	Survivor pensions	Annual variation
2010	113 M€	4.3%	2027	193 M€	2.6%	2044	277 M€	1.4%
2011	118 M€	4.2%	2028	198 M€	2.5%	2045	280 M€	1.3%
2012	122 M€	4.0%	2029	203 M€	2.5%	2046	283 M€	1.1%
2013	127 M€	3.9%	2030	208 M€	2.5%	2047	286 M€	0.9%
2014	132 M€	3.7%	2031	213 M€	2.5%	2048	288 M€	0.8%
2015	137 M€	3.7%	2032	218 M€	2.5%	2049	290 M€	0.6%
2016	142 M€	3.4%	2033	223 M€	2.4%	2050	291 M€	0.5%
2017	146 M€	3.3%	2034	229 M€	2.4%	2051	292 M€	0.3%
2018	151 M€	3.2%	2035	234 M€	2.3%	2052	293 M€	0.2%
2019	155 M€	3.0%	2036	239 M€	2.3%	2053	293 M€	0.0%
2020	160 M€	3.0%	2037	245 M€	2.2%	2054	292 M€	-0.1%
2021	165 M€	2.9%	2038	250 M€	2.1%	2055	292 M€	-0.3%
2022	169 M€	2.8%	2039	255 M€	2.0%	2056	291 M€	-0.4%
2023	174 M€	2.7%	2040	260 M€	1.9%	2057	289 M€	-0.5%
2024	178 M€	2.7%	2041	264 M€	1.8%	2058	287 M€	-0.6%
2025	183 M€	2.7%	2042	269 M€	1.7%	2059	285 M€	-0.7%
2026	188 M€	2.6%	2043	273 M€	1.5%			



5.2.4. *Projection of expenditure on retirement, invalidity and survivor pensions and allowances*

*Table 6: Projection of expenditure on retirement, invalidity and survivor pensions and allowances*

Projection year	Old-age, invalidity and survivor pensions and allowances	Annual variation	Projection year	Old-age, invalidity and survivor pensions and allowances	Annual variation	Projection year	Old-age, invalidity and survivor pensions and allowances	Annual variation
2010	1 036 M€	4.8%	2027	1 855 M€	2.5%	2044	2 323 M€	0.4%
2011	1 088 M€	5.0%	2028	1 899 M€	2.4%	2045	2 326 M€	0.2%
2012	1 140 M€	4.7%	2029	1 942 M€	2.3%	2046	2 324 M€	-0.1%
2013	1 194 M€	4.8%	2030	1 984 M€	2.2%	2047	2 312 M€	-0.5%
2014	1 246 M€	4.3%	2031	2 025 M€	2.1%	2048	2 296 M€	-0.7%
2015	1 298 M€	4.2%	2032	2 062 M€	1.8%	2049	2 278 M€	-0.8%
2016	1 348 M€	3.8%	2033	2 099 M€	1.8%	2050	2 260 M€	-0.8%
2017	1 397 M€	3.6%	2034	2 132 M€	1.6%	2051	2 241 M€	-0.8%
2018	1 444 M€	3.4%	2035	2 162 M€	1.4%	2052	2 223 M€	-0.8%
2019	1 489 M€	3.1%	2036	2 186 M€	1.1%	2053	2 205 M€	-0.8%
2020	1 534 M€	3.0%	2037	2 209 M€	1.0%	2054	2 188 M€	-0.8%
2021	1 580 M€	3.0%	2038	2 231 M€	1.0%	2055	2 172 M€	-0.7%
2022	1 627 M€	3.0%	2039	2 250 M€	0.9%	2056	2 157 M€	-0.7%
2023	1 673 M€	2.8%	2040	2 266 M€	0.7%	2057	2 142 M€	-0.7%
2024	1 718 M€	2.7%	2041	2 284 M€	0.8%	2058	2 129 M€	-0.6%
2025	1 765 M€	2.8%	2042	2 301 M€	0.7%	2059	2 117 M€	-0.6%
2026	1 810 M€	2.5%	2043	2 314 M€	0.6%			

5.2.5. *Projection of other pension headings: transfers out, severance grants, correction coefficients, employer's contribution towards sickness insurance for pensioners, financial aid to surviving spouses*

