TRÉSOR-ECONOMICS

The October 2015 agreement on France's complementary pension schemes for private-sector employees (AGIRC and ARRCO) will improve the pension system balance by 0.3 points of GDP from 2020 to 2060

■ France has two points-based pay-as-you-go compulsory complementary pension schemes for private-sector employees: AGIRC covers managerial and executive staff (*cadres*), and ARRCO covers non-executives (*non-cadres*). The schemes were established in the second half of the twentieth century and are managed directly by the social partners (trade unions and employer organisations).

■ Without adjustments, both schemes faced the risk of exhausting their financial reserves: according to a 2014 report by the French Supreme Audit Institution (*Cour des comptes*), this could have occurred in 2018 for AGIRC and 2027 for ARRCO. In response, the social partners agreed on 30 October 2015 to a series of measures relating to: (i) the amounts of pension benefits paid to retirees, (ii) retirement age, with incentives to postpone retirement, (iii) governance, with the merger of the executive and non-executive schemes, and (iv) social contributions.

- The measures concerning the amounts of pension benefits are being implemented from 2016 to 2018; part of the adjustment affects current pension recipients by restricting nominal increases in existing pensions, and part will affect future pensioners by making the pension system less generous in the long run.

- Incentives to remain in employment ("solidarity coefficients" and "increase coefficients") should raise the effective retirement age and maintain around 100,000 additional persons in the labour force in 2025, thus raising the amount of contributions.

- Merging the AGIRC (executive) and ARRCO (non-executive) schemes in 2019 will simplify the pension system and reduce administrative costs.

- In the new unified scheme, the contribution assessment base will be broadened and certain contribution rates will be increased.

■ The combination of these measures improves the balance of the entire pension system by 0.3 points of GDP starting in 2020 (see Chart on this page), according to DG Trésor projections made using the Aphrodite pension dynamic microsimulation model. The improvement continues through the 2060 projection horizon. The assessment presented here is broadly consistent with the estimate at the 2030 horizon set out in the text of the agreement between the social partners.

Impact of AGIRC-ARRCO agreement on overall financial balance of French pension schemes (% of GDP)

Source: Aphrodite model, DG Trésor; Destinie model, Insee (biographical data).

Interpretation: The AGIRC-ARRCO agreement would improve the balance of the pension schemes by slightly more than 0.3 points of GDP in 2020.
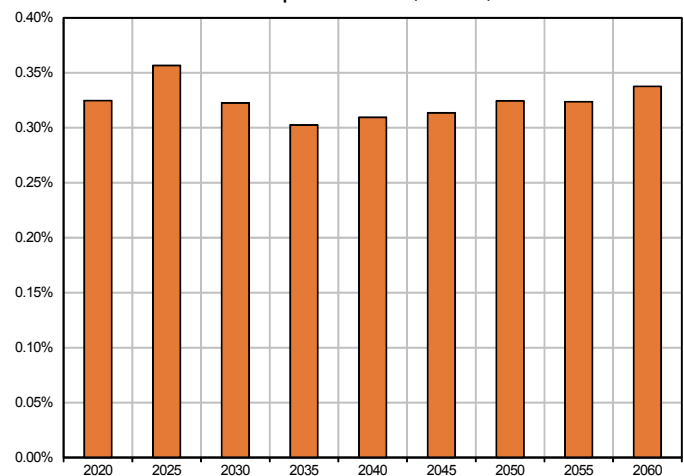
1. The AGIRC and ARRCO schemes

1.1 The AGIRC and ARRCO schemes are France's compulsory complementary pension schemes for private-sector employees

AGIRC (*Association Générale des Institutions de Retraite des Cadres*: General Association of Retirement Institutions for Executives) and ARRCO (*Association pour le Régime de Retraite Complémentaire des Salariés*: Association for Employees' Complementary Pension Schemes) are the complementary pension schemes for private-sector employees who also contribute to the general National Pension Fund (*Caisse Nationale d'Assurance Vieillesse*: CNAV) for their basic retirement pension. The General Social Security Scheme (*Régime Général de la Sécurité Sociale*) was established after the Second World War. The social partners later set up AGIRC under a national collective agreement on 14 March 1947, and ARRCO under an inter-industry agreement on 8 December 1961. Since 1973, all private-sector employees subject to mandatory insurance under either the general scheme or agricultural social insurance schemes are subject to mandatory coverage by ARRCO and, if applicable, by AGIRC. The AGIRC and ARRCO schemes are managed by the social partners (trade unions and employer organisations).

Under these compulsory schemes, private-sector non-executive employees contribute to ARRCO, and executives contribute to both ARRCO and AGIRC. Agricultural employees who contribute to the Agricultural Social Mutual Fund (*Mutualité Sociale Agricole*: MSA) for their basic retirement pension also contribute to ARRCO for their complementary pension.

Eighteen million employees contributed to ARRCO in 2014 (see Table 1), making it the largest pension scheme by number of contributors. The scheme pays retirement benefits to 12 million people. Over one-fifth of ARRCO contributors–some 4 million executive employees–also contribute to AGIRC, which pays retirement benefits to slightly under 3 million pensioners.

