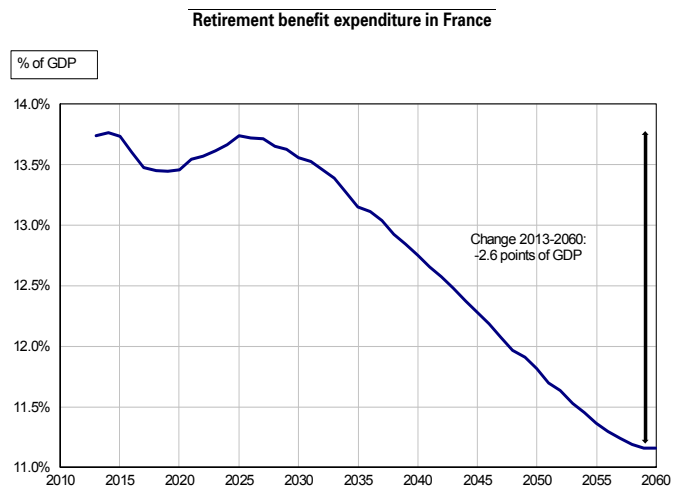


French retirement benefit expenditure set to shrink substantially as a share of GDP by 2060, according to European projections

- Since 2001, the Ecofin Council gave a mandate to the Ageing Working Group (AWG) made up of the Commission and the Member States to update periodically harmonised projections of age-related public expenditure and other expenditures linked to the sustainability of the Member States' public finances (retirement and disability benefits, health care, long-term care, education and unemployment benefits). The retirement benefit expenditure figures for France were produced by the Directorate General of the Treasury and the National Statistics Institute (INSEE) using the Destinie microsimulation model, based on the demographic and macroeconomic assumptions set out by Eurostat and the Ageing Working Group.
- The reforms introduced over more than 20 years should lead to substantially shrink the retirement benefit expenditure as a share of GDP between 2013 and 2060, falling by 2.6 points. This puts France in a generally favourable position compared to its European partners when it comes to coping with its ageing population. In international comparisons, the only expenditure data published are the aggregate figures for retirement benefits and disability benefits, corresponding to the "pensions" component. By 2060, pension expenditure should shrink by 2.8 points of GDP in France, whereas it is expected to remain stable in the euro area, and even increase in some countries (Germany: +2.7 points of GDP between 2013 and 2060, Belgium: +3.3 points of GDP). In 2060, France's expenditure on pensions (retirement benefits and disability benefits), at 12.1% of GDP, will be slightly lower than the average of 12.3% for the euro area.
- The Pensions Advisory Council (COR) henceforth updates its projections on an annual basis, and they serve as a benchmark in France. The latest projections, from June 2015, show a smaller decrease in expenditure on retirement benefits as a share of GDP between 2013 and 2060, with a contraction of 1.3 points of GDP (B scenario). Two factors relating to the demographic and macroeconomic assumptions account for the larger contraction in the AWG projections. On the one hand, the AWG projection is based on demographic assumptions that are more favourable for the sustainability of public finances. On the other hand, the AWG scenario calls for smaller productivity gains from 2020 to the middle of the 2030s and a higher unemployment rate starting in 2020, which means that people accumulate lower pension entitlements during that period. This then reduces the expenditure on retirement benefits as a share of GDP at the end of the period covered by the projections.

Source: *The 2015 Ageing Report: Economic and budgetary projections for the 28 EU Member States (2013-2060)*.
Scope: Retirement benefit expenditure (excluding disability benefits).
Key: Retirement benefit expenditure was equal to 13.7% of French GDP in 2013. It should fall by 2.6 percentage points between 2013 and 2060.



1. The European retirement benefit expenditure projections are based on Eurostat's demographic assumptions

1.1 The Ageing Working Group's projections for retirement benefit expenditure in France were made using the Destinie microsimulation model

Since 2001, the Ecofin Council gave a mandate to the Ageing Working Group (AWG) made up of the Commission and the Member States to update periodically harmonised projections of age-related public expenditure and other expenditures linked to the sustainability of the Member States' public finances (retirement and disability benefits, health care, long-term care, education and unemployment benefits). This is the only harmonised international exercise of its type and this makes it a benchmark. The results of the 2015 exercise were published on 12 May 2015, following the report on the macroeconomic and demographic assumptions published at the end of 2014¹.

The Member States produce projections of expenditure on retirement benefits and disability benefits, which are lumped together in an aggregate called "pensions". Meanwhile, the European Commission produces the projections of other expenditure (health care, long-term care, education and unemployment benefits). **The rest of this document focuses on analysing expenditure on retirement benefits, except for international comparisons, where the expenditure concerned is that on "pensions" (retirement benefits and disability benefits). This is because this aggregate is the only one available for all European countries (see Box 1).**

Box 1: What does "age-related expenditure" cover?

