Independent Authority for Fiscal Responsibility

Report 24/18

18 May 2018

Report on the 2018-2021 Stability Programme Update of the Kingdom of Spain

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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Summary

Once the 2018-2021 Stability Programme Update (SPU) is approved in the Council of Ministers, current legislation establishes that the Independent Authority for Fiscal Responsibility (AIReF) must report on its content. AIReF's assessment must encompass the macroeconomic forecasts underlying the 2018-2021 SPU as well as its budgetary scenario, with a special focus on the commitments that ensure compliance with the budgetary stability target, the government debt limit and the expenditure rule, in response to the mandate of articles 14 and 16 of the Organic Law 6/2013 establishing AIReF.[1]

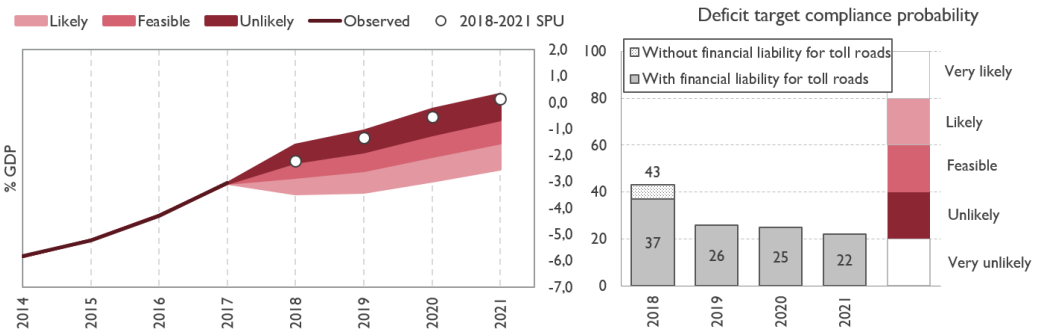
On 27 April, AIReF announced its endorsement of the macroeconomic scenario underlying the 2018-2021 SPU, based on the information provided up to that point and considering the exogenous assumptions and defined policies. The composition of growth for the 2018-2021 period is considered plausible, although the contained evolution of domestic demand in the short term should be noted. The expected path for the 2018-2021 period is based on domestic demand as the main source of growth, mainly based on the positive evolution of investment, both productive and in construction. Expected growth for private consumption is considered prudent, especially in the short term, in comparison with both AIReF's internal models and the forecasts of the main analysts following the Spanish economy. Moreover, the Government expects a consolidation of the external sector's positive contribution to growth, confirming a balanced growth pattern. AIReF's analysis deemed this scenario to be feasible, although it is expected that the positive contribution of external demand will be residual towards the end of the period.

AIReF considers compliance with the deficit path planned for the 2018-2021 period to be unlikely, with its likelihood decreasing as the period progresses. The path envisaged for the General Government (GG) in the SPU reflects a deficit reduction of 3.2% GDP in the 2018-2021 period, reaching a surplus of 0.1% GDP in 2021. In line with the SPU of previous years, the deficit reduction path would be achieved largely through a

[1] As required by article 16 of the Organic Law 6/2013 establishing AIReF and article 15 of Royal Decree 215/2014, of 28 March, approving its Organic Statute, to issue the report on the SPU, AIReF must have the text of the SPU available sufficiently in advance, accompanied by the corresponding medium-term budgetary forecasts, as well as any other information or documentation to support the forecasts and data included.

reduction in expenditure of 2.4% GDP (from 41% to 38.6%), which is very unlikely in light of AIReF's analysis (see figure I.B).

FIGURE I A. 2018-2021 NET LENDING/BORROWING PATH. GENERAL GOVERNMENT IN % GDP

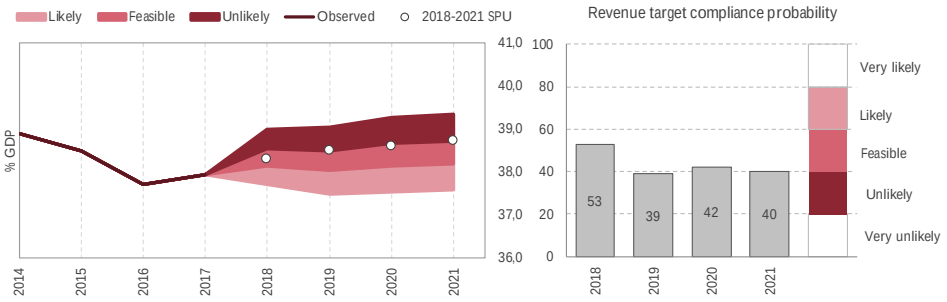


Source: Stability Programme Update, IGAE and AIReF's estimates

The revenue forecasts included in the SPU are in line with AIReF's estimates, supported by the evolution of their macroeconomic bases. The SPU envisages an increase in revenue of 0.8% GDP (from 37.9% to 38.7%) because of the evolution of the economic cycle and the measures adopted. Based on AIReF's analysis, such evolution is deemed feasible throughout the entire forecasting period (see Figure I.C).

Robust job creation along with wage and price recovery and a rebound in real estate activity support dynamic trends in the main revenue items. According to AIReF's estimates these factors included in the SPU are considered likely. The emergence of price and wage inflation will result in a greater contribution to collection of both Personal Income Tax (PIT) and social security contributions, with a nominal support to economic growth, which has been supported in recent years by the job creation which is expected to continue, although format a slower pace as of 2019. The recovery in consumer prices and the real estate sector will entail increased collection from Value Added Tax (VAT). Finally, mention should be made of revenue drivers associated with tax mechanisms as is the case for Corporate Income Tax (CIT), where the gap between the macroeconomic and accounting bases is expected to gradually close, thus improving the expected cyclical earnings.

B. 2018-2021 NON-FINANCIAL INCOME PATH. GENERAL GOVERNMENT IN % GDP.

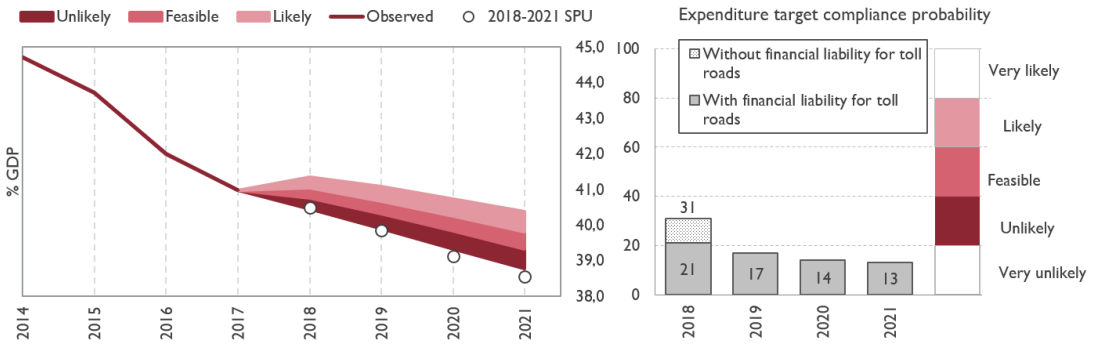


Source: Stability Programme Update, IGAE and AIReF's estimates

The expenditure evolution required to comply with the deficit targets implies over-compliance with the expenditure rule in the 2018-2020 period. The latter does not seem plausible based on the information available on the measures adopted. For most of the period the net expenditure adjustment of 2.4% GDP entails an expenditure evolution below the reference benchmark set for the purposes of the expenditure rule. The 2018 draft GSB already covered some expenditure increasing measures including the implementation of the agreement on the remuneration of public employees and the revaluation of minimum and lower pensions in 2018. Additionally, new measures have been proposed during the parliamentary process such as the increase in pensions, 1.35% above the result of the application of the PRI in 2018 and 2019 (i.e. 0.25%).

In addition, it has been announced that the application of the sustainability factor will be suspended until 2023, while a comprehensive agreement on the pension system is reached. Besides the short and medium-term budgetary impact of the measures announced, it is desirable to adopt them in a general framework within the Toledo Pact to ensure the system's medium and long-term sustainability.

C. 2018-2021 NON-FINANCIAL EXPENDITURE PATH. GENERAL GOVERNMENT IN % GDP.



Source: Stability Programme Update, IGAE and AIReF's estimates

Half of the planned adjustment affects public consumption, reducing its ratio to GDP by over one point. The restriction envisaged in public consumption is not consistent with the impact of the measures adopted regarding personnel, nor the forecasted evolution of health expenditure included in the SPU. Taking these elements into account, the 0.7 percentage points decline in the ratio to GDP forecasted for compensation of employees is far from AIReF's estimates, which assume a stable evolution after a moderate decline in 2018 and 2019.

This pressure on nominal public consumption is also reflected in the macroeconomic scenario of the SPU, which stands at the bottom of the range estimated by AIReF in 2018 and 2019. The Government expects real growth in line with AIReF's internal models, but there is a downward bias in the public consumption deflator. The evolution of the public consumption deflator will largely depend on the performance of its main component, the compensation of employees, which should incorporate the impact stemming from the wage agreement for public employees.

Based on the analysis of the macroeconomic and budgetary scenario of the SPU, AIReF considered the path of the debt-to-GDP ratio included in the 2018-2021 SPU to be borderline feasible. The difference between the two estimates is mainly explained by the evolution of the primary balance, which is crucial for ensuring the sustainability of public finances as reflected in the figure below. High debt levels result in a weak position against future shocks. On the other hand, the pace of decline in the debt-to-GDP ratio is not sufficient to comply with the 1st TP of the LOEPySF.[2]

The risks scenario reflected in the SPU is considered balanced although downside surprises could materialise earlier than expected and there are medium-term risks. In addition, the external assumptions underlying the macroeconomic scenario of the SPU are considered feasible. In the short term, global growth is expected to remain robust, in line with what was observed in 2017, in a context of favourable financial conditions. On the contrary, it remains to be seen whether the increase in the price of oil during the last few weeks (20% above the figures included in the SPU) is in response to temporary factors, or whether there are deeper reasons sustaining the level of balance around the current values. For the moment,

[2] This transitional provision requires the level of government debt to stand at 60% GDP in 2020. In addition, it also requires that when the national economy reaches a real or expenditure growth rate of at least 2% per year, the government debt-to-GDP ratio should be reduced by a minimum of 2% annually. This requirement has not been complied with in all years since 2015 and, according to the SPU, is not expected to be complied with in 2018 or 2019.

the impact on the futures market is contained. On the other hand, increasing risks are identified in the medium term such as the gradual withdrawal of monetary stimulus, the implementation of protectionist policies in some of the major players in world trade, the effects of Brexit and geopolitical tensions in the Middle East. In the domestic sphere, AIReF considers short-term risks to be contained, although the impact of an ongoing scenario of uncertainty could manifest itself in the medium and long term.

FIGURE II 2018-2021 SPU DEBT FORECASTS AND STOCHASTIC ANALYSIS

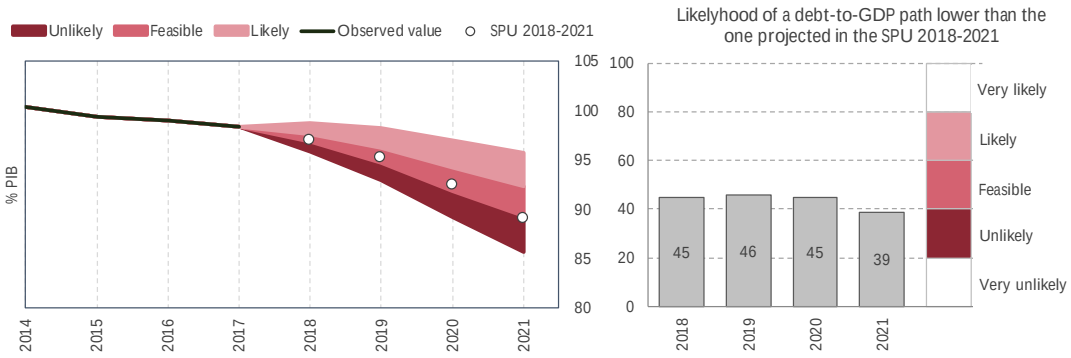
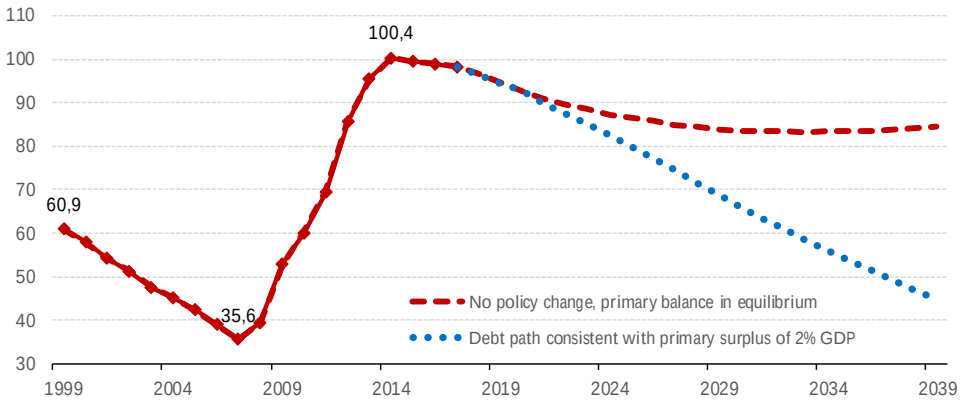


FIGURE III EVOLUTION OF THE DEBT-TO-GDP RATIO AGAINST DIFFERENT PRIMARY BALANCE SCENARIOS



Source: Bank of Spain (BdE), SPU and AIReF

AIReF makes recommendations aimed at strengthening the medium-term fiscal framework. Beyond the formal restrictions of the regulatory framework, there is a need for a consistent medium-term budgetary planning that takes into account both the economic, social and budgetary feasibility of the path planned and the sustainability of public finances. In this sense, the SPU, as a central medium-term budgetary document, should avoid becoming a relatively formal exercise for setting a deficit reduction path, not based on sufficiently detailed measures. To ensure the consistency and credibility of medium-term budgetary planning, it would be desirable to forge a greater consensus, as greater debate and participation of the different administrations and stakeholders in the processes for developing and making decisions on the various medium-term budgeting milestones is essential. Any move in this direction would strengthen the legitimacy and enforceability of the fiscal rules.