On average, for non-executive employees who contributed to only one basic scheme, the ARRCO complementary pension accounts for one-third of total retirement benefits received, with the remainder provided by the basic (CNAV) retirement pension. For executives, the complementary pensions paid by AGIRC and ARRCO account for two-thirds of total retirement benefits.

Table 1: AGIRC and ARRCO contributors and recipients in 2014

	ARRCO	AGIRC
Contributors	18.1 m	4.1 m
Pensioners	12.2 m	2.87 m
Pensioners receiving old-age pension only	*9.23 m*	*2.25 m*
New pensioners in 2014	*540,000*	*126,000*
Average age at retirement (women)	62 yrs 5 months	62 yrs
Average age at retirement (men)	61 yrs et 9 months	62 yrs 2 months
Average annual old-age benefit in the scheme (women)	€2,863	€4,210
Average annual old-age benefit in the scheme (men)	€4,775	€10,472

Source: key figures for AGIRC and ARRCO, www.agirc-arrco.fr.

The AGIRC and ARRCO schemes reported surpluses in the early 2000s, but have accumulated growing deficits since 2008. In 2015, each scheme reported a deficit of approximately €2.5 bn (see Table 2). The most recent projections by France's Pensions Advisory Council (*Conseil d'Orientation des Retraites*: COR), with details for each scheme, were prepared in 2014, i.e., without taking account of the October 2015 agreement. The COR "B scenario" projected that both schemes would continue in deficit into the mid-2040s[1]. The October 2015 agreement, examined in this issue of *Trésor-Economics*, aims to restore the financial balance of the schemes.

Table 2: Financial results in 2015

	Arrco	Agirc
Receipts	€42.0 bn	€19.6 bn
Expenditures	€47.1 bn	€24.3 bn
Technical result after solidarity and AGFF balancing contribution	*–€2.5 bn*	*–€2.5 bn*

Source: key figures for AGIRC and ARRCO, www.agirc-arrco.fr.

1.2 The AGIRC and ARRCO schemes are points-based pension schemes

Unlike most of France's basic pension schemes, which are defined-benefit schemes, AGIRC and ARRCO are points-based schemes. Each year, contributions entitle the employee to a number of points. The unit price per point, called the **purchase value** (*valeur d'achat*), changes from year to year.

Upon retirement, the points acquired throughout the employee's career are converted at the then-current selling price, called the **service value** (*valeur de service*), which also changes from year to year. Like the other pension schemes in France, these are pay-as-you-go schemes. In other words, the contributions made in any given year by employees and employers are used to pay the pension benefits due in the same year.

1.2.1 Employees acquire AGIRC and ARRCO points based on the contribution rate, their salary and the purchase value of point

Contributions to AGIRC and ARRCO are computed on the basis of salary brackets (*tranches*), expressed as a multiple of Social Security Ceiling (SSC)[2]. Non-executive employees' contributions for ARRCO are based on Bracket 1 (salary below the SSC) and Bracket 2 (between 1 and 3 times the SSC). Executive employees' contributions to ARRCO are based on Bracket 1, and their contributions to AGIRC are based on Bracket B (between 1 and 4 times the SSC) and Bracket C (between 4 and 8 times the SSC).

A **"contractual" contribution rate** (*taux contractuel*), also known as the acquisition rate, is defined for each bracket (see Tables 3 and 4) and determines pension rights acquired by the

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(1) See the Pensions Advisory Council (COR) 2015 annual report, released June 2015, for a description of the B scenario.
(2) In 2016, the monthly Social Security Ceiling is €3,218.

employee. The contractual contribution rate is multiplied by an **adjustment factor** (*taux d'appel*). The product of the two is the **effective contribution rate** (*taux effectif*). The adjustment factor for AGIRC and ARRCO has been 125% since the mid-1990s. Accordingly, when a contributor pays €125, only €100 will serve to acquire pension rights.

The AGFF contribution (*Association pour la Gestion du Fonds de Financement de l'AGIRC et de l'ARRCO*) was established in 1983 to finance the March 1982 reform that lowered the reti-

rement age from 65 to 60. The AGFF contribution is due from executives and non-executives alike. It is a "non-contributory" solidarity contribution, and does not count towards additional points. AGIRC also levies the exceptional temporary contribution (*Contribution Exceptionnelle Temporaire*: CET) at the rate of 0.35% of executive employees' total income. It is also a solidarity contribution that does not count towards pension rights.

Table 3: Contribution rates for non-executives in 2015 (before 30 October 2015 agreement)

		Contractual rate (before adjustment factor)			Effective rate
		Total	**Employer**	**Employee**	
ARRCO	Bracket 1 (< 1 SSC)	6.20	3.72	2.48	7.75*
	Bracket 2 (1-3 SSC)	16.20	9.72	6.48	20.25*
AGFF	Bracket 1 (< 1 SSC)	2.00	1.20	0.80	2.00
	Bracket 2 (1-3 SSC)	2.20	1.30	0.90	2.20

Source: AGIRC and ARRCO, www.agirc-arrco.fr.
* including adjustment factor of 125%.