This issue of Trésor-Economics focuses on an analysis of the projections of expenditure on retirement benefits, which is the expenditure concerned in the national projections produced by France's Pensions Advisory Council (COR). However, for the purposes of international comparisons, the only expenditure data published are the aggregate figures for retirement benefits and disability benefits. This aggregate corresponds to the "pensions" component (see Table 1). Other age-related expenditures (health care, long-term care, education, unemployment benefits) are not discussed here.

Table 1: Age-related expenditure discussed in this article

Type of expenditure	Definition in the 2015 Ageing Report	Share of GDP in 2013	Change 2013-2060 in the 2015 Ageing Report	Discussed in this document in sections
Retirement benefits	- Old-age pensions - Survivors' pensions - Minimum pension	Approximately €291bn, or 13.7% of GDP	-2.6 points of GDP	1 to 3
Disability benefits	- Work accident and occupational disease benefits - Disability pension - Adult disability allowance	Approximately €24bn, or 1.1% of GDP	-0.2 points of GDP	4
Pensions	Retirement benefits + disability benefits	Approximately €315bn, or 14.9% of GDP	-2.8 points of GDP	4
Other age-related expenditure: health care, long-term care, education, unemployment benefits	See <i>The 2015 Ageing Report</i>	Approximately €343bn, or 16.2% of GDP	+1.1 points of GDP	Not discussed

Source: *The 2015 Ageing Report*.

The projections of France's expenditure on retirement benefits were produced by the National Statistics Institute (INSEE) and the Directorate General of the Treasury, which follows up the AWG's work using the Destinie microsimulation model. The projections of expenditure on disability benefits, which is included in the "pensions" aggregate, were produced by the Directorate General of the Treasury using a macrosimulation model (see Box 2).

The projections assume a "no policy change" assumption from 2014 on. They account for the effects of the latest pension reforms, including the agreements on supplementary private-sector pension schemes (AGIRC and ARRCO) reached in March 2013 and the January 2014 reform. They do not take account of any measure that was not already in place at the end of 2014.

The projections are based on the AWG and Eurostat assumptions with regard to a number of macroeconomic indicators (labour productivity per hour, prices, participation rates and unemployment rates) and demographic indicators (fertility, life expectancy, migration). Consequently, the results may vary from those of the national projections produced by each Member State. In France, the Pensions Advisory Council (COR), which produced its latest projections in June 2015², relied on the population projections produced by the INSEE in 2010³, and macroeconomic assumptions that were consistent with the Stability Programme in the short term. The COR produces five scenarios based on different assumptions regarding productivity growth and unemployment rates in the long term.

- (1) See: European Commission (DG ECFIN) and Economic Policy Committee (Ageing Working Group) (2014), *The 2015 Ageing Report: Underlying Assumptions and Projection Methodologies*. *European Economy*, No. 8, and European Commission (DG ECFIN) and Economic Policy Committee (Ageing Working Group) (2015), *The 2015 Ageing Report: Economic and budgetary projections for the 28 EU Member States (2013-2060)*. *European Economy*, No. 3.
- (2) "Rapport annuel du COR - June 2015", Secrétariat général du Conseil d'orientation des retraites. The COR has recently published two sets of projections, in December 2014 and June 2015. The path of retirement benefit expenditure as a share of GDP is fairly similar in both sets, with a decrease of around 1.3 points of GDP between 2013 and 2060. This document presents the assumptions and findings of the projections produced in December 2014.
- (3) Blanpain N., O. Chardon (2010), « Projections de population 2007-2060 pour la France métropolitaine », *Insee Résultats* No. 117 Société, December.

Box 2: Models for projecting retirement benefit and disability benefit expenditure

Retirement benefit expenditure

Destinie is a dynamic microsimulation model that was built by France's National Statistics Institute (INSEE) since the mid-1990s, and whose main applications is the analysis of pension policies. The principle of microsimulation is to simulate the impact of economic and legislative scenarios on individuals, using representative samples of the population. The model is built around two modules:

- **A biography generator**, which uses a sample of households from the 2009 INSEE Household Wealth Survey to simulate the life events (births, deaths, unions, separations) and career paths for individuals up to the age of 70 (educational attainment, earnings history, unemployment and non-participation history, contributions to different pension schemes, etc.), but without simulating retirement. The sample is designed to mirror the demographic structure and changes in the main macroeconomic variables from year to year.
- **A retirement module** that simulates the decision of retirement, calculates retirement benefits and updates them up until the individual's death. The retirement module uses the paths from the biography generator to calculate the retirement age of each individual in the sample, in light of various retirement options. For the AWG, the projections are based on the assumption that individuals time their retirement to obtain full retirement benefits (through age or contributory period). Destinie can calculate each individual's basic retirement benefits, supplementary pension scheme benefits, if the individual is eligible for the minimum non contributory benefit and the minimum contributory benefit, and the amount of the individual's survivor's retirement benefits, where applicable.