*Table 7: Projection of other pension headings*

Projection year	Other headings	Annual variation	Projection year	Other headings	Annual variation	Projection year	Other headings	Annual variation
2010	200 M€	39.9%	2027	171 M€	3.1%	2044	164 M€	-0.9%
2011	157 M€	-21.6%	2028	169 M€	-1.0%	2045	164 M€	-0.3%
2012	151 M€	-3.5%	2029	171 M€	0.9%	2046	162 M€	-1.1%
2013	152 M€	0.6%	2030	169 M€	-1.0%	2047	161 M€	-0.6%
2014	152 M€	0.1%	2031	170 M€	0.8%	2048	159 M€	-1.4%
2015	161 M€	5.6%	2032	170 M€	-0.2%	2049	158 M€	-0.7%
2016	151 M€	-5.8%	2033	171 M€	1.0%	2050	155 M€	-1.5%
2017	164 M€	8.5%	2034	170 M€	-0.8%	2051	154 M€	-0.7%
2018	153 M€	-7.1%	2035	171 M€	0.3%	2052	152 M€	-1.5%
2019	160 M€	4.6%	2036	169 M€	-0.6%	2053	151 M€	-0.7%
2020	163 M€	2.1%	2037	169 M€	0.0%	2054	149 M€	-1.4%
2021	161 M€	-1.1%	2038	168 M€	-0.6%	2055	148 M€	-0.6%
2022	165 M€	2.3%	2039	168 M€	0.0%	2056	146 M€	-1.4%
2023	166 M€	0.4%	2040	167 M€	-0.8%	2057	145 M€	-0.5%
2024	164 M€	-0.8%	2041	167 M€	0.0%	2058	143 M€	-1.3%
2025	169 M€	3.0%	2042	166 M€	-0.7%	2059	143 M€	-0.4%
2026	166 M€	-2.1%	2043	166 M€	0.0%			

5.2.6. *Projection of total pension expenditure*

*Table 8: Projection of total pension expenditure*

Projection year	All headings	Annual variation	Projection year	All headings	Annual variation	Projection year	All headings	Annual variation
2010	1 235 M€	9.2%	2027	2 026 M€	2.5%	2044	2 487 M€	0.3%
2011	1 245 M€	0.7%	2028	2 068 M€	2.1%	2045	2 490 M€	0.1%
2012	1 291 M€	3.7%	2029	2 112 M€	2.1%	2046	2 486 M€	-0.2%
2013	1 346 M€	4.3%	2030	2 152 M€	1.9%	2047	2 473 M€	-0.5%
2014	1 398 M€	3.9%	2031	2 196 M€	2.0%	2048	2 455 M€	-0.7%
2015	1 459 M€	4.4%	2032	2 231 M€	1.6%	2049	2 436 M€	-0.8%
2016	1 499 M€	2.7%	2033	2 271 M€	1.7%	2050	2 415 M€	-0.9%
2017	1 561 M€	4.1%	2034	2 302 M€	1.4%	2051	2 395 M€	-0.8%
2018	1 596 M€	2.3%	2035	2 333 M€	1.3%	2052	2 375 M€	-0.9%
2019	1 649 M€	3.3%	2036	2 356 M€	1.0%	2053	2 356 M€	-0.8%
2020	1 697 M€	2.9%	2037	2 378 M€	1.0%	2054	2 337 M€	-0.8%
2021	1 741 M€	2.6%	2038	2 399 M€	0.9%	2055	2 320 M€	-0.7%
2022	1 792 M€	2.9%	2039	2 418 M€	0.8%	2056	2 302 M€	-0.8%
2023	1 838 M€	2.6%	2040	2 433 M€	0.6%	2057	2 287 M€	-0.7%
2024	1 882 M€	2.4%	2041	2 451 M€	0.7%	2058	2 272 M€	-0.7%
2025	1 935 M€	2.8%	2042	2 467 M€	0.6%	2059	2 259 M€	-0.6%
2026	1 976 M€	2.1%	2043	2 480 M€	0.5%			

### 5.3. Impact of the 2004 reform – synthesis of the simulations

Table 9 below shows the extra pension costs which would be incurred by 2059 if the provisions of the New Staff Regulations referred to in sections 4.3.1 to 4.3.6 above were replaced with the corresponding provisions of the Old Staff Regulations.

The simulation shows that the total pension expenditure in 2059 would be 3 306 million Euros without the reform, compared to 2 259 million Euros in the context of the reform<sup>12</sup>.

*Table 9: Impact analysis of the 2004 reform parameter by parameter*

			Total pension expenditure in 2059	
Impact (description)			Impact (amount)	% with respect to forecasted pension expenditure in 2059 (with the 2004 reform)
<b>Total impact</b>			1 047 M€	46%
=	<b>Parameter 1.</b>	Correction coefficients	120 M€	5%
+	<b>Parameter 2.</b>	Establishment in 2004 of the contract agents' statute	300 M€	13%
+	<b>Parameter 3.</b>	<i>(see below)</i>	627 M€	28%
+	<b>Parameter 3a.</b>	<i>(see below)</i>	94 M€	4%
+	<b>Parameter 3a1.</b>	Salary progression due to seniority and promotions	-227 M€	-10%
+	<b>Parameter 3a2.</b>	Entry salary level	321 M€	14%
+	<b>Parameter 3b.</b>	<i>(see below)</i>	533 M€	24%
+	<b>Parameter 3b1.</b>	Pension accrual rate	106 M€	5%
+	<b>Parameter 3b2.</b>	Retirement table	426 M€	19%

