



Independent Authority
for Fiscal Responsibility

Opinion

3rd November 2015

Opinion on the determination of the 2016 Pension Revaluation Index (PRI)

The mission of AIREF, the Independent Authority for Fiscal Responsibility, is to ensure strict compliance with the principles of budgetary stability and financial sustainability contained in article 135 of the Spanish Constitution.

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Executive Summary

The aim of the Pension Revaluation Index (PRI) is to consolidate the medium and long-term financial stability of the contributory component of the Social Security system in which public pensions have a prominent place.

On the basis of the analysis it has conducted, AIReF has been able to conclude that with the figures used by the Ministry of Employment & Social Security contributory pensions should be increased by the minimum 0.25% rate in 2016, as stated in the State General Budget Law for 2016, because the result of the mathematical formula determining the PRI is a lower percentage.

The conclusion reached by AIReF following its analysis is that the expenditure forecasts used by the Government in the reference period 2015-2021 are in line with AIReF's own estimates. However, the Government's revenue forecasts are optimistic. This is due primarily to the high probability of downside deviations occurring in 2015 and 2016 that would significantly reduce the likelihood of achieving the forecast revenue figure in 2021, the last year in the reference period. For 2021 AIReF estimates a probability of just below 20% that the Government's revenue scenario for the Social Security system will materialise.

The Government's forecast net balance between revenue and expenditure in the years up to 2018 falls outside the confidence bands of the estimates prepared by AIReF. After a progressive improvement in the balance in the years following 2018, the probability that the current negative balance of the contributory segment of the Social Security will be closed in 2021, as envisaged in the Government's forecast, is just below 40%.

One of the fundamental reasons for establishing a PRI is to improve transparency around the way the pension system is updated and develops. The non-inclusion of full and detailed information in the State General Budget (SGB) for 2016 is a specific point covered in this Opinion. It also includes proposals on how to make the process for determining the PRI more transparent.

1. Introduction

AIReF has to issue an opinion¹ on the figures used by the Ministry of Employment & Social Security in Spain to determine the applicable Pension Revaluation Index (PRI) for each year². This Opinion paper complies with that legal remit in line with AIReF's Resolution 25³ containing the content and methodology for the Opinion. The aim of this Opinion is to determine whether the values of the variables and parameters used to calculate the PRI included in the State General Budget (SGB) draft are realistic and if they match the result when using these values in the calculation formula devised for that purpose and, if it were necessary, whether the statutory maximum or minimum rates should be applied.

This Opinion paper is divided into five sections including this introduction. Section two below gives specific details of the mathematical formula used to calculate the PRI, split into the two parts that together guarantee that revenue and expenditure are balanced in the medium and long term. Section three explains the information that was requested from the Government for the determination of the PRI. Section four states the opinion itself, i.e. the view AIReF holds on the PRI for 2016 after having checked out the revenue and expenditure values used by the Government for its calculations against AIReF's own estimates. Finally, section five includes the proposals made by AIReF on the subject matter covered in the Opinion.

2. Explanation of the revaluation formula

Contributory Social Security pensions in Spain—including the minimum pension entitlement—have to be increased at the start of each year on the basis of the Pension Revaluation Index (PRI) which is determined mathematically (details and a full explanation are given in Annex 1 of the Opinion on the determination of the 2015 PRI⁴).

The strict application of the result of the formula guarantees the financial equilibrium of the contributory segment of the Social Security system. The PRI resulting from the application of the formula guarantees the medium-term equilibrium between revenue and expenditure. Or, if this is not the case, it allows this equilibrium

¹This obligation is stated in art. 23 of Organic Law 6/2013 on the establishment of an Independent Authority for Fiscal Responsibility and art. 22 of Royal Decree 215/2014 approving AIReF's Organic Statute, as well as in additional provision four of Law 23/2013, of 23rd December, regulating the Sustainability Factor and the Social Security Pension System Revaluation Index.