Table 4: Contribution rates for executives in 2015 (before 30 October 2015 agreement)

		Contractual rate (before adjustment factor)			Effective rate
		Total	**Employer**	**Employee**	
Arrco	Bracket 1 (< 1 SSC)	6.20	3.72	2.48	7.75*
Agirc	Bracket B (1-4 SSC)	16.44	10.20	6.24	20.55*
	Bracket C (4-8 SSC)	16.44	The split is determined by the employer		20.55*
AGFF	Bracket 1 (< 1 SSC)	2.00	1.20	0.80	2.00
	Bracket B(1-4 SSC)	2.20	1.30	0.90	2.20
CET	Bracket 1 (< 1SSC)	0.35	0.22	0.13	0.35
	Bracket B (1-4 SSC)	0.35	0.22	0.13	0.35
	Bracket C (4-8 SSC)	0.35	0.22	0.13	0.35

Source: AGIRC and ARRCO, www.agirc-arrco.fr.
* including adjustment factor of 125%.

Each contribution, after being divided by the adjustment factor, is used to acquire points at the value specified by the current year's **"purchase value of point"**, that is, in 2015, €5.3075 with AGIRC and €15.2589 with ARRCO. The purchase value of points evolves in accordance with rules defined by the social partners. Since the mid-1990s, the purchase value has significantly outpaced inflation, and sometimes even earnings growth[3].

For example, a full-time employee paid at the minimum wage (SMIC) earned a gross annual salary of €17,490 in 2015. Because this was below the Social Security Ceiling, the only contributions for the employee were in Bracket 1 with ARRCO, at the effective rate of 7.75%. The amount contributed by the employee and employer came to €1,355, but only €1,084 of that (€17,490 times the 6.20% contractual rate) counted towards the acquisition of points–in this case, 71 points (€1,084 divided by the €15.2589 purchase value of point).

1.2.2 Pension benefits are calculated on the basis of the total number of points accrued, the individual's retirement age and contributory period, and the service value of point

Upon retirement, all points accrued over the individual's career are added up. The pension is the product of three terms:

Monthly retirement benefit = Total number of points x Coefficient x Service value of point

- The total number of points is the sum of points accrued over time.
- The **service value of point** in 2015 was €0.4352 for AGIRC and €1.2513 for ARRCO. The service value of point

evolves according to rules defined by the social partners. Since 1980, adjustments in the service value of point have broadly tracked inflation. However, to address the deteriorating financial situation of AGIRC and ARRCO, the social partners have taken exceptional measures in recent years to restrict increases in retirement benefits. In both 2014 and 2015, pension benefits were adjusted by the rate of inflation minus one point (subject to the provision that nominal pensions were not allowed to fall). The 30 October 2015 agreement also provides for underindexation of service values of points (see below).

- The coefficient is equal to 1 if there is no permanent (lifetime) reduction, no solidarity coefficient and no increase coefficient (see below).

To receive a complementary pension at the full rate (coefficient equal to 1), in the same way as for the basic scheme, an individual must have reached the statutory retirement age for his or her birth cohort (62 years, starting with the 1955 birth cohort) and must also have accrued the number of quarters required for a full pension. Individuals wishing to retire earlier but without a full pension are eligible to claim starting at age 57, but the pension benefit is subject to a permanent (lifetime) reduction that depends on the number of quarters missing. The permanent reduction is 1% per missing quarter for the first 12 quarters, 1.25% per quarter between 12 and 24 quarters, and 1.75% for each additional quarter. There is no permanent reduction if the individual takes retirement at the age at which the lifetime reduction factor no longer applies irrespective of the number of quarters (67 years, starting with the 1955 birth cohort).

(3) See: COR Secretariat-General (2015), *Les revalorisations appliquées depuis les années 1980 dans les principaux régimes de retraite français*, document for COR, February 2015 plenary session entitled "*La revalorisation des pensions et des droits à la retraite: problématique et résultats de projection*".

TRÉSOR
DIRECTION GÉNÉRALE

1.2.3 The benefit-to-contribution ratio measures the generosity of the schemes

The **benefit-to-contribution ratio** (*taux de rendement*) of a scheme expresses the relationship between contributions paid and pension benefits received. It corresponds to the ratio between the service value of point and the purchase value of point, divided by the adjustment factor of 125%. It reflects the generosity of the scheme: the higher the rate, the higher the retirement benefits in comparison with contributions paid in. In 2015, for ARRCO, the "instantaneous" benefit-to-contribution ratio was equal to: service value of point (1.2513) / purchase value of point (15.2589) / adjustment factor (125%) = 6.56%. In other words, for each €100 in effective contribution, the individual is eligible for an annual pension of €6.56 (before adjustments for inflation).

1.2.4 The schemes have established solidarity mechanisms

The three main solidarity mechanisms relate to:

1. **Unemployment:** Unemployment benefits enable to acquire points, subject to certain conditions.

2. **Increases for 3 or more children, or for dependent children:** AGIRC and ARRCO increase benefits by 10% for beneficiaries who have raised 3 or more children. There is also an increase for dependent children or disabled children.