Given the diversity of pension schemes in France, Destinie models only the legislation governing the main schemes, which are the general National Old-Age Insurance Fund (CNAV) scheme, the supplementary point-based private-sector pension schemes (AGIRC and ARRCO), the pension scheme for central government employees, which is the model for all civil service pension schemes, and the scheme for non-wage earning workers, which is based on the scheme for self-employed workers. The other schemes covering smaller groups are counted with the main schemes with the most similar operating rules.

Disability benefit expenditure

The Directorate General of the Treasury uses a projection model for expenditure on disability benefits that is a macrosimulation model based on the latest available data concerning the distribution of beneficiaries by age and gender and the average disability benefit expenditure for each category. The distribution is used to project the number of beneficiaries receiving disability benefits up until 2060 by applying the ratios of beneficiaries to the demographic distribution projected by Eurostat. The expenditure on disability benefits is calculated from the number of beneficiaries and the average expenditure amount per beneficiary, along with the indexation rule for benefits.

1.2 Eurostat's demographic projections anticipate a relatively young population in France in 2060 compared to its European neighbours

According to the Eurostat population projections (Europop2013) that the AWG used for its demographic scenario, France's population should continue to show sustained growth, reaching 76 million people in 2060 (71 million for Germany⁴). France should then be the most populous nation in the euro area. This growth will be driven by a high fertility rate, with more than 2 births per woman up until 2030, compared to approximately 1.6 in the euro area (see Chart 1). France will maintain a relatively youthful population compared to its European neighbours: the share of the older population, as measured by the dependency ratio, should be one of the lowest in Europe in 2060 (see Chart 3), despite a long life expectancy compared to other countries.

INSEE's demographic assumptions, which the COR uses, show more marked ageing of the French population than AWG's assumptions. They are also less favourable for the sustainability of public finances. Lower fertility (1.95 births per woman starting in 2015) and longer life expectancy (more than one year longer in 2060, according to the INSEE) lead to a substantially higher dependency ratio starting in 2040 under the COR assumptions, compared to the AWG assumptions (see Charts 1, 2 and 3).

Chart 1: Fertility rate

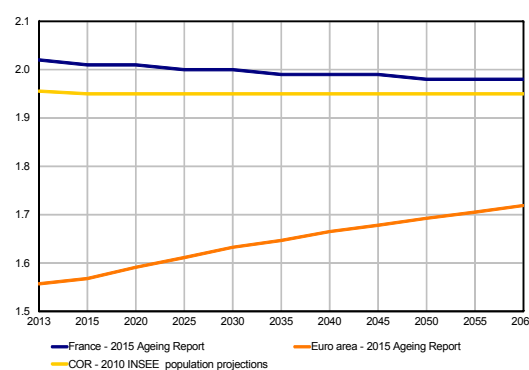
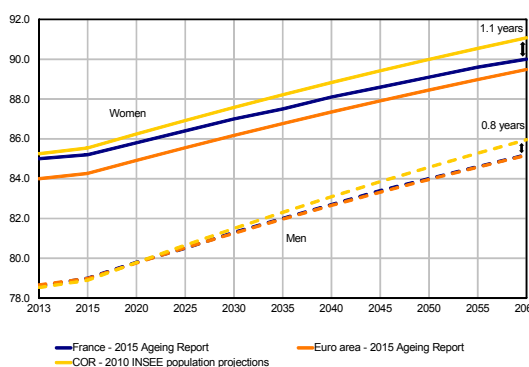


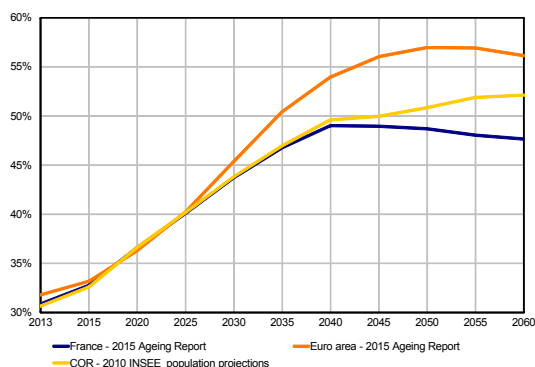
Chart 2: Life expectancy at birth



Source: The 2015 Ageing Report; COR, December 2014 - 2010 INSEE population projections.

(4) The Eurostat population projections are produced approximately once every three years and predict a convergence of the main demographic indicators across Europe by 2150. The principle of the national projections produced by the INSEE is different, since it assumes a continuation of past trends. Some minor adjustments were made to the AWG projections for certain countries, compared to the Eurostat projections, in order to incorporate the findings of the latest census, as was the case for Germany.