²Final provision five of Law 23/2013 defers the application of the Sustainability Factor until 2019.

³[Resolution 25 on the Pension Revaluation Index](#), available in Spanish,

⁴[Annex 1 of the Opinion on the 2015 Pension Revaluation Index](#)

to be reached over a given period of time and so endows the contributory segment of the system with long-term stability.

The mathematical formula to calculate the PRI can be divided into two parts.

The first part of the PRI formula ensures that the annual growth rate of the revenues in the contributory segment of the Social Security system matches the growth rate of the three factors that determine expenditure on pensions: a) the annual change in the number of pensions, b) the annual change in the average pension entitlement worked out on the basis of the netting of entries and exits in the system (the replacement rate), and c) the annual rise in all existing pensions (PRI). This component therefore avoids any imbalances arising as a result of the effect of the annual development of revenue and expenditure. The second part reflects the net balance between the development of revenue and expenditure in the contributory segment of the Social Security System. If the two items were not balanced the result obtained in the first component of the formula would have to be corrected.

In a situation where revenue and expenditure in the medium term are balanced under the formula the annual revaluation rate of existing pensions is determined by the difference between the development of revenues and expenditure on pensions. The development of revenues depends on the following items: any change in the contributions paid into the system for common contingencies, occupational illness and work-related accidents, the transfer from the State in order to pay for the minimum benefit supplements, any taxes and additional revenue deemed appropriate by the legislator. Under the heading of expenditure, the development of pensions is the outcome of the rate of change in the number of pensions and the netting of new entries and pensions exiting the system (replacement rate).

In the alternative scenarios, whenever there is an imbalance between the absolute values of revenues and expenditure in the contributory segment of the Social Security, the revaluation rate of pensions must be adjusted in order to eliminate the deficit (or surplus) in a given period of time, as stated in the regulations. When an imbalance exists between revenues and expenditure, not only does the forecast development of revenues have to cover the higher (or lower) number of pensions and the higher (or lower) pension benefits to be paid out prompted by the difference between the new pension entries into the system and the pensions exiting the system, but also the revaluation rate applied to the existing pensions (PRI) must play its part too in closing the gap between revenue and expenditure (deficit/surplus) in a given period of time as stated in the legislation.

The Law imposes a floor and a cap on the annual growth rate of pensions that makes the PRI less automatic in its application. The result of the mathematical

formula to calculate the PRI may turn out to be negative in certain circumstances but even if that is the case there is always a minimum percentage rate of increase (0.25%) to be applied to pensions and a maximum rate of increase (the Consumer Price Index recorded in the year prior to the PRI calculation year +0.5%) when Social Security contributory pensions are updated annually. This mechanism avoids any excessive fluctuations up or down in pensions and there is more certainty for pensioners about their future income. In practice, however the statutory floor and cap set make application of the PRI less automatic and as a result longer time periods are required to bring revenue and expenditure in the system into balance.

The financial value of each one of the variables used in the formula is calculated as an average of the values over 11 years in order to limit any procyclical effects of economic activity. By using 11 years to calculate the average values of all the variables included in the PRI formula (the year for which the calculation is being made is taken as the midpoint: the four previous years, the current year, the year for which the calculation is being made and the five subsequent years) the effect of the economic cycle on the PRI result is limited. It prevents pensions from remaining too low in times of recession and rising too much in expansionary periods. This results in a smoother PRI curve.

Circularity is a feature of the mathematical formula used to calculate the PRI. The calculation of the PRI for a particular year depends on the Social Security expenditure values for that same year and, in their calculation, the value of the PRI itself to be calculated must be used. That means there is an issue of circularity when trying to solve the mathematical problem. AIReF has resolved the circularity of the formula by using two different methods that give very similar results⁵. AIReF concludes that the different solutions to the problem of circularity have an imperceptible effect on the result obtained for an annual time horizon.