3. **Survivor pensions:** Survivor pensions of 60% are payable subject to certain conditions, for beneficiaries starting at age 55 for ARRCO and 60 for AGIRC[4].

2. The 30 October 2015 agreement introduces a series of measures to improve the schemes' financial situation

Faced with the risk of exhausting their financial reserves–in the absence of new adjustments, this could have occurred in 2018 for AGIRC and 2027 for ARRCO[5], according to a 2014 report by the French Supreme Audit Institution (*Cour des comptes*)–the social partners agreed on 30 October 2015 to a series of measures. The agreement aims to improve the position of the complementary pension schemes in two stages. First, between 2016 and 2018, parametric changes are intended to reduce the benefit-to-contribution ratio of both schemes, and to restrain expenditures. Second, in 2019, AGIRC and ARRCO will be merged into a unified scheme, which will include additional incentives to work longer[6].

2.1 The values of points (purchase value and service value) will be modified between 2016 and 2018

Some changes in the values of points between 2016 and 2018 will affect current pensioners by changing their pension benefits; others will impact future pensioners by reducing the scheme's generosity in the long term.

Current pensioners will be affected by two changes in the service value of points, which will generate savings in the short term:

- Shifting the date for pension benefit adjustments, along with a change in the rule for indexation of the service value of point. Adjustments previously occurred on 1 April, and were based on average annual inflation for the previous year. They will henceforth occur on 1 November and will be based on expected inflation for the current year.

- Underindexation of the service value of point, to be based on inflation minus 1 point[7], between 2016 and 2018.

The adjustment relating to future pensioners involves overindexation of the purchase value of points, based on the change in average income plus 2 points, between 2016 and 2018[8].

These measures would lower the benefit-to-contribution ratio for AGIRC and ARRCO from 6.56% in 2015 to slightly under 6% starting in 2019, reducing the rate at which points accrue to employees, and so leading to lower pensions in the long run (see below).

2.2 The agreement also introduces incentives to postpone retirement by creating "solidarity coefficients" (*coefficients de solidarité*) and "increase coefficients" (*coefficients majorants*)

The agreement provides for the creation of a system of "solidarity coefficients" and "increase coefficients" based on the age at which employees acquire full rights to the basic pension under the CNAV general scheme. The coefficients work in the following way:

- For individuals who retire less than one calendar year after the age at which they are entitled to a full basic pension, the AGIRC and ARRCO complementary pension benefits are reduced by a solidarity coefficient of 10% for three years or until they turn 67.

- Individuals who retire between one and two years after that age receive their full pension, with no solidarity coefficient or increase coefficient.

- For each additional year that the individual delays retirement, the pension is increased for one year by an increase coefficient of 10% (up to a maximum 30%).

- Pensioners exempted from the "general social security contribution" (*Contribution Sociale Généralisée*: CSG) and certain precarious categories of pensioners[9] are exempted from the solidarity coefficient (but are subject to the increase coefficient). Pensioners paying the CSG at the reduced rate[10] are subject to the solidarity coefficient but with a 5% reduction instead of 10%.

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(4) AGIRC allows the option of survivor pension benefits from the age of 55, but the amount may be reduced depending on the beneficiary's age.

(5) In the economic scenario used for these calculations (called "variant 2" in the Cour des Comptes report), long-term unemployment is 7%, and labour productivity growth is 1.5%, i.e., the same objectives as in the "1.5% scenario" in the COR's June 2016 report, but with slower convergence towards the long-term values than in the COR scenarios.

(6) In addition to these parametric changes, the agreement provides for multi-year management of complementary pension scheme starting 1 January 2019; this aspect is not addressed in the present issue of *Trésor-Economics*.

(7) With a floor to prevent a decline in nominal terms if inflation is less than 1%.

(8) Since the early 2000s, the purchase value of points has risen significantly faster than inflation, and sometimes even faster than earnings growth–without, however, exceeding the change in average income by more than 2 points.

(9) The 30 October 2015 agreement lists the conditions for exemption from solidarity coefficients.

(10) The standard CSG rate for pensioners is 6.6%. The reduced CSG rate (3.8%) and exemption from CSG are subject to means testing.

2.3 In 2019, the AGIRC and ARRCO schemes will be merged, the contribution assessment base will be expanded and some contribution rates will be increased

The AGIRC and ARRCO schemes will merge in 2019. This simplification measure should generate savings on administrative expenses–savings that are not quantified in this study[11]. Further, the distinction between executive and non-executive employees for complementary pension purposes will end, and all employees earning the same amounts will be entitled to the same pension. The income brackets will therefore be aligned, effectively making non-executives' income between 3 and 8 times the Social Security Ceiling (i.e., above Bracket 2) subject

to contributions–which was not previously the case (see Table 5).

In addition, the employee contractual contribution rate (i.e., before applying the adjustment factor) on the portion of income between 1 and 8 times the Social Security Ceiling will increase by 0.56 points on 1st January 2019, from 6.24% to 6.80%, while the employer's share of the contribution will remain unchanged. As a consequence, employers will pay 60% and employees 40% of the contribution (compared with 62% and 38% for AGIRC before the agreement). The adjustment factor will be raised from 125% to 127%. The agreement also provides for extension of the AGFF contribution to Bracket C of executives' pay (between 4 and 8 times the Social Security Ceiling) starting in 2016.