Chart 3: Dependency ratio (65+/20-64)



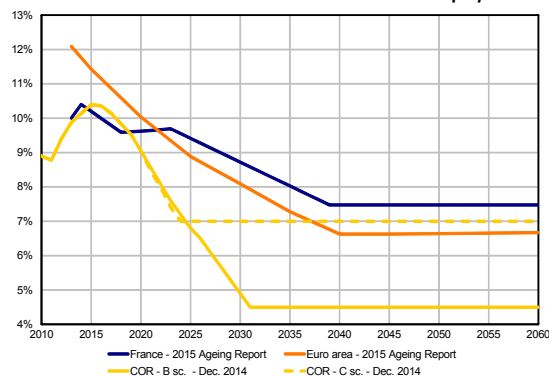
Source: The 2015 Ageing Report ; COR, December 2014 - 2010 INSEE population projections.

1.3 The macroeconomic scenario foresees slow convergence towards an unemployment rate of 7.5% and long-term productivity growth of 1.5%

In the long term, the AWG macroeconomic scenario is in line with COR's C scenario with regard to unemployment⁵. The AWG long-term unemployment target is 7.5%, which is the median structural unemployment rate across Europe, compared to 7% under COR's C scenario and 4.5% under COR's B scenario. Convergence will also take longer under the AWG scenario, meaning that the unemployment rate is substantially higher starting in 2020 (see Chart 4).

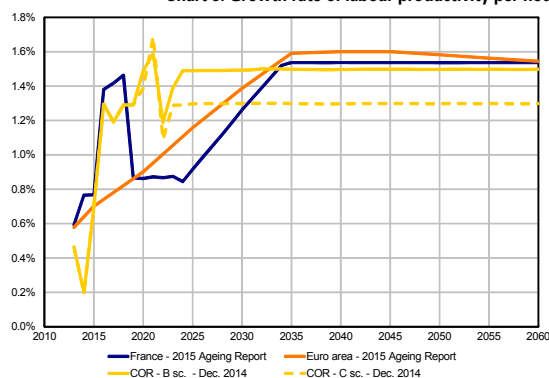
Both AWG's baseline scenario and COR's B scenario call for long-term productivity growth of 1.5%, compared to 1.3% under COR's C scenario. The convergence towards the long-term targets takes longer under the AWG scenario. In the medium and long term, labour productivity per hour is slightly lower than that of the euro area (see Chart 5).

Chart 4: Unemployment rate



Source: The 2015 Ageing Report; COR, December 2014.

Chart 5: Growth rate of labour productivity per hour



Source: The 2015 Ageing Report; COR, December 2014.

Higher fertility rates mean that employment growth⁶ is stronger in France than in the euro area in the long term, posting a long-term increase of 0.2%, whereas it would decrease in the euro area as a whole. Over the last decade covered by the projections, France's GDP will post some of the strongest growth in the euro area, increasing by 1.8%, compared to 1.5% in the euro area.

Table 2: Comparison of assumptions

	France			Euro area
	COR - C sc. - Dec. 2014	COR - B sc. - Dec. 2014	2015 Ageing Report	2015 Ageing Report ^a
Average fertility rate between 2013 and 2060	1.95		1.99	1.65
Average net migration (% of population)	100,000 (0.14%)		82,500 (0.12%)	761,300 (0.22%)
Life expectancy at birth, 2060	Females: 91.1 years Males: 86.0 years		Females: 90.0 years Males: 85.2 years	Females: 89.5 years Males: 85.2 years
Unemployment rate in 2060	7.0%	4.5%	7.5%	6.7%
Average labour productivity growth rate between 2013 and 2060	1.2%	1.4%	1.3%	1.4%
Short-term: 2013-2020	1.0%	1.0%	1.0%	0.8%
Medium-term: 2020-2040	1.3%	1.5%	1.2%	1.4%
Long-term: 2040-2060	1.3%	1.5%	1.5%	1.6%

a. Up until 2023, the productivity growth rate figures refer to the apparent productivity for France, whereas they refer to the potential productivity for the euro area, as data on apparent productivity are not published.

Source: The 2015 Ageing Report; COR, December 2014; 2010 INSEE population projections.

- (5) The unemployment rate assumptions are defined for metropolitan France in the COR, whereas the AWG considers the whole France including overseas territories.
- (6) The labour force participation ratios for all countries are derived using the cohort method developed by the European Commission. The COR projections are based on labour force projections produced by the INSEE in 2011 (see Filatriau, 0. (2011), « Projections à l'horizon 2060 : Des actifs plus nombreux et plus âgés », *Insee Première* No. 1345).