3. Information available on the 2016 Pension Revaluation Index

The calculation of the PRI in 2016 requires information on the different variables that make up the formula during the period 2011-2021. Out of the 11 years used for the calculation of the PRI in 2016, final settlement of the annual budget has already been made for four of the years (2011-2014), the budget is currently being implemented for one year (2015) and six of the years are estimates (2016-2021). The following information on the variables involved in the calculation of the PRI was

⁵ [Working Paper 1/2015](#), available in Spanish only.

available to AIReF, supplied by the Ministry of Employment & Social Security (MEYSS):

- The level of aggregate revenue and expenditure over the 2011-2014 reference period, as well as the annual figures for the number of pensions and the replacement effect on expenditure on pensions, are available on the Ministry of Employment and Social Security's website (Social Security Settled Accounts and Economic & Financial Report accompanying the 2016 SGB, available in Spanish⁶).
- The initial provisions made for 2015 and 2016 of the different variables making up the formula can be found in the approved Social Security budgets in the State General Budget documentation.
- No detailed annual information was available on the revenue and expenditure in the contributory component of the Social Security for the period 2017-2021. The Ministry of Employment & Social Security, however, has provided AIReF with the average annual rate of change for revenue (3.7%) and expenditure (2.9%) on an aggregate basis for this period. The annual average over the period of the annual change in the number of pensions (1.0% in the period) and the impact on annual expenditure on pensions of the replacement effect stemming from the difference between the new pension entitlements and the pensions leaving the system (1.5% for the period).

The Ministry of Employment & Social Security has not provided AIReF with any detailed information on the underlying macroeconomic scenario for its forecast nor for the various sources of revenues. The only information given to AIReF was the average real GDP growth rate and inflation rate for the period 2016–2021 (contained in the Kingdom of Spain's Updated Stability Programme 2015-2018), but it does not include the underlying variables used to reach these figures. Likewise, in the total revenue figures no distinction is made between the development of social security contributions revenue and all other revenue. No detailed information was made available on the development of other different revenue sources either.

4. AIReF's opinion

The analysis conducted by AIReF allows it to conclude that with the values used by the Ministry of Employment & Social Security the rate of increase to be applied to contributory pensions in 2016 should be the minimum rate of 0.25%,

⁶ [Cuentas liquidadas de la Seguridad Social e Informe Económico y Financiero de la Seguridad Social que acompaña a los PGE 2016](#), available in Spanish only

as stated in the 2016 State General Budget Law, given that the result of applying the mathematical formula to calculate the PRI is less than this minimum rate. AIReF has checked that with the values of contributory revenues and expenditure, the development for the number of pensions and the replacement rate provided by the Ministry of Employment and Social Security corresponding to the period 2011-2021, the result of the mathematical PRI formula for the year 2016 is less than the 0.25% statutory minimum rate of increase currently in force.

The information supplied by the Ministry of Employment & Social Security projects a gradual closing of the current negative gap between revenue and expenditure in the period 2015-2021. According to the information provided by the Government and as can be observed in graph 1, the contributory segment of the Social Security in the last year (2014) for which settlement of the annual budget was made recorded a negative balance that should gradually disappear until revenue and expenditure reach a position of equilibrium again in 2019. If these forecasts were met, the annual increase for pensions would be higher than 0.25% as of 2018⁷.

The expenditure forecasts provided by the Ministry of Employment & Social Security for the period 2016-2021 are in line with the estimates made by AIReF as they are situated in the centre of the estimated confidence band. AIReF's models for the period 2016-2021 give similar results to those provided by the Ministry of Employment & Social Security for the change in the number of pensioners (1% as an annual average) and the impact on the expenditure of the replacement rate (1.55% as an annual average) resulting from the difference in the amount of pension entitlements entering and exiting⁸ the system.