Table 5: Contribution rates for executives and non-executives in 2019 (after 30 October 2015 agreement)

		Contractual rate (before adjustment factor)			Effective rate
		Total	**Employer**	**Employee**	
Merged AGIRC-ARRCO scheme	Bracket 1 (< 1 SSC)	6.20	3.72	2.48	7.87*
	Bracket 2 (1-8 SSC)	17.00	10.20	6.80	21.59*
AGFF	Bracket 1 (< 1 SSC)	2.00	1.20	0.80	2.00
	Bracket 2 (1-8 SSC)	2.20	1.30	0.90	2.20
CET	Bracket 1 (< 1 SSC)	0.35	0.22	0.13	0.35
	Bracket e 2 (1-8 SSC)	0.35	0.22	0.13	0.35

Source: AGIRC and ARRCO, www.agirc-arrco.fr.
* including adjustment factor of 127%.

3. The measures in the agreement are expected to improve the overall financial balance of French pension schemes by 0.3 points of GDP starting in 2020

The measures in the 30 October 2015 agreement have been assessed with the DG Trésor Aphrodite microsimulation model (see Box 1) using the macroeconomic assumptions of the 2016-2019 Stability Programme[12] for the short term, the baseline scenario of the European Commissions's 2015 Ageing Report[13] for the long term, and the demographic assumptions

in the Eurostat population projections. The overall assessment of the measures in the agreement was presented for the first time in the 2016-2019 Stability Programme submitted to the European Commission in April 2016. This issue of *Trésor-Economics* details the results of the assessment.

Box 1: **Assumptions in this study**

The measures in the agreement have been assessed using the Aphrodite dynamic microsimulation model to simulate retirement decisions and pension benefits[a].

The model covers old-age pensions (direct entitlement benefits) but not survivor pensions (transferred right benefits). To assess the impact of the agreement on all pensions paid by the schemes, we assume that the measures affecting pensions (deindexation, reduction in the benefit-to-contribution ratio, increase in contribution rates that generate pension rights) have the same effect on survivor pensions as on old-age pensions, given that survivor pensions are calculated as a percentage of the deceased spouse's old-age benefit. From accounting data, we assume that the savings on AGIRC and ARRCO survivor pensions come to roughly 17% of the savings on AGIRC and ARRCO old-age benefits in 2013, and that the percentage declines by 5 points until 2060[b].

To allow for the fact that the Aphrodite model is not fully representative for executive employees, we adjust AGIRC contributions and retirement benefit expenditures using data from the French "Social Protection Accounts" (*Comptes de la Protection Sociale*) for 2013.

The projections assume that regulations are constant after 2019, and that purchase values and service values of points are indexed to inflation after 2019. In other words, we assume that the benefit-to-contribution ratio will remain constant.

Amounts are stated in 2013 euros.

a. See Cuvilliez J. and Laurent T. (2016), « *Le modèle de microsimulation dynamique des retraites Aphrodite* », *DG Trésor working paper* 2016/04.
b. In the long run, survivor pension expenditures as a share of old-age pension expenditures (all schemes combined) should decline by 5 points in 2060. See, for example, Chart 2 in Document 12 of the COR meeting on 15 October 2014, "La projection des retraites de réversion dans l'exercice 2012 du COR".

The projections were made on the basis of the baseline scenario of the 2015 Ageing Report, which sets out the harmonised european projections of pension expenditures. A major objective of the analysis of public finance sustainability in the Stability Programme is to generate comparable results across countries. This is possible using the Ageing Report scenario.

The assumptions in the simulation (7.5% long-term unemployment and 1.5% long-term real productivity growth) are very

close to those of the "1.5% scenario" in the June 2016 COR report (7% unemployment and 1.5% real productivity growth). Simulation of the impact of the agreement using the "B scenario" assumptions in the COR June 2015 report (4.5% unemployment and 1.5% real productivity growth) yields results that differ by only 0.05 points of GDP between 2020 and 2060, primarily owing to differences in the short-term macroeconomic scenarios.

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(11) In assessing the total impact of the agreement, the figures for this measure are those provided by the social partners.
(12) See 2016-2019 Stability Programme, April 2016.
(13) See Cuvilliez J. *et al.* (2015), "French retirement benefit expenditure set to shrink substantially as a share of GDP by 2060, according to European projections", *Trésor-Economics* no. 152, DG Trésor.

TRÉSOR
DIRECTION GÉNÉRALE

3.1 The Aphrodite microsimulation model is used to assess the specific impact of each measure introduced by the agreement

3.1.1 Deindexation of the service value leads to savings in the short term, while increasing the purchase value will have long-term effects

By deindexing the service value of points, and by postponing the pension-adjustment date, the agreement slows the growth of retirement benefit expenditures in the short term. To assess the impact of deindexation of the service value of point, we assume that the benefit-to contribution-ratio holds constant, i.e., that the purchase value and service value are deindexed in tandem. The resulting savings would come to €1.8 bn in 2020 (0.08% of GDP), taking survivor pensions into account. Combined with the postponement of adjustments pensions to 1 November of each year (€1.2 bn in 2020), this measure would generate €3 bn in savings in 2020, or 0.13% of GDP (see Chart 1).