In this sense, AIReF makes two new recommendations:

1. Strive to specify the measures to be able to verify the plausibility of the fiscal path envisaged in the SPU that, in any case, must ensure its consistency with the evolution of the relevant macroeconomic variables and with the discretionary measures to be adopted.
2. Promote the implementation of a medium-term budgetary fiscal framework with greater consensus and participation of all stakeholders involved

It also reiterates 3 recommendations and 2 suggestions for best practices in terms of transparency and assessment of the fiscal rules.

Contents

1. Introduction

The legislation in force establishes that the Stability Programme Update must be the subject of a report by the Independent Authority for Fiscal Responsibility. The Stability Programme Update (SPU) is the Government's main medium-term budgetary document and includes macroeconomic and fiscal forecasts for a period of four years. The Independent Authority of Fiscal Responsibility (AIReF) must prepare a report on the macroeconomic forecasts underlying the 2018-2021 SPU as well as its budgetary scenario, with a special focus on the commitments that ensure compliance with the budgetary stability target, the government debt limit and the expenditure rule (articles 14 and 16, Organic Law 6/2013 establishing AIReF).

On 27 April, AIReF announced its endorsement of the macroeconomic scenario underlying the 2018-2021 SPU, based on the information provided up to that point. AIReF has endorsed the macroeconomic forecasts which form the basis for the medium-term budgetary scenario included in the 2018-2021 SPU, considering exogenous assumptions and defined policies. The information available at that time was limited to the figures of the macroeconomic outlook and some of the budgetary measures finally included in the SPU. This initial assessment was sent to the Government, enabling AIReF's conclusions and endorsement to be included prior to referral of the SPU to the EU institutions.

Once the SPU has been approved in the Council of Ministers and its entire content submitted to AIReF, this report is in response to the mandate of articles 14 and 16 of the Organic Law 6/2013 establishing AIReF.[3] To this end, the analysis is divided into three main blocks. First, AIReF assesses the realism of the macroeconomic scenario. Second, it analyses the budgetary forecasts, with special attention to the measures specified and considering their consistency with the macroeconomic scenario adopted. Third, an ex-post analysis is included, through the assessment of the degree of realisation of the forecast included in previous editions. Finally, a series of recommendations and suggestions for best practices are derived from AIReF's analysis.

[3] As required by article 16 of the Organic Law 6/2013 establishing AIReF and article 15 of Royal Decree 215/2014, of 28 March, approving its Organic Statute, to issue the report on the SPU, AIReF must have the text of the SPU available sufficiently in advance, accompanied by the corresponding medium-term budgetary forecasts, as well as any other information or documentation to support the forecasts and data included.

2. Macroeconomic scenario of the 2018-2021 SPU

2.1. Forecast analysis criteria

The aim of subjecting Spanish Government forecasts to analysis ex-ante is to assess whether they are realistic, and whether they define the most likely macroeconomic scenario or one that is more prudent.[4] To assess whether the official forecasts are realistic, they are compared against those made by other private and public institutions and with the confidence intervals derived from AIReF's own tools. The methods, parameters and assumptions underpinning the forecasts are revised, as far as the available information allows, and a check is made to determine whether the most updated information was used for the forecasts.

An analysis is conducted to establish how realistic the forecasts are for each variable, using models that establish a statistical relationship between the different variables and with behavioural equation models that relate each variable to their fundamental determinants. These partial results on the likelihood of forecasts for each variable are subsequently integrated into a macroeconomic scenario, guaranteeing the internal consistency of the set of related variables in national accounts, as well as any risks that exist in that scenario.

The methodology for analysing the Government's forecasts is based on the projection of a reference macroeconomic and budgetary scenario that includes elements of uncertainty. The methodology used by AIReF combines three types of instruments: macroeconomic models to analyse the interaction between macroeconomic and fiscal variables, satellite models for projecting public revenues and expenditure and debt dynamics, and accounting algorithms to preserve the consistency of the figures projected independently. The scenario defined in this way includes an assessment of the uncertainty associated with the different variables and configures the final

[4] Article 14.3 of the Organic Law creating AIReF requires this report to assess the consistency of the forecasts made with Council Directive 2011/85/EU, of 8 November 2011, on the requirements applicable to member States' budgetary frameworks. In article 4.1 this Directive envisages that budgetary planning shall be based on the most likely macro-budgetary scenario or on a more prudent scenario.

reference framework for assessing the macroeconomic scenario prepared by the Government.[5]

An overall assessment of the results of these comparisons alongside the assessment of the risk balance considered will conclude whether the macroeconomic scenario contained in the SPU is deemed the most likely or a more prudent scenario. A more prudent scenario would contemplate the materialisation of some of the risks identified in the baseline scenario, which are detrimental to economic activity and to the correction of existing imbalances.

2.2. General remarks

The macroeconomic forecasts included in the 2018-2021 SPU use the most up-to-date information available. To obtain the medium-term macroeconomic scenario, the Government has considered the most recent short-term indicators, as well as the budgetary closure of 2017, which mark the starting point for the rest of the period.

As in previous updates, the 2018-2021 SPU includes a brief description of the methodologies and parameters underlying the Government's forecasts[6]. Although the methodology applied when making the estimates is standard, with models and equations widely used by analysts, the specific tools used have not been published or communicated to AIReF. To facilitate understanding of the macroeconomic scenario, their replicability and an analysis of their consistency with the budgetary estimates would be desirable additional steps. Besides additional details on the models used, the publication of simplified national accounts that provide unity and internal

[5] Different macro-econometric models are used depending on the time horizon of the analysis. In the short term of two or three quarters, the forecasts for GDP, components of demand, expenditure, etc. rely heavily on dynamic factor models that use the latest information available (MIPRED Model). For a longer time horizon, the preferred model is the Bayesian vector auto-regression model (see the work of Ángel Cuevas and Enrique M. Quilis: BVARX modelling of the Spanish economy), which incorporates the dynamic interaction of the main macroeconomic and fiscal variables (real GDP deflator, expenditure, credit and taxes plus contributions net of benefits), as well as equations with error-correction mechanisms in order to project the adjustment paths of the most important variables (see examples of programmed simulation in the spreadsheets attached to the report). Satellite models are usually uniequational and independent, and are used to separately project tax revenues (personal income tax and corporate income tax, VAT, special taxes, etc.), Social Security contributions, consumption and investment of the Public Administrations (PAs), pensions, interest payments and debt dynamics. Accounting algorithms enable the integration of information from a variety of sources, exogenous variables, model projections and expert assessments in a consistent set of accounts that presents a summary of the macroeconomic and fiscal scenario.

[6] Article 4.5 of the Directive 2011/85/EU establishes that member states must publish the relevant methodologies, assumptions and parameters underlying their macroeconomic and budgetary forecasts.

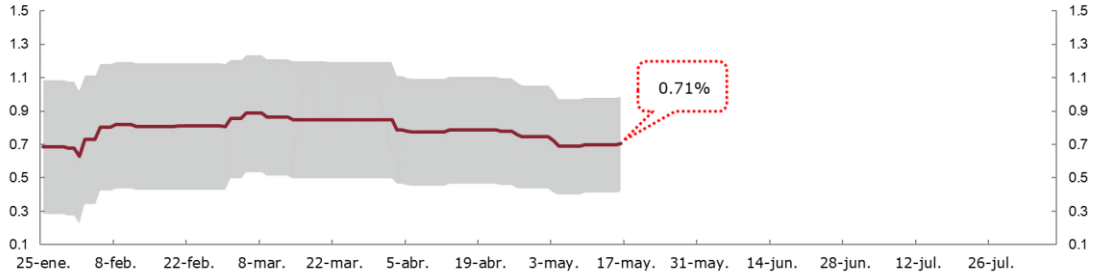
consistency to forecasts would entail major progress in terms of transparency. This tool would make it possible to make the connections between economic activity, demand and expenditure, on the one hand, and income flows and financing requirements, on the other, explicit.

For the first time, and in response to a recommendation made by AIReF, the Government has submitted a "no policy change" macroeconomic outlook to AIReF, accompanying the official outlook. The publication of the "no policy change" scenario (although not for the entire forecast horizon, since it does not include 2020 and 2021) responds to a reiterated recommendation from AIReF and represents important progress in terms of transparency, as it enables assessment of the impact of the measures adopted, as well as their transmission channels.

2.3. A reference macroeconomic scenario

In 2017 the Spanish economy experienced strong growth once more and the most recent short-term information shows a consolidation of the same at the start of 2018. The real GDP growth rate stood at 3.1% in 2017, the third year in a row that it has exceeded the 3% barrier, and already surpassing the maximum historical levels prior to the crisis. The progress published by the National Statistics Institute (INE) of a 0.7% growth in the first quarter of 2018, combined with the latest economic information available, confirm the soundness of the Spanish economy in the short term. In this way, the signs that can be drawn from the high frequency indicators point to the maintenance of the current pace in the coming quarters, as evidenced by the real-time forecasting model developed by AIReF (see Figure 1), with the subsequent carry-over effect for the annual figure that this entails.

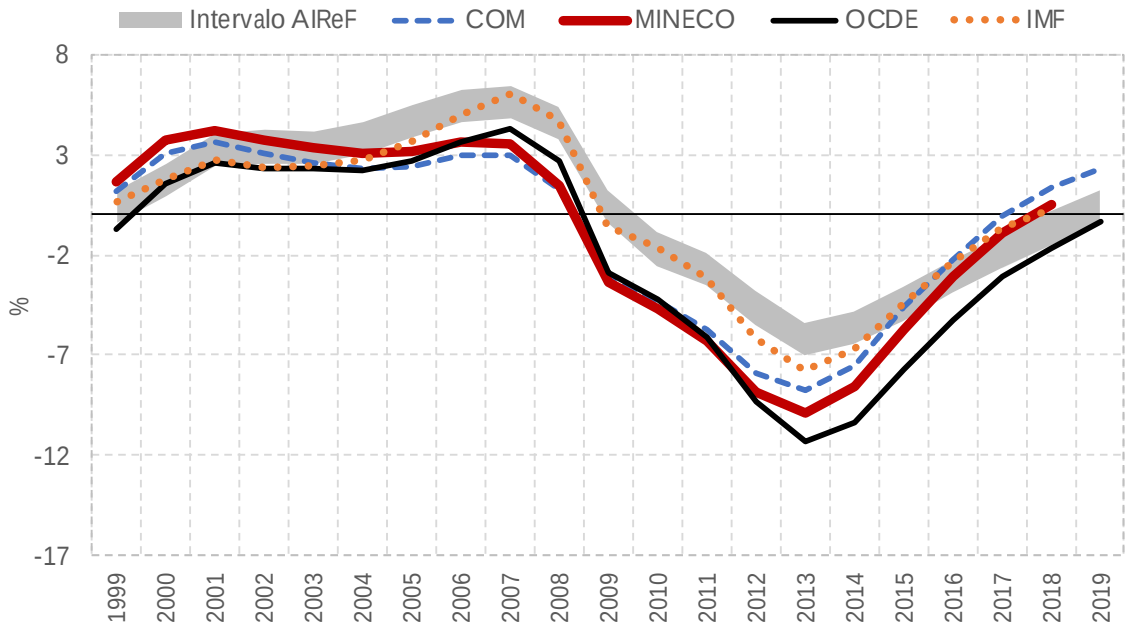
GRÁFICO 1.EVOLUTION OF REAL-TIME GDP FORECAST 2018 Q2. QUARTERLY RATE



Source: AIReF's estimate

The growth observed in recent years has managed to maintain the basic balance in the economy, providing support for future growth. The cyclical position estimates for the Spanish economy from different institutions coincide in pointing out the closure of the negative output gap at the start of the horizon of the 2018-2021 SPU, closing a complete cycle that two decades ago (see figure 2). The growth observed since 2015 (above 3% in real terms), has not affected the fundamental balance of the Spanish economy, providing a good starting point and laying the foundations for medium-term growth. First, the evolution of GDP has been supported by a positive contribution of both domestic and external demand, resulting in a current account surplus of close to 2% GDP (against the deficit of 1.5% at the beginning of the previous cycle). Second, the investment has been oriented toward productive sectors, avoiding over-dependence on the construction sector, which represents 14% GDP compared with 17% at the start of the century. Third, the domestic demand pull has gone hand in hand with a necessary deleveraging of the private sector, with very contained banking credit and predominant recourse to self-funding by companies. Finally, inflation expectations are contained and do not bode well for an abrupt change in tone of monetary policy, which has been a decisive tail wind.