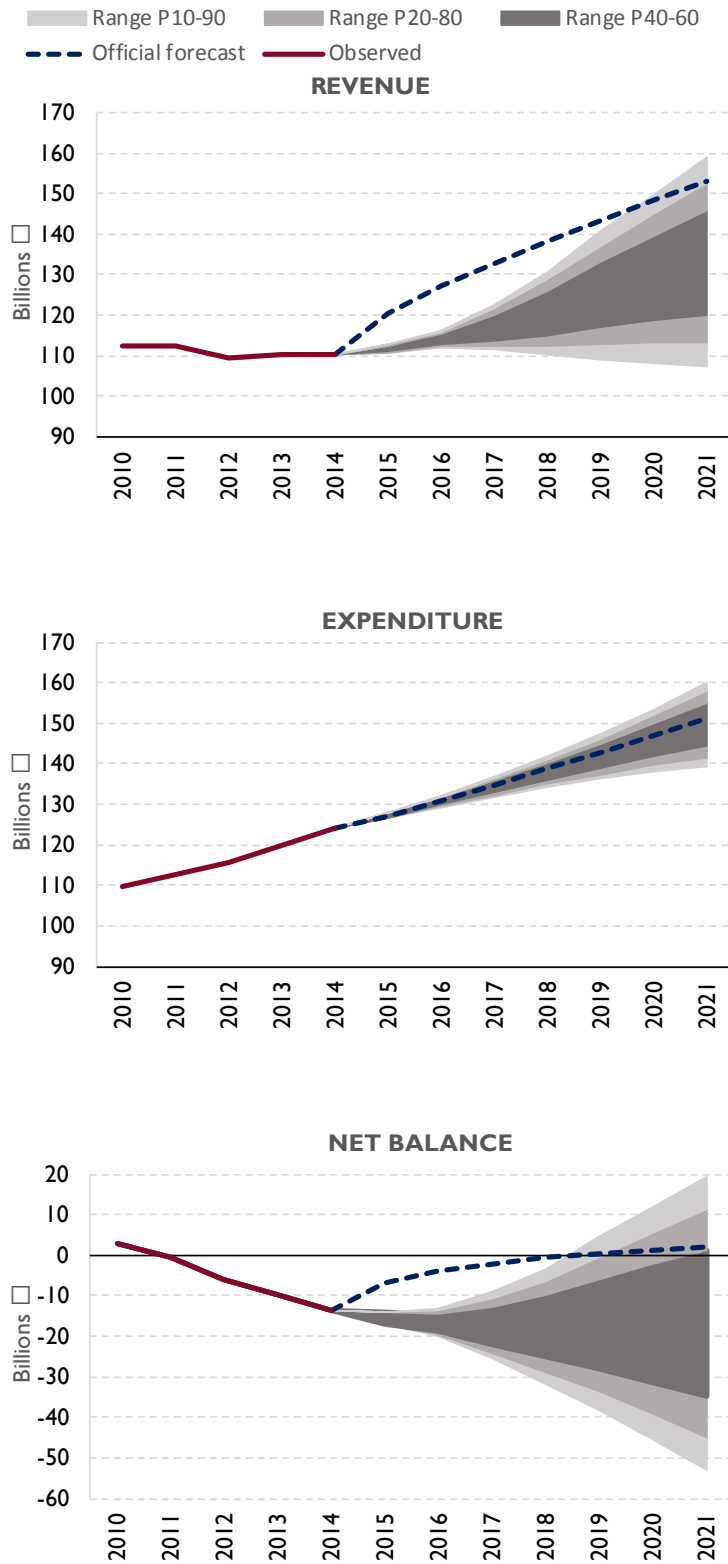
The revenue forecasts provided by the Ministry of Employment & Social Security for the period 2016-2021, however, are optimistic. The forecasts for revenue built up on the basis of the information supplied by the Government fall outside the confidence band of the estimates prepared by AIReF for the period 2016-2018. The probability of obtaining a similar level of revenue as the Government's revenue figure is less than 10% in 2019 and rises to almost 20% in the years 2020 and 2021⁹.

⁷ Annex 1 gives the average growth rates forecast by the Government for the revenue and expenditure components for the period 2017-2021 as annualised figures.