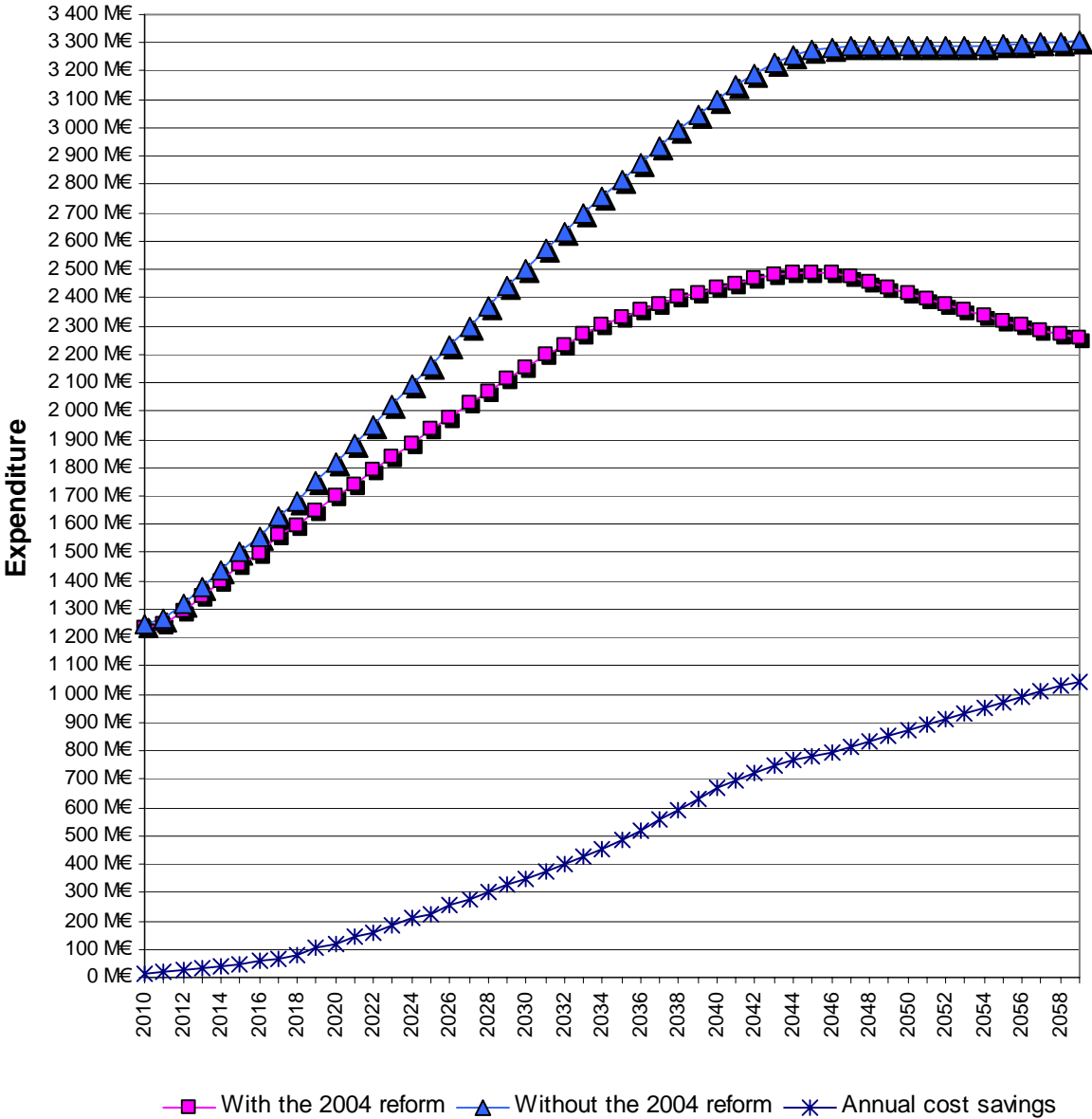
<sup>12</sup> The savings on pension expenditure are 1 047 million Euros, as indicated in Table 9 in the column Total pension expenditure in 2059.

**5.4. Impact of the 2004 reform – annual cost savings**

Figure 1 below shows the annual cost savings between 2010 and 2059 resulting from the 2004 reform of the Staff Regulations<sup>13</sup>.

This shows that the 2004 reform can be expected to produce savings from the beginning of the projection period, growing substantially over time to reach 1 047 million Euros annually in 2059. The total cost savings over 50 years are projected to be 24 785 million Euros.

**Figure 1: Projected pension expenditure with and without the 2004 reform of the Staff Regulations and annual cost savings at 2008 prices**



<sup>13</sup> The methodology was built in order to assess cost savings in the long run generated by the 2004 reform. Therefore, the results presented in this table cannot be used for short-term forecasts.