GRÁFICO 2. OUTPUT GAP. ESTIMATES OF MAJOR INTERNATIONAL ORGANISATIONS



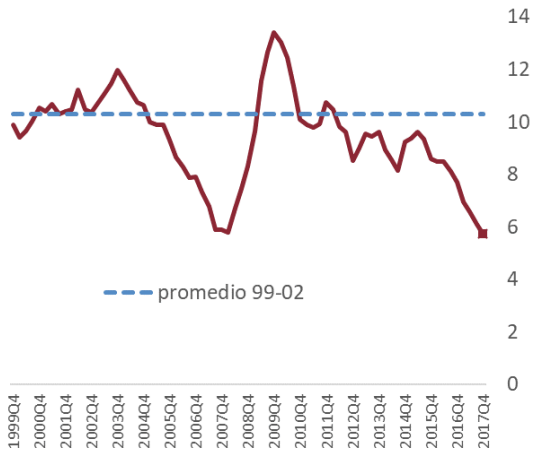
Sources: 2018-2021 SPU, OECD Economic Outlook November 2017, IMF WEO April 2018 and EC May 2018

Note: The interval for AIReF's estimates was obtained using the average of the absolute revisions between the concurrent estimate (*one-sided*) and the historic estimate (*two--sided*) provided by the Kalman filter as a range.

In the medium term, some stability in the composition of growth is expected, with domestic demand as the main engine of the economy, although its components tend to slow down toward the end of the period, in line with the long-term equilibrium relationship reflected in the behaviour models**.**

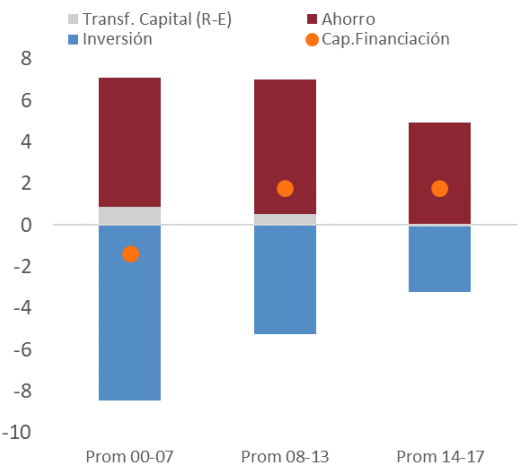
Private consumption will remain the main source of growth, mainly supported by the good performance of the labour market and the sound financial position of households. Despite the recent evolution of the savings rate, reaching a minimum at the end of 2017 (see Figure 3), there are medium-term supports for private consumption. The financing capacity of households should be noted (see Figure 4), which has been maintained at high levels in comparison with similar stages of the last cycle, with its composition having suffered significant changes. In opposition to the last cycle, the low savings rate is accompanied by a low investment in housing by households. At the same time, the financial wealth of households has grown, reaching a 120% GDP (compared to a mere 100% at the cyclical peak in 2007). In addition, the maintenance of favourable credit conditions could revitalize the flow of new credit, resulting in additional support. In addition, these factors will be boosted by the favourable effects on household income of the expansionary fiscal measures announced. Within these budgetary measures with macroeconomic impact through significant private consumption the following should be noted: (I) the Government- Trade union agreement on the pay rise for civil servants and an increase in the replacement rate; (ii) in relation to Personal Income Tax (PIT), an increase in the reduction for earnings from work and an increase in the family deductions for payment of the quota; and (iii) the update of pensions above Pension Revaluation Index (PRI) of 0.25%, and the improvement in widows' pensions.

GRÁFICO 3. HOUSEHOLD SAVING RATE (%GDI)



Source: INE

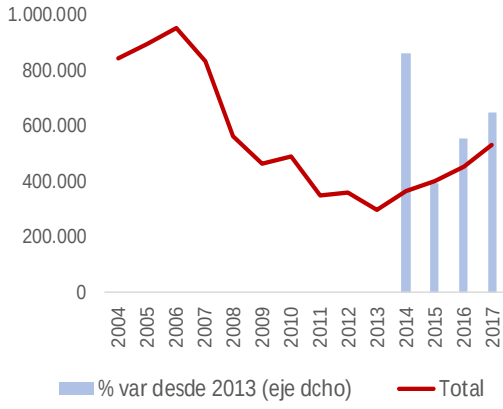
GRÁFICO 4. HOUSEHOLD NET LENDING/BORROWING (% GDP)



Source: INE

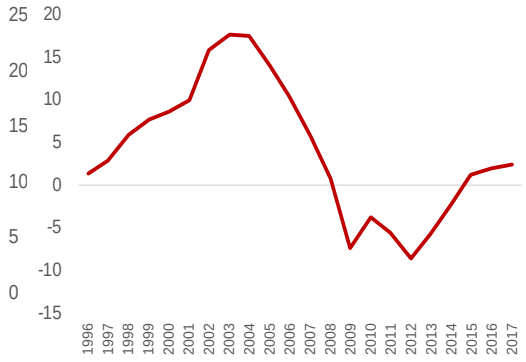
Investment in construction will maintain a robust growth in the medium term, in line with the recovery of the residential segment. The sale of homes has been growing steadily since 2014 which favours the recovery of prices and the launching of new residential construction projects, as reflected in the evolution of new-build permits. New credit for purchasing housing continues to grow and contribute to the surge in the demand for housing. On the other hand, it can be expected that the evolution of the sector will be limited with some structural brakes to regulate its dynamism. First, there is still a relatively large stock of unsold new housing. Its gradual absorption could hinder the dynamism of investment in residential construction to some extent (see Figures 5 to 10). On the other hand, the growth of the population is expected to more moderate than in the previous cycle, therefore household formation will also be less dynamic. This would lead to a more balanced sector size in relation to GDP.

GRÁFICO 5. PURCHASE AND SALE TRANSACTIONS BEFORE A NOTARY



Source: INE

GRÁFICO 6. PRIVATE HOUSING PRICE PER SQUARE METER (% VAR)



Source: INE

GRÁFICO 7. NEW BUILD PERMITS, HOUSING (YEARLY RATE %)

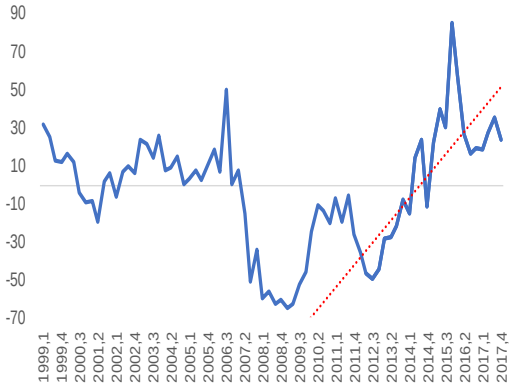


GRÁFICO 8. NEW BUILD PERMITS, HOUSING (LEVEL)

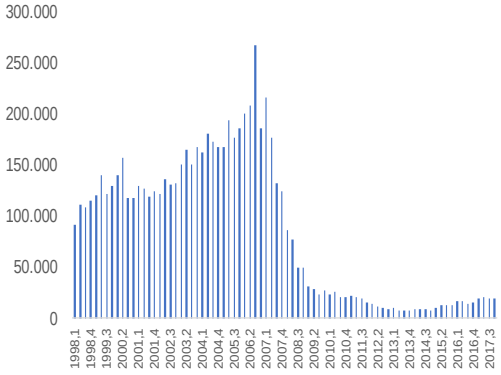
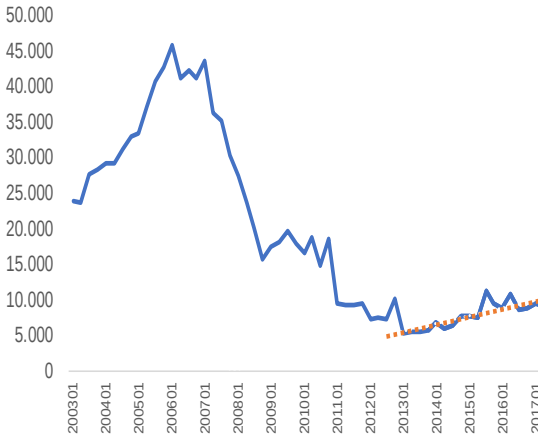
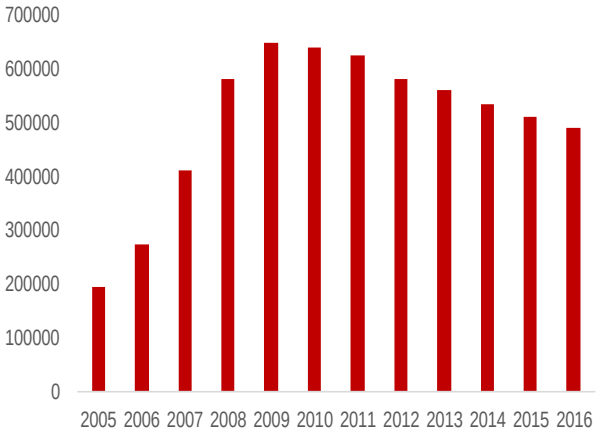


GRÁFICO 9. HOUSING CREDIT. NEW OPERATIONS



Source: INE

GRÁFICO 10. STOCK OF NEW UNSOLD HOUSING



Source: INE

Regarding investment in production, the recovery has been dynamic since 2013 and is expected to continue. The gap between investment in production and its long-term level is closing at a good pace (see Figure 11), as the margins applied to loans to non-financial corporations have been normalised and it has improved its financial position and the participation of corporate GOS in the generation of income. A macroeconomic approach to corporate profits reveals a significantly healthier composition.[7] The re-balance in the contributions of net investment and savings of the rest of the world to corporate profits is evident from Figure 12. This is related to the correction of macroeconomic imbalances in which the last expansionary phase of the Spanish economy resulted.

[7] From the point of view of national accounts the corporate profits can be obtained from the Levy-Kalecki equation.

GRÁFICO 11. GROSS FIXED CAPITAL FORMATION, EQUIPMENT. VOLUME

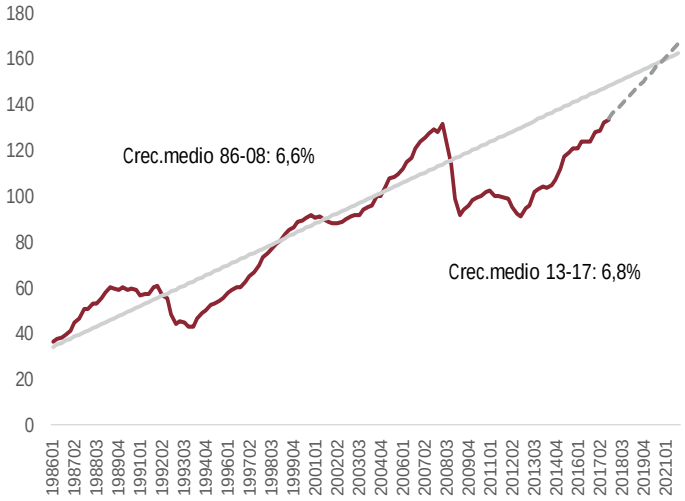
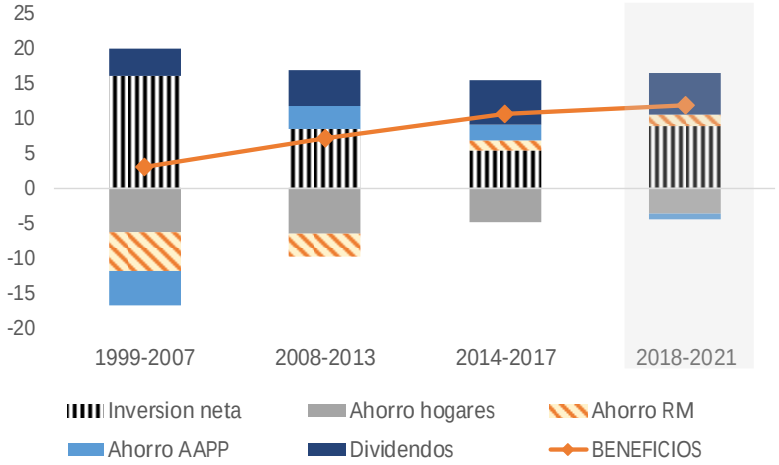


GRÁFICO 12. COMPOSITION OF THE CORPORATE PROFITS FROM THE LEVI-KALECKI EQUATION (% GDP)



The inertial evolution of public consumption in the medium term is expected to grow slightly towards a sustainable balance in the medium term, growing at rates below GDP, as the limit provided for by the expenditure rule comes into play. As already stated in precious reports, the evolution of this component depends fundamentally on the behaviour of the Regions and Local Corporations. Therefore, for this aggregate to be maintained at the forecasted levels, it will be essential for these sub-sectors make these changes, as well as the correct application of the expenditure rule. The tensions arising from expenditure with high inertial or structural content, such as the education or healthcare expenditure, will be equally conditioned by the pressures related to population increase, which are

expected to be contained considering the stagnation of the population expected in the medium term by the National Statistics Institute.