⁸ See Annex 1 for a description of the methodology used.

⁹ See Annex 1 for more details on the modelling of the uncertainty in the forecasts.

GRAPH I. Projections for Social Security revenues, expenditure and net balance



Source: Ministry of Employment & Social Security, INE and AIReF estimates

The annual growth rate of revenue as forecast by the Ministry of Employment & Social Security in the period 2017-2021 is in line with AIReF's central scenario. However, as graph 1 above shows, the deviations in 2015 and 2016 significantly reduce the probability of its revenue forecast being reached in 2021:

- ✓ **From the information on revenues available to August and their foreseeable development during the rest of the year, there is a very strong possibility that they will end the year far below the official forecast for 2015.** As AIReF has stated in other recent reports¹⁰, it has observed a significant deviation from the forecast for revenue from social contributions in 2015 included in the Government's budget.
- ✓ **The official forecast for revenues for 2016 lies above the confidence bands estimated by AIReF.** The calculations AIReF¹¹ has made using quantitative models to estimate the revenue from the contribution paid for common contingencies, occupational illness and work-related accidents supported by a baseline macroeconomic scenario place the Government's forecast outside the confidence bands as a result of the deviation in 2015 and its cumulative impact in 2016.

The annual growth rates for the official forecast of revenues for the years 2017–2021 (3.7% as an annual average) are slightly lower than the central scenario of the estimates prepared by AIReF. The key macroeconomic variables AIReF uses to build its central scenario in the medium term are: i) 1.9% annual growth in GDP; ii) 1.7% annual GDP deflator; iii) 1.8% annual growth in employment; and iv) 1.8% annual growth in wages. With this macroeconomic scenario, the forecast for revenue collection from the contribution paid for common contingencies, occupational illness and work-related accidents during 2017-2021 resulting from AIReF's own quantitative model¹² remains at the high ratio to nominal GDP recorded historically (9.4% of GDP on average in 1980-2014). There is only a slight counter-cyclical development linked to the development of the contribution paid by the beneficiaries of unemployment benefits.

All other revenue components in the contributory segment of Social Security (currently accounting for one percentage point of GDP) however, are likely to record a growth

¹⁰ Report on expected compliance with the 2015 budget stability, government debt and expenditure rule targets by the public administrations in Spain, published by AIReF on 15th July, and in AIReF's most recent report, Report on the General Government draft budgets and main budgetary lines: 2016 Draft State General Budget published on 29th September.

¹¹ Report on the General Government draft budgets and main budgetary lines: 2016 Draft State General Budget.

¹² [See page 27 of the Report on the General Government draft budgets and main budgetary lines: 2016 Draft State General Budget.](#)

rate that will be lower than the nominal GDP in the period 2017-2021 for the reasons described below:

- Interest income from the Reserve Fund continues to fall progressively in line with the deficit in the pension system to such an extent that if the downside risks in the official revenue forecasts materialise it may even disappear completely as a result.
- Revenue under the heading taxes and other revenue does not follow the trend of growth of nominal GDP.
- The State transfer for minimum benefit supplements is developing annually in line with the higher number of pensions and the annual revaluation foreseen and is not affected by the rate of economic growth.

The Government's forecast for the net balance between revenue and expenditure remains outside the confidence bands of AIReF's estimates until 2018. After a progressive improvement in subsequent years, the likelihood of the Government's forecast being met and the current negative balance in the contributory segment of the Social Security system being closed in 2021 is just below 40%. The substantial difference in revenues observed in 2015 and 2016 between the Government's forecast and AIReF's estimates has a major effect on the balance of the contributory component of the Social Security system. This difference explains why the Government's annual balance forecast is situated above the confidence bands made by AIReF up to 2018. After that year a progressive improvement is observed in the probability of closing the current annual gap between revenue and expenditure, which ends the period in 2021 a couple of percentage points under 40%.