2. Retirement benefit expenditure as a share of GDP is projected to fall by 2.6 points between 2013 and 2060 to reach 11.2% of GDP

2.1 The impact of the ageing population on retirement benefit expenditure will be offset by a decrease in the ratio of average benefits to earnings and by later retirement

The share of the projected retirement benefit expenditure on GDP can be split into four economic factors in order to identify the driving forces of the projection results:

$$\frac{\text{Retirement benefits}}{\text{GDP}} = \frac{\left(\frac{\text{Population 65+}}{\text{Population 20-64}} \right) \times \left(\frac{\text{Number of pensioners}}{\text{Population 65+}} \right) \times \left(\frac{\text{Average benefit per pensioner}}{\text{GDP per hour worked}} \right) \times \left(\frac{\text{Population 20-64}}{\text{Hours worked}} \right)}$$

} Dependency ratio
} Coverage ratio
} Benefit ratio
} Labour market

- The dependency ratio tracks the ageing of the population.
- The coverage ratio tracks changes in retirement ages.
- The benefit ratio tracks the average standard of living for pensioners compared to workers.
- The labour market ratio tracks changes in employment rates.

The smaller share of retirement benefit expenditure is the result of more than 20 years of reforms. The 1993 reform, which endorsed the indexation on prices of pensions and wages used to calculate retirement benefits, contributed to slow the growth of retirement benefit expenditure⁷ over the whole projection period. The 2003, 2007/2008, 2010 and 2014 reforms that increased the contributory period for full benefits, raised statutory retirement ages and brought the civil service pension scheme into line with the general scheme, lead to an increase of the effective retirement ages⁸ and slowed the growth of retirement benefits. There are four distinct periods as regards changes in retirement benefit expenditure as a share of GDP (see Chart 6).

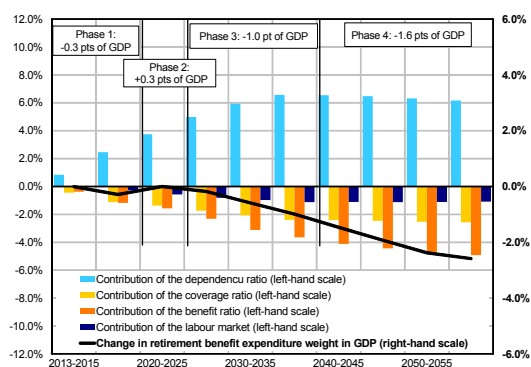
The retirement expenditure as a share of GDP should be stable overall until 2025. Two phases can be identified:

- **Phase 1:** Up until 2020, the share of retirement benefit expenditure should shrink slightly, by 0.3 points of GDP. The effects of recent reforms start to be perceivable in the coverage ratio: people are progressively compelled to retire later as the statutory retirement ages and the contributory periods for full retirement benefits are increased. According to the COR⁹ the main measures introduced between 2010 and 2012¹⁰ will, all else being equal, lead to a decrease of approximately 2.7% in the benefits paid out by the pension system as a whole by 2022, when the generation born in 1955 reaches the age of 67 years. Furthermore, GDP growth, driven by the closing of the output gap, will automatically reduce the ratio of retirement benefit expenditure to GDP through the benefit ratio. All in all,

these two effects will more than offset the increase in retirement benefits driven by the dependency ratio.

- **Phase 2:** From 2020 to 2025, the share of retirement benefit expenditure should return to its 2013 level as a result of the combined effects of slower growth and continued ageing of the population, since the 2010 pension reform will no longer bear on the growth of benefits.

Chart 6: Retirement benefit expenditure as a share of GDP compared to 2013 and contributions



Source: INSEE, Destinie model, DG Trésor calculations.

Scope: Retirement benefit expenditure (excluding disability benefits). Key: Between 2055 and 2060, the share of retirement benefit expenditure is 2.6 points of GDP lower than in 2013. The ageing of the population (contribution of approximately +6 points) is more than offset over the entire period by the decrease in the gross replacement rate (contribution of approximately -5 points), an increase in retirement ages (contribution of approximately -2.5 points) and lower unemployment (contribution of approximately -1 point).

The share of retirement benefit expenditure should decrease steadily after 2025, down to 11.2% of GDP in 2060. This decrease will take place in two phases:

- **Phase 3:** From 2025 to 2040, new pensions will continue to increase moderately. On the one hand, the 2014 reform calls for gradually longer contributory periods to be eligible for the full rate, up to 43 years for cohorts born in 1973 or later. This longer contributory period should limit retirement benefits growth. On the other hand, compared to the older generations, the new generations will have more fragmented careers, with high unemployment and an increase in the number of pensioners collecting benefits from multiple schemes, meaning less entitlement to benefits. Higher growth over the period, stemming from a decline in unemployment and faster productivity growth, will reduce retirement benefit expenditure as a share of GDP. All in all, the coverage ratio, which tracks the change in retirement ages, and the ratio of average benefits to average earnings, should both decrease substantially over the period.