It is expected that the dynamism observed in the labour market in 2017 will continue in the medium term, albeit in a more contained way. It is expected that the dynamism experienced in 2017 in the generation of private employment will continue throughout 2018, and start to slow down slightly starting from 2019, in line with the evolution of economic activity in general. Towards the end of the forecasting horizon, a growth of the active population greater than that observed in recent years could be an additional lever which will contribute to the maintenance of the variation in private employment at values greater than 2%. However, the robust performance expected for investment in the next four years could lead to a rapid accumulation of productive capital that limit the increase in labour supply in the medium term, especially on the part of technology-intensive companies. In terms of employment by the PAs, it is expected that the evolution will be more contained in 2018 compared to 2017, accelerating gently from 2019 until the end of the forecasting horizon, in line with the evolution of the population and the increased need to provide services. On average, for the entire forecasting period, it is expected that the creation of public employment will be systematically less dynamic than expected for the private sector, and will stand around the values observed in 2017.

In the next four years the evolution of compensation per employee is expected to be in line with the increase in prices, in an environment of contained productivity per employee. Unlike what was observed in 2017, where the compensation per employee in the private sector remained almost unchanged (according to National Accounting figures), private sector wages should start to recover, evolving roughly in line with inflation over the medium term. Although a slight loss in purchasing power could still be generated in 2018, it is expected that in the medium term the robustness in the generation of employment, the return to unemployment rate levels yet to be seen during the last 10 years and the mirror effect of wage agreements at the public level are the factors that will contribute to generating upward wage pressures. In addition to the evolution of the average wage included in the National Accounts, it is important to stress that information available to date suggests that wage increases are distributed unevenly, with low-wage workers experiencing an increase in their compensation at a higher speed.[8] With respect to wages in the public sector, it is expected that they will increase slightly above the level of prices (see box 3 on the evolution of employee

[8] For example, the Active Population Survey with the deciles that provide data up to 2016.

compensation in the public sector). The general evolution of compensation per employee, prices and employment is consistent with a contained productivity per worker in the medium term, in line with the values historically observed.

Finally, for the external sector a positive contribution to growth is still expected, although gradually decreasing as the forecasting horizon progresses. The inertial scenario arising from AIReF's models continues to envisage a growth pattern that is more oriented towards the external sector, with a more productive economy able to sustain robust export growth rates. The steadfastness in global activity and trade, closely linked with the cyclical recovery particularly seen in investment, appears to more than compensate for the current period of exchange rate appreciation. In addition, the most recent behaviour of relative prices vis-à-vis our main trading partners also plays in favour of the dynamism of exports in the short term. For its part, import trends are forecasted to move towards rates in line with the evolution of final demand in our economy. This profile of balanced growth, and plausible in light of AIReF's forecasts, however, is subject to potential adverse risks, mainly by way of the trade tensions stemming from the tariff increases announced by the U.S. or a deceleration in the growth of the main trading partners of the European Union.

2.4. Ex ante analysis of the official forecasts

2.4.1. Risk balance

Domestic elements: institutional uncertainty in Catalonia

In the domestic sphere, AIReF believes that the short-term risks are contained. As stated in the Report on the macroeconomic outlook of the 2018 Draft General State Budgets, the evolution of short-term indicators in recent months has ruled out the materialisation of the worst scenarios associated with the increase in uncertainty in Catalonia at the end of last year. This moderation in uncertainty has contributed to the stabilisation in short-term forecasts for this Region. This has led AIReF to discontinue the publication of the real time forecast of Catalonia's GDP (MIPReD-CAT model), as it considers the quarterly monitoring of its economic activity along

with the rest of the Regions provided by the METCAP model to be sufficient, under a fully objective and homogeneous framework.[9]

However, an uncertainty scenario becoming chronic could lead to a risk in the medium term, mainly if it ends up affecting the investment decisions of economic agents. In this regard, the literature on the quantification of the economic impact of the institutional uncertainty associated with movements of the same characteristics is somewhat limited and inconclusive (see Box 1). There is a shortage of directly comparable episodes, where it has been possible to collect sufficient statistical information to be conveniently processed, and to be able to obtain reliable conclusions based on empirical evidence[10].

[9] For more details on the methodology and results of the regional quarterly GDP estimate, see AIReF's website (link here).

[10] In this regard note the article from Reynaerts and Vanschoonbeek (2016) which analyses the economic consequences of sovereigntist processes based on a panel of "newly independent countries" covering the period 1950-2013. They found evidence that the separation significantly slows the growth potential of the newly formed states, especially in the short and medium term, although the heterogeneity among the countries studies makes the gauging of the average impact in the long term more diffuse. Given that they therefore estimate the average effect on the panel, the extrapolation of the findings to all potential contemporary and future "newly independent countries" could be problematic, to the extent that they significantly differ from historical cases of state fragmentation considered in the analysis.

RECUADRO 1. Empirical evidence on the impact of chronic scenarios of institutional uncertainty

The example of Quebec stands out among those with the most similarities. In this specific case, some authors such as Sommers and Vaillancourt (2014) emphasise the fact that the political and institutional uncertainty associated to the Québécois process does not have a significant effect on GDP or investment, with the exception that this process will eventually materialise in the creation of a new independent state, where the size of this impact would also be bound by the conditions agreed upon by the respective governments after independence.

However, other authors such as McCallum and Green (1991) argue that the sovereigntist movement was responsible for the migration of many corporations and central offices from Montreal to Toronto, which led to an increase in the rate of relative unemployment between the two cities. Furthermore, Grady (1991) argues that the political uncertainty was responsible for a decrease in the level of investment per capita from Quebec to Ontario.

Conversely Stewart (2012) offers a more nuanced analysis looking back at the events that formed the Quebec economy before the Parti Québécois came to power for the first time. According to him, a number of 'adverse trends' such as the historic change of rail and maritime transport toward road transport, and the general movement of industrial activity toward western Canada, had already been affecting the economic performance of Quebec since the decade of 1940. All in all, the political instability would be responsible for no more than a 5% decrease in total investment.

On the other hand, Sommers and Vaillancourt (2014) indicate that if would have an indirect effect on per capita GDP caused by the changes in the labour supply as a result of migratory movements. In Canada, these would have occurred gradually since the Seventies by reducing the working-age population in Montreal (Quebec) through output flows, these being mainly English-speaking.

The international environment

The basic assumptions underlying the macroeconomic scenario accompanying the Stability Programme Update for the 2018-21 period (2018-21 SPU) are considered feasible. This scenario presents plausible assumptions in light of the most recent forecasts by international organisations and the latest developments in commodities and debt markets (see charts C.1 and C.3 in the annex). In relation to the previous update, the external assumptions have experienced a favourable revision in most cases, which partially explains a more favourable growth forecast. Global growth

has been revised upward, in particular, for the main trading partners in the euro zone; therefore, the momentum seen in exports is expected to continue. However, this impulse will be partially offset by the strengthening of the euro. The further revision with respect to spring 2017 occurs in the price of oil, for which the markets expect a growth of 33% in 2018, which will drive the growth of prices and imports in nominal terms. Finally, the assumptions related to the long-term yield curve have been revised 0.2 to 0.3% downward in the coming years, contributing to the expected good performance for investment.

The Government forecasts solid growth of world GDP and in the euro zone, in line with the main international agencies. Global activity continues to grow strongly. The Government expects that global growth will be maintained around 4% throughout the projection horizon, in line with the forecast of the European Commission and a few tenths above that estimated by the ECB or the IMF. According to the latter institution, the upward revision is due in part to the revival of world trade and in part to the expansionary fiscal policy in the US. The *momentum* is distributed evenly at the global level, with notable upward surprises in Asia and Europe. In fact, the Government has updated its forecast for GDP growth in the euro zone upwards by 0.6% for this year and by 0.2% for the coming year, in line with the latest forecasts from the ECB. This continued expansion is explained by external demand and the external sector. Drivers of domestic demand include the accommodative stance of monetary policy, the normalisation of credit conditions of the private sector, the increase in household net wealth and the improvement in labour market conditions. Strong exports are the result of the current expansion of world trade, which continues at rates above 4%, despite the protectionist effect of the U.S. As a result, the Government assumes that the Spanish export markets will grow 4.5% in 2018, 0.6% more than predicted in April 2017, with a slight deceleration from then on.

The Government and the main forecast centres expect the euro to stabilize after its appreciation in recent months with respect to the dollar. As a result, the ECB expects the nominal effective exchange rate of the euro to appreciate 4.5% in 2018, which could partially offset the stimulus from the external demand.

The Government hypotheses regarding the performance of public-debt securities are at levels comparable to market expectations. The profile forecasted in the macroeconomic scenario of the SPU for the interest rate for Spain's government debt at ten years shows a trend from 1.6% forecasted in 2018 to 2.6% in 2021. The latter figure might be too high in light of the yields implicit in the futures markets, closer to 2%. In addition, both the Government and the ECB expect short-term interest rates to remain negative in the next

two years and pick up from 2020, because of the gradual normalisation of monetary policy. At its meeting in January 2018, the ECB announced that it would reduce the monthly purchase of assets from 60,000 to 30,000 million euros, maintaining its purchasing programme at least until September 2018. In any case, in a context of moderate prices, it is expected that intervention rates will be maintained at a historical low even after the end of the quantitative expansion policy.

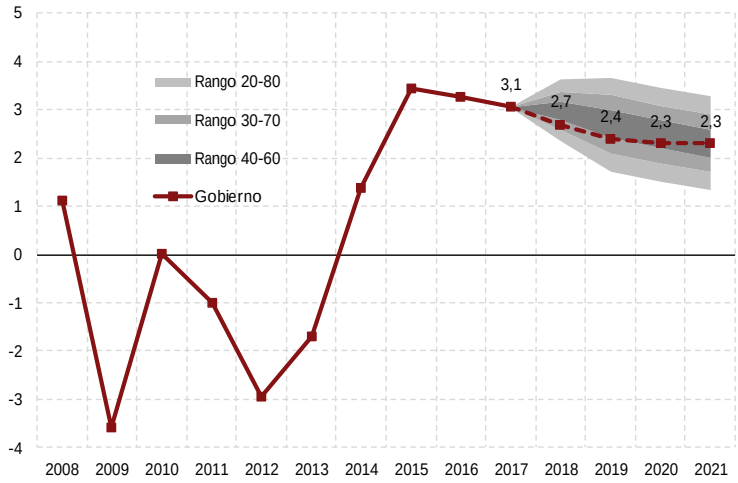
The behaviour of the price of oil in recent weeks has been an upside surprise. The Government's forecast for oil prices is in line with the futures markets and the forecasts by the main international organisations, at the time of preparation. The improved global economic prospects, the weakness of the dollar, the extension in November of the agreement between OPEC and Russia to limit production along with geopolitical tensions in the Middle East have all driven up the price of crude oil much higher than that expected in the previous 2017-2020 SPU. In the past 12 months, the price of a Brent barrel in dollars has grown by 35%, standing very close to $70 per barrel in mid-March. It was forecasted that prices would remain at this level for the year and that there would be a gradual decline thereafter. However, recent geopolitical events such as the United States' withdrawal of the nuclear deal with Iran have generated additional inflationary pressures, with the price of a Brent barrel bordering $80 mid-May.

The risk scenario is considered to be balanced in the short term, while in the medium term there may be downside surprises. In the short term, global growth is expected to remain robust, in line with what was observed in 2017, in a context of favourable financial conditions. On the contrary, it remains to be seen whether the increase in the price of oil during the last few weeks (20% above the figures included in the SPU) is in response to temporary factors, or whether there are deeper reasons sustaining the level of balance around the current values. On the other hand, increasing risks are identified in the medium term. There is concern about the possible disorderly correction in the prices of overvalued financial assets that have benefited from very favourable financial conditions. In fact, turbulence in the equity markets was already observed in February and March as a result of the tariff increases announced by the US and retaliations from China. Therefore, the implementation of protectionist policies by some of the major world trade players, along with geopolitical tensions in the Middle East, are also risks to consider beyond 2018. The gradual reversal of the American government's expansive policy will reduce dynamism in global growth in the medium term. At European level, the departure of the United Kingdom from the European Union expected for March 2019 may have negative consequences on trade flows and financial flows, especially if the country leaves the Single Market.

2.4.2. Main macroeconomic aggregates

The real GDP forecasts of the 2018-2021 SPU show progressively declining growth rates and are considered feasible. The Government expects that GDP growth will move from 3% in 2017 to 2.3% in 2020 and 2021. This slowdown is conditioned by a contribution of domestic demand that is becoming progressively moderate and will stabilise toward the end of the forecasting horizon at 2.1%. On the other hand, the Government expects that the contribution to growth from net external demand will remain positive and of a magnitude of between 0.2 and 0.4% year. These forecasts are broadly in line with respect to other available forecasts, both private and public, that generally only cover the years 2018 and 2019. The forecasts for 2020 and 2021 are more optimistic than those published by the IMF - which expected growth rates around 0.5% lower in 2020 and in 2021 - and those published by the ECB (which only covers the period up to 2020). However, in light of AIReF's models, the GDP growth envisaged by the SPU is considered plausible throughout the forecasting horizon.