Chart 1: Impact of changes in the values of points (service value and purchase value) on the AGIRC and ARRCO balance (% GDP)
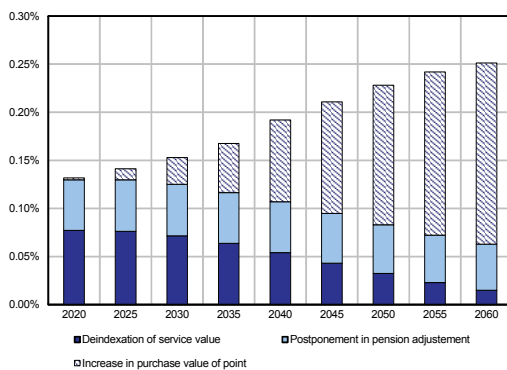
Source: Aphrodite model, DG Trésor; Destinie model, Insee (biographical data).
Note: The impact of deindexation of the service value of point is calculated assuming the benefit-to-contribution ratio holds constant.
Interpretation: Deindexation of the service value of point improves the AGIRC and ARRCO balance by 0.08 points of GDP in 2020. Postponing the adjustment date from April to November leads to an additional improvement of 0.05 points of GDP.

Raising the purchase value more than the service value reduces the benefit-to-contribution ratio of the AGIRC and ARRCO schemes and thus generates long-term savings. The measure will yield substantial savings in the long run but will be very slow to take full effect: the reduction in pension benefits from the complementary pension schemes should reach approximately 9% in the 2080s, when individuals entering the labour market in 2016 (i.e., when the measure is implemented) will cease to receive their pension. The reduction in the benefit-to-contribution ratio would reduce complementary pension scheme expenditures by approximately 7% in 2060 (or 0.19% of GDP).

3.1.2 The increase in contributions will raise the schemes' receipts; however, for contributions that generate additional pension benefit rights, the higher short-term receipts mean higher pension benefits in the long term

Extension of the AGFF contribution and the increase in the adjustment factor permanently improve the financial balance of the schemes because they do not create additional pension rights. These measures improve the balance by just under 0.01% of GDP and 0.04% of GDP, respectively, over the entire projection horizon (see Chart 2).

Combining the brackets and raising the employee contribution rate improves the balance in the short term, but is neutral for the balance in the long term because the higher contributions will increase pension system liabilities. This is explained as follows: non-executives will contribute on the portion of their income over three times the Social Security Ceiling and will therefore acquire additional points. Executives will contribute based on the same income, but at a slightly higher rate, and they too will acquire more points because of these measures.

Chart 2: Impact of higher contribution on the AGIRC and ARRCO balance (% GDP)
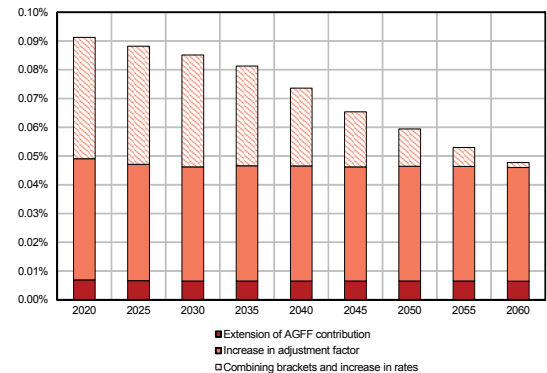
Source: Aphrodite model, DG Trésor; Destinie model, Insee (biographical data).
Interpretation: The increase in the adjustment factor improves AGIRC and ARRCO balances by 0.04 points of GDP in 2020.

3.1.3 The solidarity coefficients are projected to maintain an additional 100,000 persons in the labour force and improve the combined financial balance of the pension system by approximately 0.1% of GDP in 2025

Without any changes in individuals' retirement behaviour, the solidarity coefficients would reduce AGIRC and ARRCO retirement benefit expenditures by approximately €0.6 bn in 2025 (or 0.03% of GDP). The reduction accounts for 0.5% of the stock of pensions for AGIRC and 1.0% for ARRCO. The reduction is smaller for AGIRC because there are more AGIRC contributors (i) who are fully exempt from the solidarity coefficients if they retire at age 67 or later, and (ii) who would be affected by the solidarity coefficients for less than three years if they retire after age 64. Without any changes in retirement behaviour, the accounts of the other schemes would be unchanged.

To simulate retirement decisions by persons affected by the solidarity coefficients–and ignoring increase coefficients, which are not examined here–we assume that employees aim to preserve the same average amount of retirement benefit as they would have received before the reform[14] **(see Box 2). Under this assumption, retirement would be postponed by 1.2 months on average in 2025.** In that year, 65%[15] would not postpone retirement; 22% would postpone by one quarter and 12% would postpone by two to four quarters. These postponements would increase the labour force by approximately 100,000 in 2025. The growth in the labour force would then ease, as increasing numbers would retire with full retirement benefits at age 67 and would therefore not be subject to solidarity coefficients.