- **Phase 4:** Starting in 2040, retirement benefit expenditure as a share of GDP should continue to decline. The decrease in the average benefit ratio should keep decreasing. On the one hand, benefits will increase moderately because of the indexation on prices of pensions and the reference wage

(7) See Marino, A. (2014), « Vingt ans de réformes des retraites : quelle contribution des règles d'indexation ? », *Insee Analyses* No. 17.
 (8) See Duc, C. (2015), « Les réformes des retraites depuis 1993 augmentent à terme l'âge moyen de départ de deux ans et demi », *Drees, Études et résultats* No. 0915.
 (9) "Compléments aux perspectives du système de retraite en 2020, 2040 et 2060", COR, meeting of 26 February 2013.
 (10) For example, the gradual 2-year increase in the full rate retirement age and the earliest retirement age, and changes to the rules governing early retirement for long careers or civil servants with more than three children.

used to compute pensions, modest productivity growth in the past and the slow reduction of unemployment over the previous period. On the other hand, earnings growth should be higher after 2040, as productivity growth speeds up. Furthermore, the entry into the labour market of larger numbers of young workers born at the beginning of the

projection period should help halt the ageing of the population.

The substantial decrease of retirement benefit expenditure as a share of GDP improves the sustainability of public finances (see Box 3).

Box 3: The AWG's findings show an improvement in the net present value of the age-related cost component in the public finance sustainability indicator S2

The AWG projections are used to assess the sustainability of public finances across Europe. The age-related expenditure projections are used to calculate a harmonised indicator of the long-term sustainability of public finances: the "S2" indicator. This indicator is presented in the Fiscal Sustainability Report^a. It measures the immediate and lasting improvement in the structural primary fiscal balance that would be required to prevent a long-term rise in the debt-to-GDP ratio. The S2 indicator is calculated for a given date as the sum of two terms: (i) the gap between the structural primary balance and the balance that would stabilise the debt ratio in the long term, and (ii) the present value of age-related costs^b. The present value of age-related costs stands at -1.3 points of GDP^c in 2015, as the contribution of a decreasing share of retirement benefits in GDP (-2.0 points) is partly offset by other increasing age-related expenditures (+0.7 points): disability benefits, health care, long-term care, education and unemployment benefits.

The present value of age-related costs, as measured by the AWG, is also found in one of the components used to define the medium-term objective^d (MTO) that the Member States set for the structural government balance. The MTO is key to the preventive arm of the Stability and Growth Pact. It is updated at least once every three years. Until it is met, the Member States must produce a structural adjustment of public finances of at least 0.5 points of GDP each year to converge towards the objective. France set a MTO of 0.4% in the 2014-2019 Public Finance Planning Act of 29 December 2014.

The Member States' MTOs will be updated on the basis of the projected present value of age-related expenditure. In France's case, the substantial decrease of age-related expenditure as a share of GDP means that the component defined using the present value of age-related expenditure is less restrictive than that set in the Treaty on Stability, Coordination and Governance (structural deficit of 0.5%). Consequently, the latter value will be the one used to calculate the MTO.

- Every three years, the European Commission publishes a Fiscal Sustainability Report based on the projections of age-related expenditure produced by the AWG. The report based on the projections presented in this article has not yet been published as of the date of this writing.
- The present value of age-related costs is the impact that the ageing of the population has on future changes in the primary balance under a no-policy-change scenario. For a detailed description of S2, see Magnien, M. and T. Lellouch (2011), "How will 2010 pensions reform contribute to the sustainability of public finances after the crisis?", *Trésor-Economies* No. 91.
- The assumptions used for calculating the present value are the AWG assumptions about GDP growth. The real interest rate is the one from the 2015-2018 Stability Programme up until 2019, after which it is assumed that it will converge in a straight line towards 3% starting in 2023. The figure given in France's Stability Programme is slightly different because the reference date is different. The assessment produced by the Commission in the Fiscal Sustainability Report could also differ because of different assumptions.
- For a description of the calculation of the MTO, see "Vade mecum on the Stability and Growth Pact" by the European Commission, *Occasional Papers* 151, page 20 (2013).