GRÁFICO 13. REAL GDP GROWTH *(%)*



Source: Ministry of Economy, Industry and Competitiveness (dashed line) and AIReF estimates

Growth for 2018 and 2019 is supported by some expansionary fiscal policy measures, whose impact on growth is considered possible. The 2018-2021 SPU estimates the budgetary impact of the expansionary fiscal policy measures at 0.5% and 0.3% GDP in 2018 and 2019 respectively.[11] The comparison of the SPU's estimates with the macroeconomic scenario without expansionary measures submitted by the Government shows that it attributes 0.2% of the expected growth in 2018 and 0.1% of the expected growth for 2019 to fiscal policy. Considering that most of measures come from the expenditure side, the implicit aggregate multiplier assumed by the Government is considerably moderated in 2018 while it becomes more in line with literature estimates in 2019.[12]

However, the channels through which the Government expects fiscal expansion to be transmitted are less credible. It is expected that the measures provided for in the SPU for 2018 and 2019 will result in an increase in household gross disposable income. In this way, their impact on economic activity would be channelled mainly through an increase in private consumption and, to a lesser extent, residential investment. However, the comparison between the scenarios referred - with and without measures - shows that the Government expects that the expansionary measures will result in an increase in productive investment in addition to private consumption. Given the nature of the measures presented, the mechanisms that would lead to an increase in investment in equipment do not appear to be justified a priori.

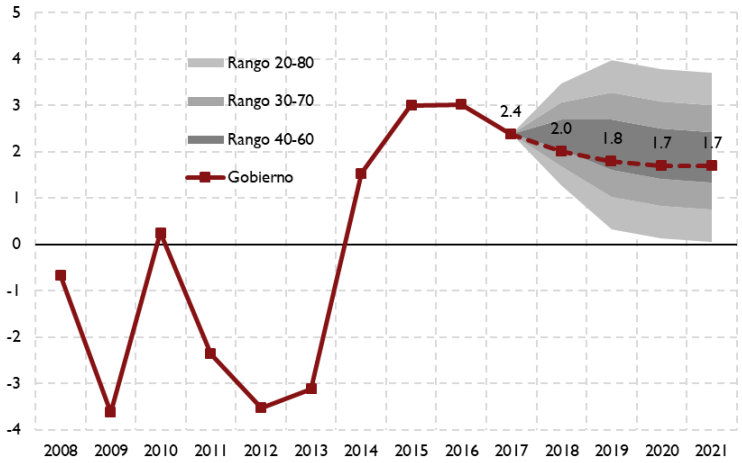
By components and regarding private consumption, the SPU forecasts show some downside bias when compared with the consensus of private institutions, especially in 2018. The Government's prognosis is also more conservative than that of the main international institutions. However, based on the uncertainty interval generated by the prediction models developed by AIReF, the figures provided by the Government are

[11] This implies a certain modification with respect to the measures included in the macroeconomic scenario initially sent by the Government to AIReF on 18 April. At that time its aggregate budgetary impact amounted to 0.4% GDP in 2018 and 2019 according to its own estimates.

[12] The literature estimates of the expenditure multiplier in Spain are around1.2 to 1.4%. See, for example, De Castro and Hernández de Cos (2006), De Castro (2005) or Estrada et al (2004). In light of this the implicit multiplier derived from the Government's estimates is 0.6% in 2018 and 1.0% in 2019. The implicit multiplier estimates are obtained by dividing the increase in GDP projected by the Government in the scenario with measures with respect to the *no-policy change* scenario by the budgetary impact of the measures estimated by the Government.

likely. In fact, the fall within the 40-60 range for the entire forecasting horizon and show just a slight downward bias in the short term (see Figure 14).

GRÁFICO 14. GROWTH OF REAL PRIVATE CONSUMPTION *(%)*



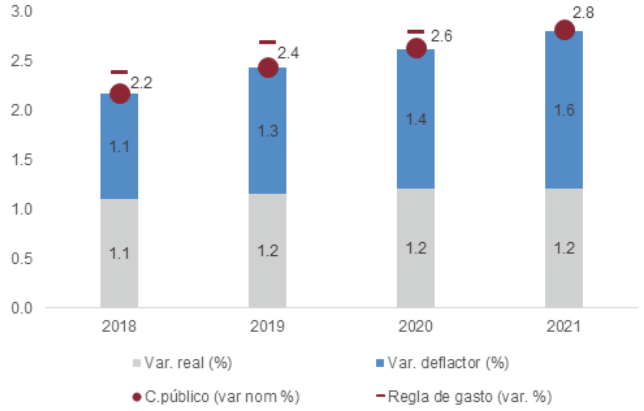
Source: Ministry of Economy, Industry and Competitiveness (dashed line) and AIReF estimates

For its part, the forecast for nominal public consumption in the SPU scenario shows a moderate downside bias in 2018, related to the expected evolution of implicit prices (see below)**.**[13] This is a central variable in linking the macroeconomic scenario with the budgetary scenario, which has been projected with ambitious restraint in previous SPUs. In this edition the Government anticipates a slight recovery of public consumption in nominal terms, although the fundamentally restrictive orientation of previous years still prevails (see Chapter 4 and Box 3 for more details). The contained evolution of public consumption is a key element in the Government's debt reduction strategy, provided that the evolution of the rest of the income items and other expenses included in the Government's fiscal sheet materialise (see chapter 3.1 for more details). In addition, l public consumption accounts for about 20% of GDP and is, therefore, an essential element within the macroeconomic scenario envisaged in the SPU. In addition, it is the

[13] Information was available on the three main items that make up public consumption (compensation of employees, intermediate consumption and social transfers in kind acquired on the market) in line with the expected evolution in the SPU of nominal public consumption. However, no information was available on the other components that make up the aggregate, such as Sales - which is the sum of Production for own final use, Payments for other non-market production and Market production, which are subtracted from the three concepts mentioned above, or the consumption of fixed capital.

component of demand over which the PAs have a greater degree of action[14]. Its expected evolution is broken down into its nominal and real component (see Figure 15).

GRÁFICO 15. GROWTH OF NOMINAL AND REAL PUBLIC CONSUMPTION *(%)*



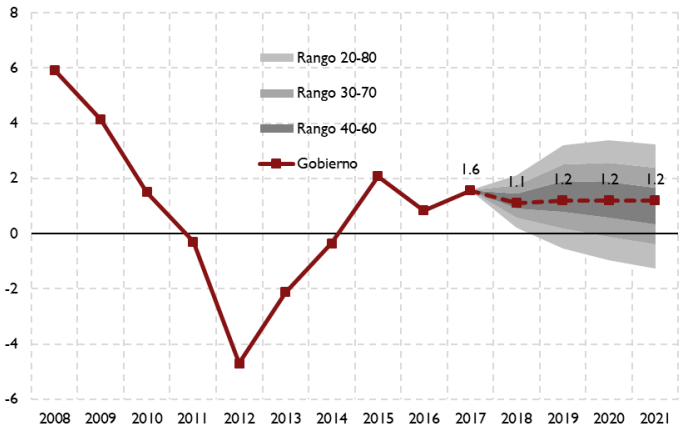
In real terms, it is expected that public consumption will grow at relatively constant positive rates throughout the period. The feasibility of this path will mainly depend on two opposing factors[15]. On the one hand, the behaviour of the population that, according to INE's projections[16], will decline slightly over the period. This will contribute to the containment of expenditure as it entails a lesser aggregate requirement for public services. On the other hand, it is expected that the good pace of the economy will exert pressure in the opposite direction to recover a greater degree of coverage of public services (see Figure 19). There is, therefore, an upside risk if the intensity of the upward pressure exceeds the downward effect caused by the pace of the population.

[14] The meaning and assessment of public consumption is expanded upon in WP 2/2017 http://www.airef.es/es/contenidos/documentos-tecnicos/1004-documento-de-trabajo-2-2017-a-que-nos-referimos-al-hablar-de-consumo-publico

[15] We have developed an error correction model that relates public consumption in real terms with GDP and the population.

[16] It is expected that the total population will fall by 0.01%, 0.03% and 0.06% in 2018, 2019, 2020 and 2021 respectively.

GRÁFICO 16. GROWTH OF REAL PUBLIC CONSUMPTION *(%)*



Source: Ministry of Economy, Industry and Competitiveness (dashed line) and AIReF estimates

GRÁFICO 17. REAL GROWTH OF PUBLIC CONSUMPTION, GDP AND POPULATION

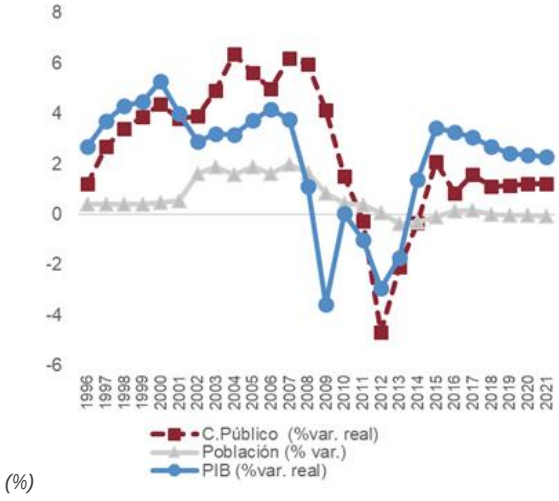
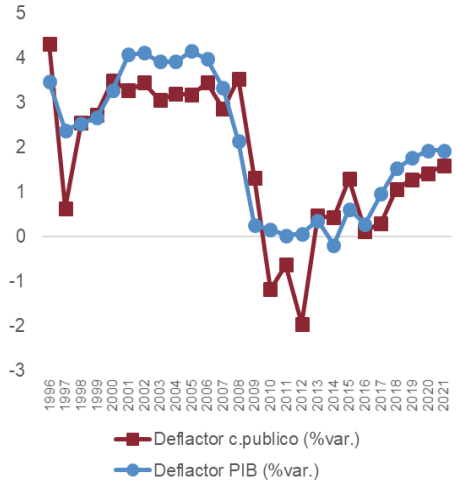


GRÁFICO 18. EVOLUTION OF PUBLIC CONSUMPTION DEFLATOR *(%)*) AND GDP



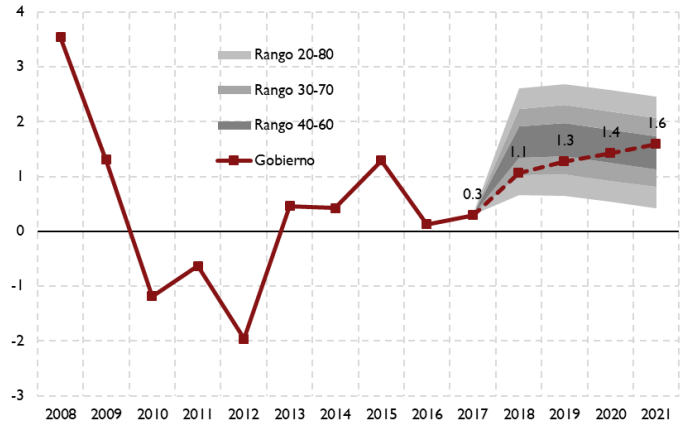
Source: Ministry of Economy, Industry and Competitiveness, IGAE and INE

With regard to the evolution of the implicit prices of public consumption envisaged in the SPU, there is a certain downside bias in the Government's forecasts for 2018. Historically, the implicit prices of public consumption have a strong relationship with the GDP deflator (see Figure 20) and with public salaries[17]. This synchrony was interrupted to some

[17] The relationship with public salaries explains the outliers of the relationship between the evolution of the GDP and public consumption deflators: 1997 (wage freezer), 2010 (decline in officials' wages of 5%), 2012 (extra pay withdrawal), 2015 (first return to the pay of 2012)).

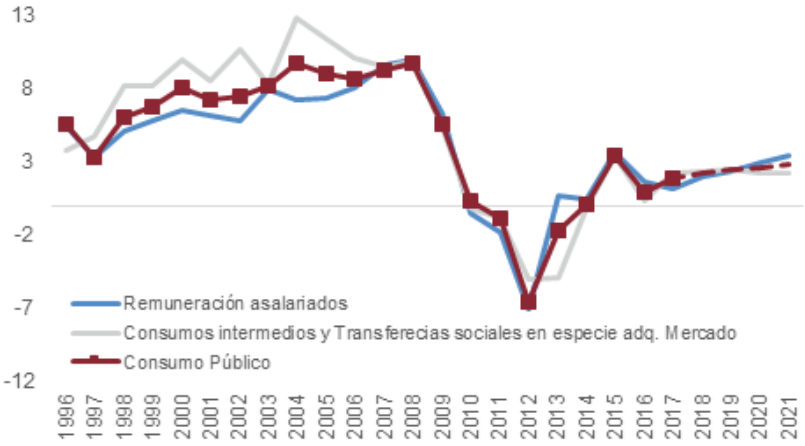
extent at the beginning of the cyclical recovery of the previous period, since the annual budget laws limited the increase of public salaries to 2%, below inflation. Prolonging this latter trend, the growth in the public consumption deflator of 1.1% forecasted by the Government for 2018, is 0.4 percentage points less than that of GDP. It is also lower than the wage agreement for public employees signed between the Ministry of Finance and Public Function and the trade unions CCOO, UGT and CSI-F, which envisages a minimum increase for 2018 of 1.75%. This could pose an upside risk[18] for this year.