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(14) The assessment of this measure by the social partners assumed that approximately 95% of individuals would not change their behaviour, and that the remaining 5% would delay by 1, 2, 3 or 4 years. See Marais, S. (2016), "Accord national interprofessionnel relatif aux retraites complémentaires Agirc-Arrco-Agff du 30 octobre 2015", *Les cahiers études et statistiques AGIRC-ARRCO* no. 01. By contrast, the COR's latest projections (June 2016) rest on the assumption, at this stage, that the introduction of solidarity coefficients and increase coefficients would not cause individuals' behaviour to change.

(15) The proportions given are percentages of the population of individuals retiring between 2023 and 2027 after having contributed at least once to the basic pension scheme (CNAV).

The increase in contributions follows the same path as the labour force, reaching 0.03% of GDP in 2020 and 0.01% in 2060, as increasing numbers would not be subject to the solidarity coefficients.

Box 2: "Solidarity coefficients" and modelling retirement timing in Aphrodite

To simulate the impact of solidarity coefficients on retirement behaviour, we assume that individuals seek to preserve the same average pension amount as they would have received before the coefficients were introduced[a]. That average amount is computed as the average net present value of the pension amounts received each year. We apply an annual discount rate of 10% to take account of the higher value placed on immediate gains than on future gains[b]. Individuals who have no financial interest in delaying retirement (such as economically inactive persons) do not change their retirement timing.

Most of the time, persons in employment can offset the monetary losses due to solidarity coefficients by delaying retirement by one or two quarters. By postponing retirement, the employee (i) may improve the average annual salary taken into account for calculating the basic (CNAV) retirement benefit, because the final salary is generally higher than the average income, (ii) may qualify for a lifetime increase factor on the basic (CNAV) retirement benefit, and (iii) accumulates additional points in the complementary pension schemes.

To illustrate how this works, we estimate the impact of solidarity coefficients on retirement timing in a typical case, involving an executive employee (*cadre*) in continuous employment, born in 1960 (COR typical case n°1). Before the reform, the employee would have been able to retire on a full pension at age 62 (the legal minimum retirement age), after a contributory period of 168 quarters (one more than the period required for full benefits). His or her annual pension comes to €54,097 (€21,120 basic CNAV pension, €8,412 from ARRCO and €24,565 from AGIRC). Applying the solidarity coefficients reduces the pension by €3,298 a year for three years. By delaying retirement by one year, the annual pension is increased by €2,425 a year, over an average 25-year duration of retirement, owing to the lifetime increase (*surcote*) in the basic CNAV pension and the greater number of points with AGIRC and ARRCO. Taking the net present value of future flows at the discount rate of 10%, the solidarity coefficients reduce lifetime pension benefits by €8,937, and postponement of retirement by one year increases lifetime benefits by €22,512. In this case, postponing retirement by two quarters will suffice to offset the reduction caused by the solidarity coefficients[c].

Exemptions from and reductions in solidarity coefficients for individuals exempted from CSG, or subject to CSG at a reduced rate, cannot be directly simulated in the Aphrodite model in the absence of information on their taxable income, so their impact is not taken into account directly when simulating retirement behaviour[d]. However, to take the financial impact of the reductions and exemptions into account, we adjust the financial results of the simulation by a coefficient based on the percentage of AGIRC and ARRCO pension recipients exempted from CSG or subject to it at the reduced rate.

Many employees will probably not time their retirement as predicted by the model, however the simulation does serve to quantify how solidarity coefficients provide an incentive to postpone retirement.

a. This explains why the only impact measured here is that of the solidarity coefficients. Because individuals are not seeking a higher pension, increase coefficients are not applied.
b. See Frederick S., Loewenstein G. and O'Donoghue T. (2002), "Time Discounting and Time Preference: a Critical Review", *Journal of Economic Literature*, vol. 40, no. 2. The authors review various empirical assessments of the discount rate, most of which range from 1% to 20%. It can be assumed that seniors have a greater time preference for the present than younger people, because the mortality rate is higher for older adults. However, because pension income is "certain", future gains may be favoured over present gains. The 10% rate is the median of the range, but using a different discount rate would not significantly change the results of the study.
c. In drawing this conclusion, we assume, for the sake of clarity, that if postponing retirement by one year gains €22,512, then delaying retirement by six months gains €11,256. This is only true as a first approximation: while the gains arising from the permanent increase (*surcote*) in the basic scheme and additional points in the complementary pension schemes indeed accrue linearly with additional quarters, average annual salary is calculated on the basis of a calendar year.
d. A further reason is that individuals who delay retirement are well integrated into the labour market (and persons not in employment have no financial incentive to delay retirement). Such individuals receive above-average pensions and are therefore less likely to be exempt from CSG or subject to CSG at the reduced rate.