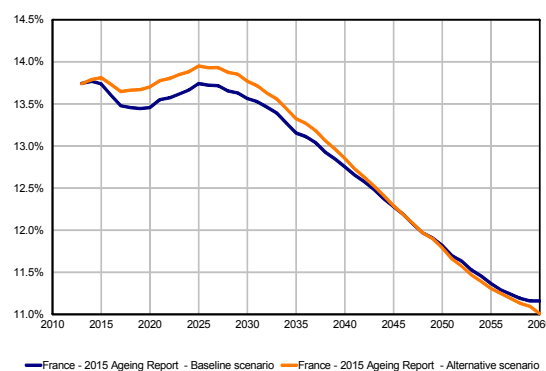
2.2 The projection results are not sensitive to the retirement behaviour assumption

The assumption about retirement behaviour is that individuals time their retirement to obtain full retirement benefits (through age or contributory period). A variant was produced to assess the impact of this assumption on the projection results. In the "baseline" simulation, the fact that individuals wait until they are eligible for the full rate before retiring could lead to a gap between the age at which they exit the labour market and the age at which they claim their retirement benefits. Under the "alternative" simulation, only the assumption about retirement timing is changed. Individuals in work wait until they are eligible for the full rate before retiring, whereas individuals who are not in work claim their benefits as soon as possible.

Under the "alternative" scenario, the result is that retirement comes one year sooner on average. This means the number of pensioners is higher (+900,000 in 2060). In financial terms, the impact is offset by the fact that retirement benefits are reduced. Individuals who retire before being eligible for the full rate receive lower benefits. For example, the reduction under the general pension scheme is 1.25% for each quarter of pensionable service short of the full contributory period. In this case, the average pension under the "alternative" scenario is 5% lower in

2060 than under the "baseline" scenario. The overall path of retirement benefit expenditure as a share of GDP is fairly similar under both scenarios (see Chart 7). **This simulation confirms that the French pension system is actuarially neutral at the margin at the macroeconomic level¹¹.**

Chart 7: Retirement benefit expenditure as a share of GDP depending on retirement behaviour



Source: INSEE, *Destinie* model, DG Trésor calculations.

Scope: Retirement benefit expenditure (excluding disability benefits). Key: In 2060, retirement benefit expenditure as a share of GDP stands at approximately 11.2% under the baseline scenario and 11.0% under the alternative scenario.

(11) See Briard, K. and S. Mahfouz (2011), « Modulations de la retraite selon l'âge de départ : principes directeurs et évolutions depuis les années 1980 », *Économie et Statistique* No. 441-442.

3. The AWG projections show a larger decrease in retirement benefit expenditure as a share of GDP than the COR projections (B scenario) because of demographic and macroeconomic assumptions that are more favourable for the sustainability of public finances

3.1 In France, the COR henceforth produces national projections of retirement benefit expenditure every year

The COR updated its projections of retirement benefit expenditure in June 2015, working with an updated version of the projections from December 2014. The assumptions do not include any policy change beyond the 2014 reform.

The COR produced five scenarios based on different unemployment and productivity growth assumptions. B scenario is closest to the AWG scenario (see Part 1) in terms of long-term productivity growth. Retirement benefit expenditure as a share of GDP is very sensitive to the productivity growth assumption, as the COR projections show. This is why the AWG projection is compared to COR's B scenario.

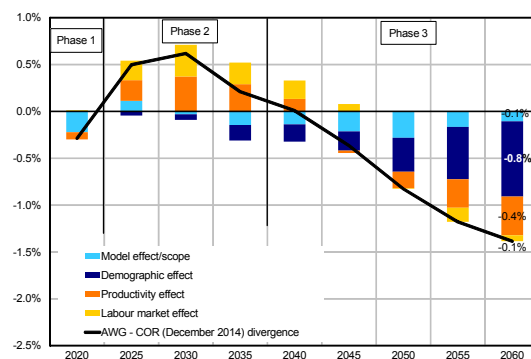
3.2 The COR projections (B scenario) show a smaller decrease in retirement benefit expenditure as a share of GDP between 2013 and 2060 (–1.3 points of GDP, compared to –2.6 for the AWG)

The latest projections by the COR show a 1.3-point decrease in retirement benefit expenditure as a share of GDP from 2013 to 2060, but this decrease is only half of the 2.6-point reduction shown in the baseline scenario of the AWG projections. This difference has been broken down to show the various reasons for it: effects of the projection model itself, along with the effects of the demographic, productivity and unemployment assumptions. Several simulations were carried out for this purpose, starting with the COR scenario and replacing its assumptions with the AWG assumptions one by one, starting with the microsimulation model itself, and then the demographic, productivity, unemployment and participation rate assumptions. The GDP growth rate in each scenario was reconstituted in line with the demographic, productivity and employment assumptions. The contribution of each assumption is estimated simply as the differences in retirement benefit expenditure as a share of GDP between the various scenarios. Three phases can be identified in the divergence between the COR findings and those of the AWG.

In the short term, up until 2020, retirement benefit expenditure as a share of GDP should decrease more under the AWG projections as a result of slightly more favourable macroeconomic developments (see Chart 8). Generally speaking, macroeconomic conditions affect the denomi-

nator of the benefits/GDP ratio in the short term and affect the numerator with a greater lag, as a result of the amount of earnings taken into account when calculating retirement benefits.