GRÁFICO 19. PUBLIC CONSUMPTION DEFLATOR GROWTH *(%)*



Source: Ministry of Economy, Industry and Competitiveness (dashed line) and AIReF estimates

GRÁFICO 20. NOMINAL GROWTH OF PUBLIC CONSUMPTION AND ITS MAIN COMPONENTS



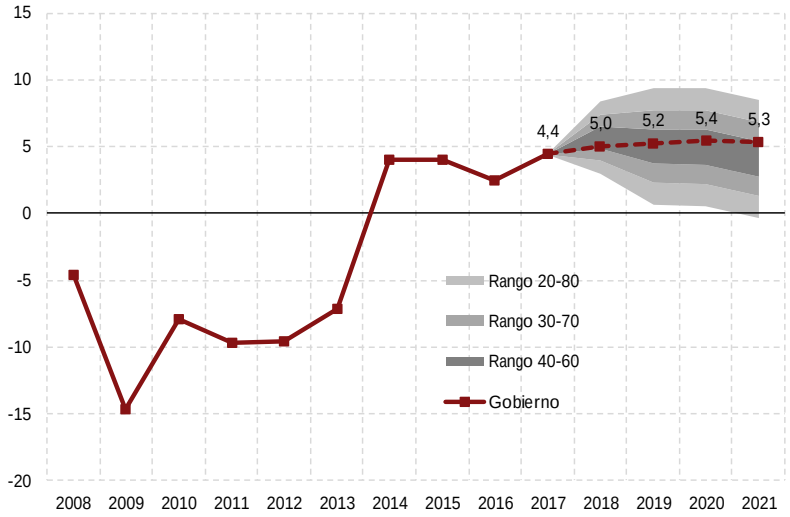
(%)

Source: Ministry of Economy, Industry and Competitiveness (dashed line), IGAE and INE

[18] We have developed a correction model that relates the public consumption deflator with the implicit prices of GDP and public-sector wages.

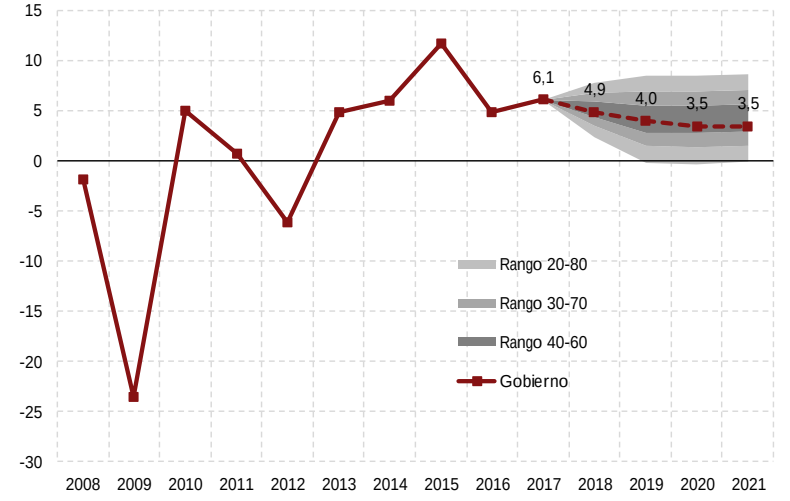
With regard to gross fixed capital formation, the Government's forecasts were considered feasible. The path projected by the Government for investment in construction indicates an acceleration toward the end of the period that could be slightly optimistic. In fact, in the light of the projections of AIReF's models, investment in construction is projected to accelerate until 2019 and would then experience robust, but lower, growth rates, until 4% in 2021. The slope of the path projected by the Government for investment in equipment is the opposite, pointing to a more pronounced slowdown than that projected by AIReF's forecasting models. These suggest a stabilisation in the growth of investment in equipment around 4.2% from 2019.

GRÁFICO 21. GROWTH OF GFCF IN CONSTRUCTION AND INTELLECTUAL PROPERTY *(%)*



Source: Ministry of Economy and Competitiveness (dashed line) and AIReF estimates

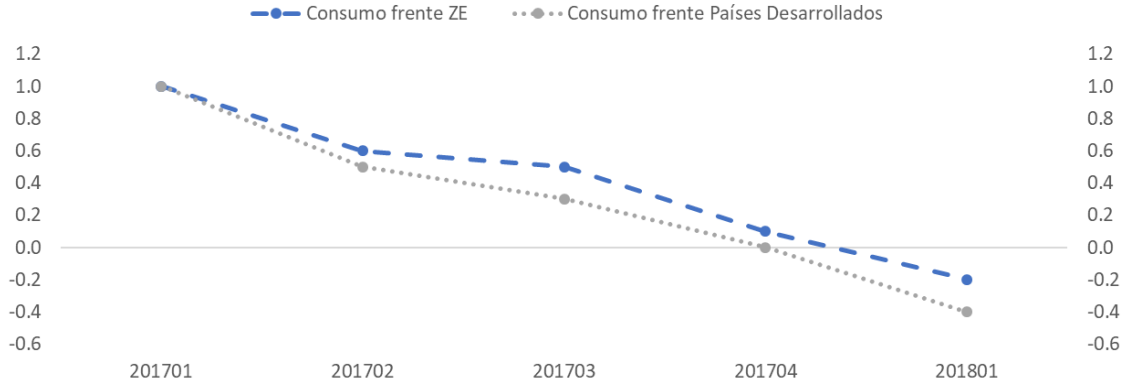
GRÁFICO 22. GROWTH OF GFCF IN EQUIPMENT AND CULTIVATED ASSETS *(%)*



Source: Ministry of Economy and Competitiveness (dashed line) and AIReF estimates

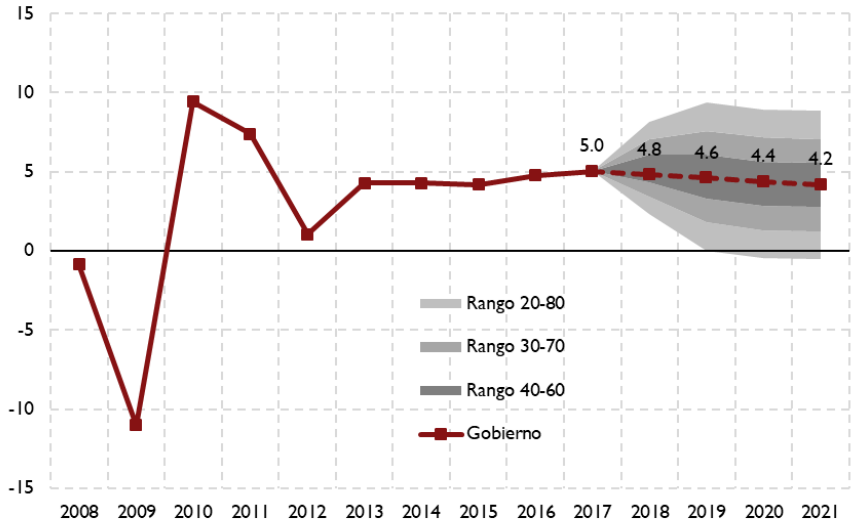
The projected evolution for exports, with a relatively high and sustained growth, is considered likely. Despite the appreciation of the exchange rate, the continued momentum of the global economy is allowing exports to maintain their good form in the forecasting horizon. In addition, the latest data on relative prices would also be favourable for the performance of exports in the short term, as reflected in Figure 23. Overall, these factors have kept the forecast presented by the Government in the years covered by the SPU very close to the centre of AIReF's forecasting interval (see Figure 24). In addition, this path shows a growth in line with the scenarios presented by the IMF and the European Commission.

GRÁFICO 23. RELATIVE REAL CONSUMPTION PRICES *(%)* (*)



Source: Bank of Spain. (*) An increase in the relative real prices means a loss of competitiveness and vice versa.

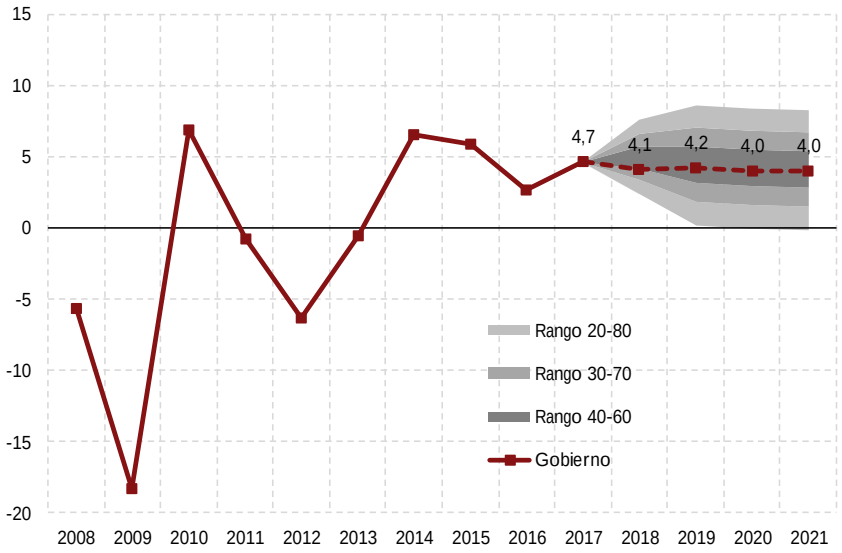
GRÁFICO 24. GROWTH OF REAL EXPORTS *(%)*



Source: Ministry of Economy, Industry and Competitiveness (dashed line) and AIReF estimates

The case of imports is relatively parallel, with the 2018-2021 SPU showing a growth path that is considered feasible. The figure envisaged by the Government for the increase in imports is in line with the rest of national and international institutions. Although AIReF's short-term models mark a greater dynamism in comparison with the Government's expectations, the medium-term models are aligned with growth close to 4%, with the expected behaviour of final demand for imports as its fundamental determinant. Therefore, with regard to the contribution of the external balance to growth, the Government's forecasts of maintaining a positive contribution, although progressively reducing, are plausible.

GRÁFICO 25. GROWTH OF REAL IMPORTS *(%)*

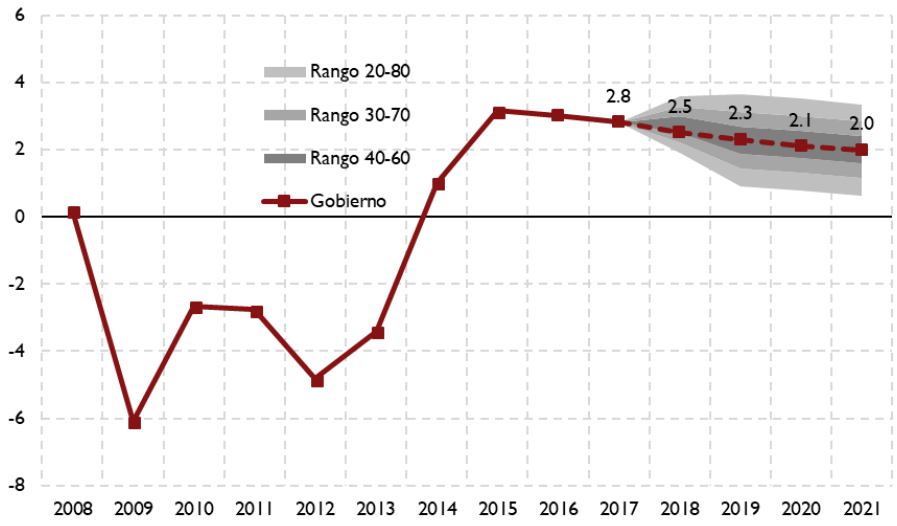


Source: Ministry of Economy, Industry and Competitiveness (dashed line) and AIReF estimates

The growth of total employment equivalent to full-time is slightly lower than the expected real GDP growth, resulting in an increase in apparent productivity. The SPU expects a growth of total employment equivalent to full-time lower than that of real GDP by around 0.2 to 0.3%. This dynamic is in line with the rest of the available forecasts and AIReF's own forecasts and implies a maintenance of the extent of the progress in productivity per employee. Toward the medium term, a gradual slowdown in employment generation is expected, slightly more pronounced than that provided for in the previous SPU. Given the low public employment replacement rates expected, this means private job creation rates in excess of the GDP growth rate (high employment-to-GDP elasticity). In terms of wages, for 2018 the Government introduces a limited increase, which in aggregate terms entails a loss of 0.2%

in purchasing power using the private consumption deflator. If we consider that salaries will increase by an average of 2% in 2018, it can be concluded that the Government's forecasts entail much more contained private wage dynamics, with greater loss of purchasing power and where there is no translation or "mirror effect" of public wage agreements to private wages.[19] In the medium term it is expected that wages will increase in line with consumer prices. Finally, the evolution of the unemployment rate (which decreases to 11% in 2021) and the near disappearance of the wage-inflation gap is consistent with the gradual disappearance of the current excess supply in the labour market and public wage agreements (see box 3 on the evolution of the compensation per employee). The decrease in the unemployment rate projected by the Government is, however, more pronounced than expected by other forecasting agencies as the forecasting horizon progresses.