By 2025–once the system has ramped up–the solidarity coefficients are thus projected to improve the total balance for all pension schemes by 0.11% of GDP (see Chart 4). One-third of the gain is directly due to the application of solidarity coefficients and two-thirds to delayed retirement by individuals for whom postponement is financially advantageous.

Delayed retirement has two effects on pension expenditures: the number of pensioners declines, but on average pensioners receive more, owing to the additional rights acquired by postponing retirement. In the long run, these two effects cancel out, so that the reduction in AGIRC-ARRCO expenditures corresponds to the reduction in pensions obtained by applying solidarity coefficients to individuals who do not delay retirement (see Chart 3).

Chart 3: Breakdown of changes in pension expenditures by AGIRC and ARRCO due to introduction of solidarity coefficients (% of pensions)
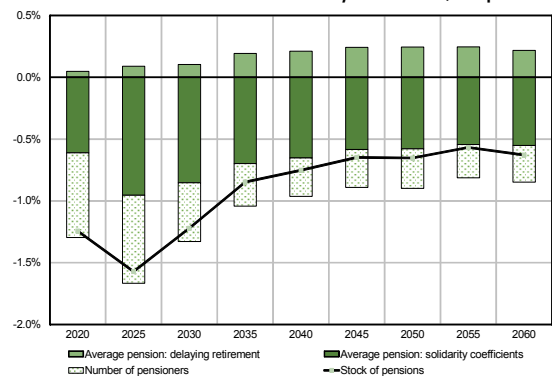
Legend: Average pension: delaying retirement; Average pension: solidarity coefficients; Number of pensioners; Stock of pensions

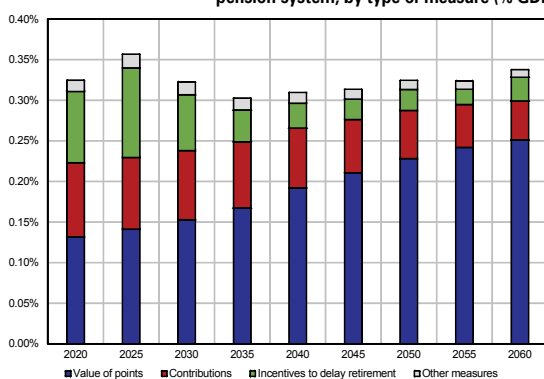*Source: Aphrodite model, DG Trésor; Destinie model, Insee (biographical data).*
Interpretation: The introduction of solidarity coefficients is projected to lower AGIRC and ARRCO pension expenditures by 1.2% in 2030. This decrease reflects a 0.9% reduction directly due to the solidarity coefficients, a 0.5% reduction due to delayed retirement, which lowers the number of pensioners, and a 0.1% increase in the average pension benefit due to additional rights accrued by delaying retirement.

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3.2 Overall impact of the measures

3.2.1 The measures provided in the AGIRC-ARRCO agreement should improve the financial balance of the entire pension system by approximately 0.3% of GDP over the entire horizon of the projection

The AGIRC-ARRCO agreement is projected to improve the overall financial balance of the French pension system by 0.3% of GDP from 2020 to 2060, thereby improving public finance sustainability[16]. Most of the improvement comes from the AGIRC-ARRCO schemes, with two-thirds stemming from lower expenditures and one-third from higher receipts. In particular, the reduction in the benefit-to-contribution ratio for the AGIRC and ARRCO schemes is expected to account for a large share of the improvement in the balance of the pension system at the 2060 horizon (see Chart 4).

Chart 4: Impact of AGIRC-ARRCO agreement on the balance of the entire pension system, by type of measure (% GDP)

Source: Aphrodite model, DG Trésor; Destinie model, Insee (biographical data).
Note: Other measures (savings on administration expenses, in particular) are not factored into the Aphrodite model. For these measures, the figures used are those provided by the social partners. Cost savings are assumed constant after 2030.
Interpretation: The balance of the total French pension system is projected to improve by nearly 0.35% of GDP in 2060, of which 0.25% is attributable to measures concerning the value of points, 0.05% to measures regarding contributions, and 0.03% to incentives to delay retirement.

3.2.2 The DG Trésor assessment of the measures in the agreement is consistent with the figures set out in the agreement itself

AGIRC-ARRCO expects the balance to improve by €6.1 bn in 2020 and €8.6 bn in 2030, compared with €6.5 bn and €8.0 bn, respectively, in the DG Trésor assessment for the same schemes.

Compared with the figures set out in the agreement, the DG Trésor foresees a slightly smaller impact from increasing the purchase value of point (€0.8 bn in 2030, compared with the agreement's €1.1 bn) and from deindexation of pension benefits (€1.9 bn in 2030, compared with €2.6 bn), but a greater impact from the solidarity and increase coefficients (on the AGIRC and ARRCO accounts, €1.1 bn in 2030, compared with €0.8 bn in the agreement). The impact of the other measures is similar in both projections. The discrepancies between the projections arise from differences in the macroeconomic scenarios, in the models used, and in how retirement timing is modelled through the introduction of the solidarity and increase coefficients.

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(16) This assessment of the impact of the agreement on public finance sustainability was presented in the 2016-2019 Stability Programme.

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