Chart 8: Decomposition of the difference between the AWG results and the COR results (base year = 2013)



Source: INEE, *Destinie* model, DG Trésor calculations.

Scope: Retirement benefit expenditure (excluding disability benefits). Key: In 2060, the AWG productivity assumptions explain 0.4 points of GDP in the difference between the COR 2013-2060 path and that of the AWG.

In the medium term, from 2020 to the mid 2030s, slower productivity growth and higher unemployment will weaken GDP growth, meaning that retirement benefit expenditure as a share of GDP is greater under the AWG projections. During this phase, the lagged effect on retirement benefits will not yet be felt.

In the longer term, after 2035, the lagged effect on retirement benefits will lower benefits in the AWG projections, leading to a decrease in benefits as a share of GDP. The differing productivity and unemployment assumptions account for 0.4 points and 0.1 points respectively of the divergence between the two sets of projections in 2060. Furthermore, the AWG demographic assumptions are more favourable after 2035. On the one hand, the larger number of births at the beginning of the period sustains strong employment and, on the other hand, the life expectancy assumptions of the two projections gradually diverge. The contribution from the differing demographic assumptions of the AWG and the COR increases over time. This contribution explains 0.8 points of GDP of the divergence in 2060.

4. International comparisons show that pension expenditure (retirement and disability benefits) should decrease much more in France than in other European countries

In international comparisons, the only expenditure data published are the aggregate figures for retirement benefits and disability benefits. This aggregate corresponds to the "pensions" component. Therefore, this section compares expenditure on retirement and disability benefits across European countries.

France is in a generally favourable position compared to its European partners when it comes to coping with its ageing population. It shows the largest decrease in pension expen-

diture as a share of GDP among the leading euro area countries¹², with a contraction of 2.8 points of GDP between 2013 and 2060. Average pension expenditure for the euro area should remain stable, but with increases in Germany (+2.7 points of GDP between 2013 and 2060) or in Belgium (+3.3 points of GDP, see Chart 9). In 2060, France's pension expenditure should be in line with the European average (12.1% of GDP for France; 12.3% of GDP for the euro area, see Table 3).

(12) The leading euro area countries are defined as countries where the 2013 GDP accounted for more than 3% of the euro area GDP.

Table 3: Public pension expenditure in the leading euro area countries in 2060 (% of GDP)

Netherlands	Spain	France	Euro area	Germany	Italy	Austria	Belgium
7.8%	11.0%	12.1%	12.3%	12.7%	13.8%	14.4%	15.1%

Source: The 2015 Ageing Report.

Scope: Pension expenditure (retirement and disability benefits).

Chart 9: Public pension expenditure in the main euro area countries (2013-2060)



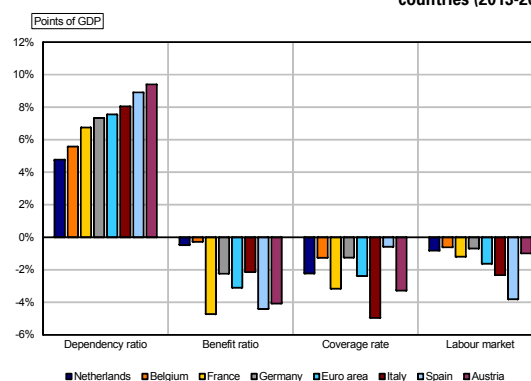
Source: The 2015 Ageing Report.

Scope: Pension expenditure (retirement and disability benefits).

France's strong birth rate makes it one of the euro area countries where the dependency ratio makes a relatively limited contribution to the rise in pension expenditure, in contrast to Italy, Spain and Austria, where the ageing of the population is more pronounced (see Chart 10). France also stands out with Spain and Austria with a relatively large contribution of the benefit ratio to decreasing pension expenditure (-4.7 points of GDP, compared to -3.1 points in the euro area). France has a relatively generous retirement system in 2013, where the average benefit was equivalent to 51.3% of average earnings, compared to 46.2% in

the euro area. France should converge towards the euro area average in 2060, with 38.9% for France and 37.5% for the euro area. The decrease in the coverage ratio in France, which stems partly from an increase in the retirement age, should also be one of the largest decreases in the euro area, following a relatively high coverage ratio in 2013 in international comparisons.

Chart 10: Contributions to pension expenditure in the main euro area countries (2013-2060)



Source: The 2015 Ageing Report.

Scope: Pension expenditure (retirement and disability benefits).

Key: In the euro area, the ageing of the population (contribution of approximately +7.5 points) would be offset by the decrease in the gross replacement rate (contribution of approximately -3 points), an increase in retirement ages (contribution of approximately -2.5 points), and lower unemployment (contribution of approximately -1.5 points), see page 5 for a detailed description of the various indicators.

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