GRÁFICO 26. EMPLOYMENT GROWTH *(%)*



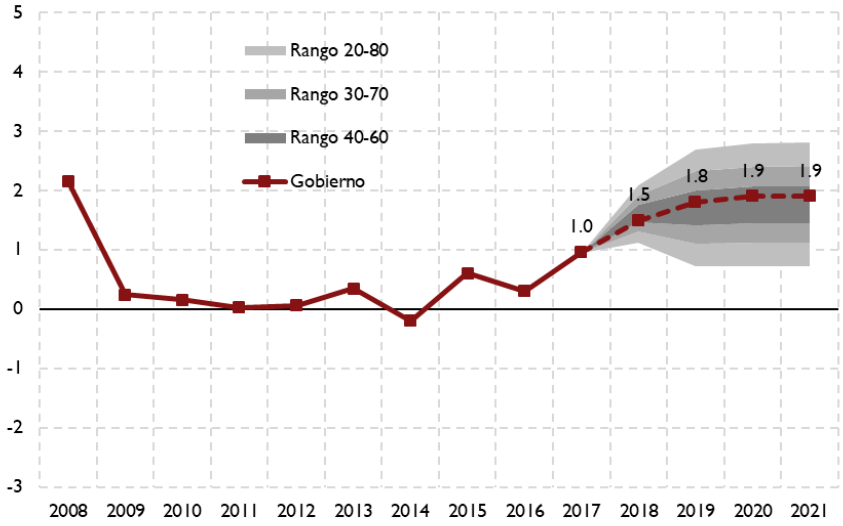
Source: Ministry of Economy, Industry and Competitiveness (dashed line) and AIReF estimates

Regarding prices, the macroeconomic scenario of the 2018-2021 SPU envisages a gradual acceleration. Both the private consumption deflator and GDP growth will accelerate gradually over the period until they are aligned with the inflation target of the European Central Bank, around 1.9%,

[19] In this sense, it is worth mentioning that the information provided in the SPU does not discriminate between private and public sector, and therefore it has not been possible to conduct a comprehensive individual analysis on the evolution of wages and productivity in each sector.

in 2021. The path traced for the GDP deflator is consistent with AIReF's forecasting models, even though it may be more expansive in the final part of the forecasting horizon. In any case, the greater dynamism of prices is expected due to the gradual acceleration of the underlying inflation, driven by the domestic inflationary pressures stemming from the positive output gap soon to be seen. Also, in the short term it is expected that inflationary pressures arising from the rise in the price of oil and raw materials will exert upward pressure on prices, although somewhat mitigated by the appreciation of the exchange rate. For its part, the trajectory of the compensation per employee reflected in the Government's macroeconomic scenario marks a progressive increase, in parallel to the evolution of prices, but with growth rates slightly lower than those of the private consumption deflator and the GDP deflator in the short term. This would lead to a limited loss of purchasing power. However, an upside risk may be envisaged in this regard, considering the above for the public consumption deflator and the wage agreement signed for public employees.

GRÁFICO 27. GDP DEFLATOR GROWTH *(%)*



Source: Ministry of Economy, Industry and Competitiveness (dashed line) and AIReF estimates

In conclusion, the macroeconomic scenario of the 2018-2021 SPU is generally credible, although there are certain reservations with respect to the trajectory of public consumption. AIReF considers that the path envisaged for GDP in the SPU is achievable. Similarly, the contributions to growth projected for national demand and the external sector are feasible. Overall, the expected evolution of the demand components is also considered feasible, although biases are identified in the private consumption forecasts in 2018. Finally, certain reservations remain with regard to the

public consumption forecasts in nominal terms, primarily with regard to the beginning of the forecasting period.

2.5. Sensitivity analysis of the 2018-2021 SPU

European legislation requires the submission of a sensitivity analysis to report on the budgetary impact of changes in the main exogenous assumptions. The Code of Conduct for the presentation of SPUs recommends that the main changes in the macroeconomic and budgetary forecasts in relation to the previous year are detailed. On the other hand, the European Commission requires authorities to perform a sensitivity analysis on changes in the main exogenous variables underlying macroeconomic forecasts and that may have an impact on the budgets. Although there is no guide that specifies the type of methodology or the characteristics of the disturbances simulated (sensitivity to changes in interest rates recommended in the case of euro zone countries), it is made clear that Governments should provide information to understand how changes in macroeconomic variables affect income and expenditure separately.

The 2018-2021 SPU includes a section dedicated to the sensitivity analysis. In line with the Code of Conduct, and as in previous years, the Government included a detailed sensitivity analysis in the 2018-2021 SPU, with its corresponding impact on the main macroeconomic variables, budgetary balance and debt. Three scenarios are simulated: (i) sustained increase in interest rates, (ii) a temporary decline in the growth of the demand for exports and (iii) higher crude oil prices. The results presented have been estimated with the REMS, a dynamic general balance model.

The macroeconomic and budgetary impact of a permanent increase in interest rates is relatively in line with AIReF's internal models. The 2018-2021 SPU simulates an increase in interest rates of 125 basis points, which is gradual in the first year and is maintained until 2021. The cumulative impact on economic activity is around 1 percentage point, which is in line with AIReF's internal models. However, the fall in the associated labour activity implies a GDP-employment elasticity of around 0.5, which is considered to be a little low and suggests that the impact could be even greater. With regard to the accounts of the PAs, the evolution of the budgetary balance and the debt-to-GDP ratio is consistent with AIReF's estimates and is in line with the

cyclical sensitivity of the income of 0.5.[20] Due to the strong presence of non-linearities that exist in response to changes in this assumption, it would be desirable to show the effects of a greater increase in the interest rates (for example, using the real rates of the historical average since membership in the monetary union).

The sensitivity of economic activity to a lower temporary growth of the demand for exports seems feasible although slightly underestimated with respect to AIReF's internal estimates. An alternative scenario proposed in the SPU is a fall in the rate of growth of the demand for exports of 5% during 2018, to then return to the evolution of the baseline scenario. According to the Government's simulations, the negative impact in 2018 would be around 0.7 percentage points for GDP growth and -3.7 percentage points for exports, always with respect to the baseline scenario. According to AIReF's internal models, a similar shock would have a greater effect. For the remainder of the period, the discrepancy between AIReF's estimates and the SPU is similar, over 1% year to year in the case of GDP, and involve significant differences in the evolution of the budgetary balance and the debt-to-GDP ratio. On the other hand, it should be noted that the calibration implies a decrease in the demand for exports outside of the European Union. There is no (or at least not identified) scenario where the demand for exports from the United Kingdom decreases, which represents about 7% of Spanish exports.[21]

The simulated effects of a permanent increase in the price of oil simulated in the SPU are considered to be overestimated. The 2018-2021 SPU presents a scenario where oil prices rise by 12.5, 14.7 and 9.3 percentage points in 2018, 2019 and 2020, respectively, in relation to the values used in the baseline scenario. Although in 2018 the impact on GDP is lower, with its growth falling by 0.7 percentage points with respect to the central scenario, from 2019 a significant decline is forecasted, accumulating 3.8 percentage points for the entire forecasting horizon, and a lower job creation, of 2.8 percentage points. In budgetary terms, the cumulative effect on the budgetary balance is 2% GDP, while the government debt-to-GDP ratio would be 6.6% GDP higher than in the baseline scenario, consistent, as in other scenarios, with a cyclic sensitivity of around 0.5. According to

[20] The REMS Model supposes total debt refinancing each year. The impact of this assumption implies that the impact on the interest burden could be overestimated slightly at the beginning of the forecasting horizon.

[21] The expected growth of the EU (provided by the services of the European Commission) underlying the baseline macroeconomic scenario assume a status quo in trade relations between the United Kingdom and the rest of the EU as of March 2019.

AIReF's models, the economic impact simulated by the Government would be overestimated. In this sense, an equivalent increase in the price of oil would have an impact of a similar temporary duration (the response of a disturbance would be reflected fully at12 months) but of a lesser magnitude. As a result, the deterioration in the budgetary balance and the increase in the debt-to-GDP ratio would be equally lower (see Box 3). It is important to note that recently the price of oil has achieved and even exceeded the levels assumed in the sensitivity scenario, which calls into question the validity of the assumptions used in the baseline scenario. However, regarding the sensitivity exercise on the macro-fiscal variables, this factor is not considered critical, since the calibration in the REMS is carried out on the basis of deviations from the original assumptions, which are not necessarily those underlying the baseline macroeconomic scenario, but are used for simulation exercises.

RECUADRO 2. Oil prices and output

The SPU assumes that the price of oil will stand at $67.7 per Brent barrel in 2018 and $63.9 in later years. As the sensitivity scenario, the SPU considers an additional increase of the price of the barrel in dollars up to $75 per barrel in 2018 and up to $82 per barrel in 2019, with an estimated impact on GDP, using the REMS model, of -0.7% in 2018 and -3.8% accumulated in 2021.

Recent geopolitical tensions have increased the likelihood of this scenario for 2018. In addition, the price of oil stands near $80 per barrel in May[22]. Maintaining this level of prices over the year, the sensitivity scenario of the SPU would imply a slowdown of 7% in economic activity in 2018. However, short-term indicators continue to show strength.

It is appropriate to review the literature and alternative calculations to assess how likely it is that oil will have an impact of the magnitude estimated in the SPU. It is worth noting the complexity of establishing structural relationships in a market that has experienced significant transformations over the past two decades, such as the entry of new suppliers and substitutes and a growth in demand mainly explained by emerging countries. In addition, in many episodes it is difficult to discern if the market experiences a supply shock, in which the relationship between price and activity is negative, or a demand shock, in which the relationship is positive.

The Quarterly Model of the Bank of Spain (Arencibia et al., 2017) estimates that the price of oil affects, through the private consumption deflator, all real deflated variables, such as disposable income of households, real wealth or interest rates. Using its table of multipliers, the impact of an increase in the price of oil of 11% in 2018, as simulated in the SPU, would lead to a moderation in the economic activity of 0.1% GDP with respect to the baseline scenario.

On the other hand, an exercise with time series models (estimating a BVAR model of the series in the price of oil deflated by the wage rate, real household consumption and employment) points to moderate results. With regard to the impulse response function, it is noted that a positive disturbance in the price of oil depresses consumption, although this effect takes time to manifest itself in all its intensity (about 5 quarters) and is not significant. Assuming a 60% contribution of household consumption to GDP, it is estimated that the cumulative impact of a permanent increase of 10% in the price of oil on economic activity is -0.09, -0.26 and -0.36 percentage points, in the years t, t+1 and t+2, respectively, very similar to the multiplier calculated by the Bank of Spain.

[22] In the January- May accumulation the price ascends to $70 per barrel, equivalent to 57 euros, still below the scenario with the oil shock of 61 euros per barrel.

As proof of robustness, a VAR model of the price of oil deflated by wages and an alternative measure of activity, the IBEX, were examined. The result is that a persistent shock in the price of oil depresses activity, albeit with some delay in expressing its maximum intensity (approximately 12 months), and the relationship is not significant.

In conclusion, the REMS model could be overestimating the impact of a supply shock in the price of oil on economic activity.

2.6. Forecast endorsement

Based on the exogenous assumptions and defined policies, AIReF endorses the Government's macroeconomic forecast included in the 2018-2021 Stability Programme Update (SPU). AIReF considers that the Government's macroeconomic scenario accompanying the 2018-2021 SPU to be prudent in the short term and likely as the forecasting horizon progresses.

The risks scenario reflected in the SPU is considered balanced although downside surprises could materialise earlier than expected and there are risks in the medium term. In the short term, global growth is expected to remain robust, in line with what was observed in 2017, in a context of favourable financial conditions. On the contrary, it remains to be seen whether the increase in the price of oil during the last few weeks (20% above the figures included in the SPU) is in response to temporary factors, or whether there are deeper reasons sustaining the level of balance around the current values. For the moment, the impact on the futures market is contained. On the other hand, increasing risks are identified in the medium term. The progressive withdrawal of monetary stimuli and its impact on real interest rates, the implementation of protectionist policies by some of the major world trade players, along with geopolitical tensions in the Middle East, are risks to be considered beyond 2018. At European level, the departure of the United Kingdom from the European Union may have negative consequences on trade flows and financial flows, as well as on the evolution of tourism. So far, the impact has been less than expected, although the completion of the exit agreement could clarify the potential effects for both the British economy and its major European partners from 2019.

3. Budgetary scenario of the 2018-2021 SPU

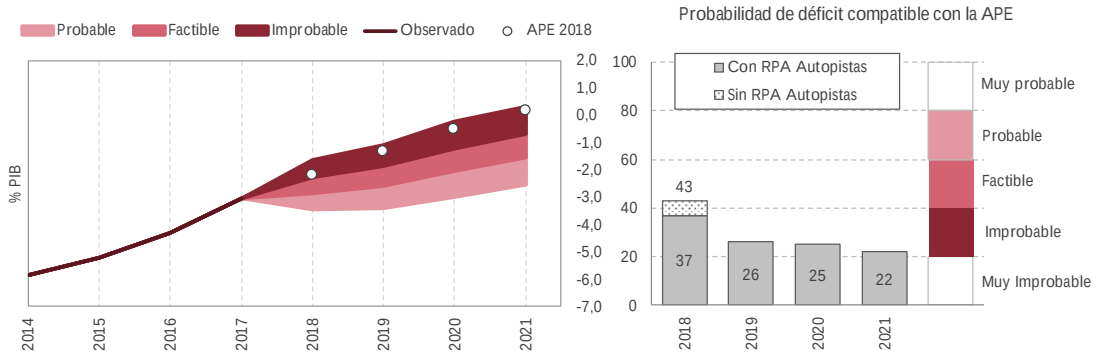
3.1. Analysis of the budgetary scenario of the 2018-2021 SPU

3.1.1. Analysis of the deficit path

AIReF considers it unlikely to comply with the deficit path planned in the 2018-2021 SPU, with the likelihood decreasing as the period progresses. The path envisaged in the SPU reflects a deficit reduction of 3.2% GDP for the General Government (GG) in the 2018-2021 period, reaching a surplus of 0.1% GDP in 2021.[23] gráfico 28 reflects the deficit path foreseen in the SPU for the GG (Table 4.3.1.1 of the SPU) and AIReF's projections, in a scenario that incorporates its assessment of the measures announced and in which revenues and expenditure will evolve in accordance with the available budgetary information and the results of the projection models. In line with the SPU of previous years, the expected deficit reduction would be achieved, to a greater extent, through a reduction in expenditure of 2.4% GDP (from 41% to 38.6%) in addition to a revenue increase of 0.8% GDP (from 37.9% to 38.7%).