The legislation regulating the PRI includes a minimum annual rate of increase for pensions (0.25%) and a maximum rate of increase (the December CPI compared against December of the year before +0.5%) although it does not establish any hierarchy in their application. In a scenario of negative development of prices as occurred in 2014, the Government's interpretation to increase pensions by the statutory minimum rate (0.25%) meant that they actually went up more than if the cap on pension increases had been used given that the maximum rate was lower than the minimum rate. This circumstance could be repeated in 2016 if inflation remains at the latest known figures. The fall in prices in 2014 (-1.0% annual rate December to December) used as reference for the calculation of the maximum rise in pensions in 2015 (CPI + 0.5%) was evidence of the paradox that the maximum value allowed by law was lower than the minimum rate of increase (0.25%). In this context, the Ministry of Employment's interpretation of the law to apply the 0.25% rate of increase in 2015 has resulted in pensions rising by 0.75% more than the increase that would have resulted from the alternative option (CPI +0.5%), with the consequent repercussion it has on total expenditure. This

contingency might be repeated when the annual increase for pensions in 2016 has to be determined if there is no change to the latest known figure for inflation in 2015 (in October the annual rate of inflation was -0.7%).

5. Proposals

The PRI has a clear impact on a major section of society and is a key element in the reinforcing of the medium-term sustainability of pensions in Spain. That is the reason why AIReF already stated in its Opinion published on the 2015 PRI that it was of the view that the PRI calculation should be made more transparent. The publication of the data series for PRI calculation, including the different revenue and expenditure components and the underlying macroeconomic assumptions as well as the result of the calculation obtained for the PRI, would make it more transparent and easier for citizens to understand this annual pension revaluation mechanism. AIReF observes that nothing further has been done in this direction throughout this year and so it reiterates the same proposal it made last year that:

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- 1. The Ministry of Employment & Social Security should publish the information of substance that would allow calculation of the PRI to be made in accordance with the content of additional provision one of the Law 23/2013 regulating the Sustainability Factor and the Pension Revaluation Rate.**
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Likewise, as AIReF indicated both in its Opinion on the 2015 PRI and the Report published on the general government budget drafts and main budgetary lines, the most suitable time for publication of this information would have been their inclusion in the draft SGB for 2016, given the major impact of the PRI on the budget. AIReF therefore proposes implementation of the recommendation contained in that report:

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- 2. The State General Budget should include the necessary information required for the calculation of the PRI.**
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The Opinion AIReF published on the 2015 PRI also contained a proposal aimed at improving the PRI formula. The obligation under current legislation to use the aggregate terms with operations that are revenue for one entity and expenditure for another is problematic when it comes to applying the PRI calculation formula. Firstly, the projection criteria for these operations should be the same in the case of revenue and expenditure and that would make it necessary to identify these items. Secondly, the last component of the formula is systematically lower when using the aggregate data rather than the consolidated data. This affects the pace of adjustment in times of deficit and gives rise to a lower revaluation in times of financial surplus. Consequently, AIReF reiterates its proposal to:

3. Use the consolidated revenue and expenditure values for the Social Security System.

Lastly, AIReF points out that the Government has not made the method used to solve the circularity of the formula explicit either, so AIReF reiterates its proposal that:

4. The Government should make public and explicit the method used to solve the circularity of the mathematical formula for the PRI calculation.

All in all the Ministry of Employment's interpretation in 2015 of article 48.2 of the recast text of the General Social Security Law in Spain behind its decision to put up pensions by 0.25% in a context of negative price developments has consequences for the Social Security system. It means expenditure is increased more than would have been the case with the alternative option provided in the law (CPI 2014 +0.5%) in an unfavourable situation for revenues given such a moderate nominal price development scenario. From the standpoint of reinforcing the sustainability of the Social Security system finances, whenever the decision on the annual rate of increase for pensions takes place against a backdrop of negative price developments, it should be made with the most robust support possible. These are the reasons why AIReF proposes that:

5. The Ministry of Employment and Social Security should request a report from the State General Counsel or the Council of State on this particular point.