[23] The deficit path envisaged by the SPU for the 2018-2021 period is -2.2%, -1.3%, -0.5% and 0.1%. The 2018 target corresponds with that laid down in the EDP Decision of the EU Council of August 2016 (available here). At the European level, it is necessary to distinguish between 2018 and the rest of the period due to the foreseeable departure of Spain from the Excessive Deficit Procedure and its entry into the preventive arm of the Stability and Growth Pact in 2019. The deficit targets contained in the SPU for the years 2019, 2020 and 2021 correspond to those set out in the Agreement of 13 July 2017 laying down the stability targets.

GRÁFICO 28. 2018-2021 NET LENDING/BORROWING PATH. GENERAL GOVERNMENT IN % GDP



Source: Stability Programme, IGAE and AIReF's estimates

The SPU only includes the budgetary forecasts of the General Government. The fiscal scenario contained in the SPU is exclusively defined for the General Government (GG) and includes the main revenue and expenditure headings in the national accounts. In previous reports AIReF has pointed out the need to include a disaggregation by sub-sector, which is only done in the SPU to analyse the past, and greater detail in the main revenue and expenditure headings, with special emphasis on the assumptions underlying their evolution.

The measures included in the SPU hinder compliance with the expected deficit path. The 2018-2021 SPU includes new measures for 2018 not provided for in the 2018 Draft GSB which suppose a considerable increase in public expenditure. It should be noted that the SPU does not include measures for the years 2020 and 2021 for the CA and SSF sub-sectors, but does include measures, however, for the Regions and LGs. Table 1 shows the impact estimated by the SPU and by AIReF of the measures included.

CUADRO 1. 2018-2021 SPU MEASURES GENERAL GOVERNMENT (% GDP)

MEDIDAS	2018		2019		2020		2021	
	APE	Valoración AIReF	APE	Valoración AIReF	APE	Valoración AIReF	APE	Valoración AIReF
INGRESOS	-0,01	-0,07	0,02	-0,12	0,04	0,04	-0,01	-0,01
Administración Central	0,00	-0,07	0,00	-0,11	0,00	0,00	0,00	0,00
Seguridad Social	-0,04	-0,02	0,00	-0,02	0,00	0,00	0,00	0,01
CCAA	-0,01	-0,01	0,02	0,02	-0,01	-0,01	-0,01	-0,01
CCLL	0,03	0,03	0,00	0,00	0,05	0,05	0,00	0,00
GASTOS	-0,46	-0,62	-0,31	-0,57	-0,02	-0,44	0,02	-0,31
Administración Central	-0,24	-0,31	-0,26	-0,40	0,01	-0,41	0,00	-0,34
Seguridad Social	-0,18	-0,28	-0,09	-0,20	0,00	0,00	0,00	0,00
CCAA	-0,02	-0,01	0,03	0,01	0,00	0,00	0,00	0,00
CCLL	-0,02	-0,02	0,01	0,01	-0,03	-0,03	0,02	0,02
TOTAL MEDIDAS	-0,47	-0,69	-0,28	-0,69	0,02	-0,40	0,01	-0,32

AIReF's assessment of the deficit target for 2018 changes from feasible to unlikely as a result of the new measures announced. The SPU includes new measures for 2018 that were not included in the Draft GSB presented before the Parliament. As indicated in the SPU, new measures have been proposed during the parliamentary process such as the increase in pensions, 1.35% above the result of the application of the Pension Revaluation Index (PRI) in 2018 and 2019. In AIReF's assessment of 17 April it was reported that t compliance with the stability target in 2018 was considered feasible but very difficult to achieve, provided that the deviation of the Central Administration and of Social Security Funds could be offset with the margin of the Territorial Administrations.

According to AIReF's estimates, the cost of the new measures would not be offset by the factors set forth in the SPU. The SPU envisages that the increase in expenditure derived from the new measures will be offset with certain elements, such as the reduction of expenditure on interest due to the improvement of Spain's debt rating, the reduction of the estimated cost for the State's financial responsibility for the bailout of toll roads and the creation of new taxes on digital services in line with European initiatives. In relation to the proposal for the creation of a new tax, its essential characteristics are not known, as well as the timetable for implementation, therefore based on a criterion of prudence it has not been included in AIReF's estimates.

The likelihood of achieving the stability target improves if we exclude the non-recurring effect of the State's financial liability for toll roads. The new estimate of the State's financial liability conducted by the IGAE reduces the cost to €1.8 billion in 2018 from the €3.5 billion announced in the 2017 - 2020 SPU. On the other hand, the SPU also reflects the Government's willingness to re-tender the toll roads bailed out, estimating revenues of €1 billion in 2018, which, however, was not incorporated into its budgetary scenario. In the case of AIReF, this income has been incorporated into the forecast for 2019 as lower gross fixed capital formation.

Once again, the target distribution laid down in the SPU by sub-sector does not reflect the surplus expected to be achieved by the Local Governments. Local Governments have been recording a surplus of over 0.5% GDP, a result of the stable growth of revenues with little relationship to the economic cycle, the contained evolution of certain expenditure items closely linked to population variables and the role of local financial controllers as guarantors of the fiscal rules.

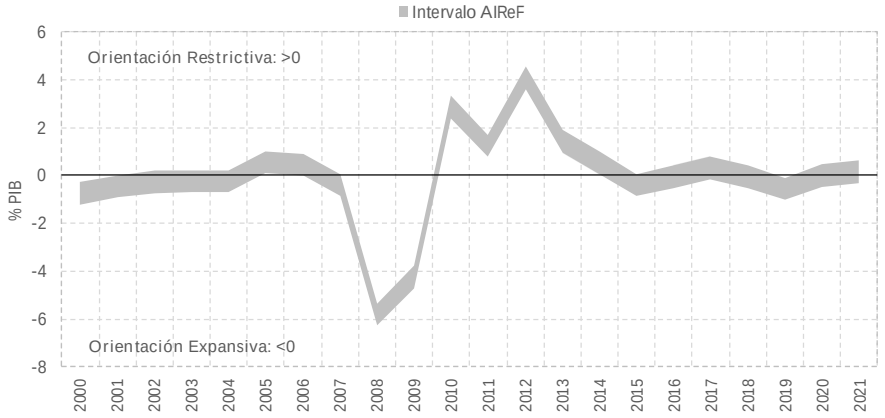
The SPU itself points out that the LGs are maintaining the budgetary balance target set in previous years due to the application of the regulations, despite the fact that in the "Deficit and debt notification to the European Union (EDP)"

published in April a surplus of over €7 billion was recognised for the LGs in 2018. As AIReF has noted in previous reports, the procedures for setting targets by sub-sector should avoid becoming a mere formal exercise, far from the necessary budgetary planning that takes into account both the feasibility of achieving the targets and the sustainability of public finances. Any move in this direction would also strengthen the legitimacy and enforceability of the fiscal rules.

Fiscal policy stance

The deficit correction estimated by AIReF in the 2018-2021 period lies in the evolution of economic activity, given the neutral stance of fiscal policy. According to AIReF's estimates,[24] the fiscal policy contained in the SPU is maintained in a neutral tone in the forecasting period (see Figure 29), compared to the Government's estimates which envisage an average annual effort of 0.25 percentage points. The reference macroeconomic scenario outlined in the previous section involves growth rates above the economy's potential, and therefore an improvement of the output gap, which is expected to break positive ground in 2019. This evolution of the output gap implies an average cyclical correction of about 0.5% GDP per year.

GRÁFICO 29. FISCAL POLICY STANCE



Source: AEAT and AIReF estimates
Note: The confidence interval reflects the uncertainty in the estimate of the output gap. It takes one of the main methodological criticisms of this type of tool into account: the degree of revision of estimates ex-post with respect to the concurrent estimates

A more disaggregated view of the fiscal policy stance confirms the absence of discretionary measures aimed at deficit reduction. The narrative or "bottom-up" approach presents a slightly expansionary fiscal

[24] Performed using the "top-down" methodology, which calculates the effort resulting from the variation in the primary structural balance.

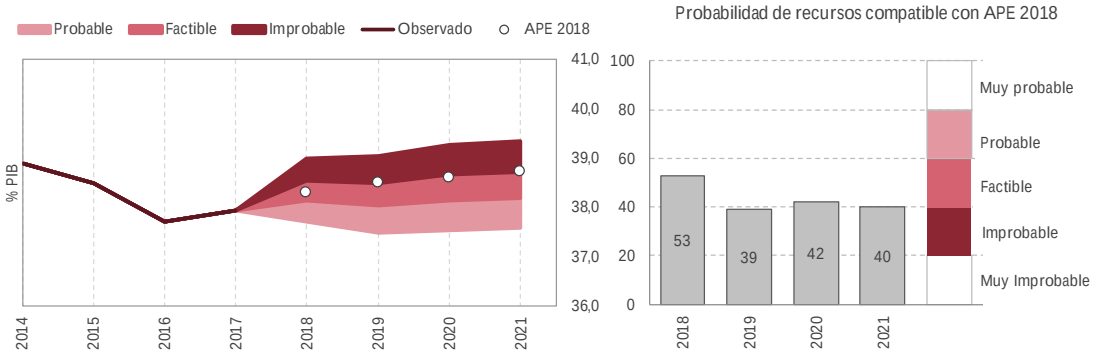
policy stance, based on the measures announced in the SPU, especially on the expenditure side (see section 3.1.3 for a more detailed assessment). On the revenue side, the stance will ultimately depend on the estimated impact of the measures announced. AIReF estimates a slightly expansionary tone for the revenue measures in the reference period. Overall, a slight discretionary fiscal expansion of an average of about 0.3% per year is estimated in the 2018-2021 period.[25]

The absence of efforts over the whole period hinders the correction of the structural deficit and the convergence towards the target in the medium term. In light of a neutral fiscal policy stance and in a scenario of deficit reduction focused on the cyclical component, at the end of the forecasting horizon the structural position of Spanish public finances would still be far from the target of medium-term structural balance (0% structural balance).

3.1.2. Revenue

The revenue forecast included in the SPU for the 2018-2021 period is considered feasible throughout the period. The revenue estimates included in the SPU are in line with AIReF's estimates in all the years of the period, although with a slightly different composition. According to the SPU, revenue will increase its weight in relation to GDP by 0.8%.

GRÁFICO 30. 2018-2021 NON-FINANCIAL INCOME PATH. GENERAL GOVERNMENT IN % GDP.



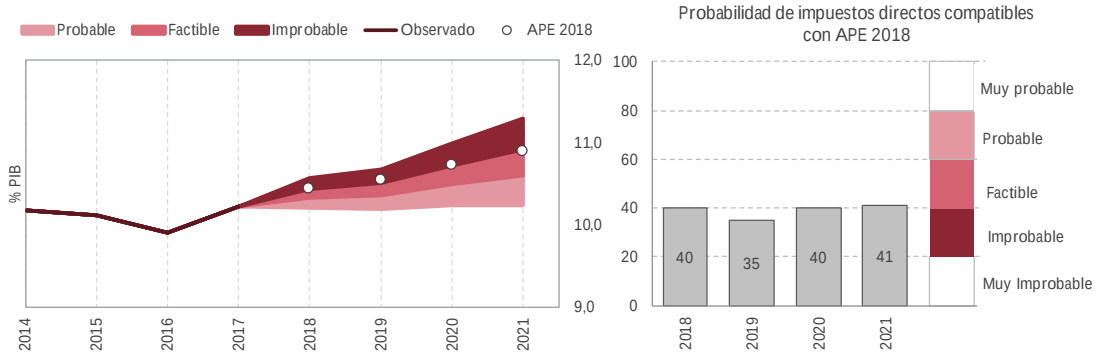
Source: Stability Programme, IGAE and AIReF's estimates

Direct taxes provided for in the SPU will increase by 0.7% GDP between 2017 and 2021 to reach 10.9% GDP. The projections for direct taxes (PIT,

[25] The main difference between the disaggregated approach, which is based on the measures and the aggregate derived from the calculation of the structural balance, lies in the consideration of the impact of the cycle on revenues. For an explanation of the differences between the two approaches, see Carnot and de Castro (2015). "The Discretionary Fiscal Effort: An Assessment of Fiscal Policy and its Output Effect*, Hacienda Pública Española 215-(4/2015).

CIT, ITNR, PT…) contained in the SPU envisage a cyclical gain that would be offset by the effects of the amendments to PIT that would have an impact of 0.2% from 2018 and 2019. In this way, the level of collection of direct taxes would be similar to that achieved in 2005, but still below the historical peak of 2007. In AIReF's forecasts, direct taxes have a slightly lower evolution than expected in the SPU. In any case, it is considered feasible that the forecast of the SPU will be achieved at the end of the period, although it would be unlikely in 2018 and 2019 (see **¡Error! No se encuentra el origen de la referencia.**1).

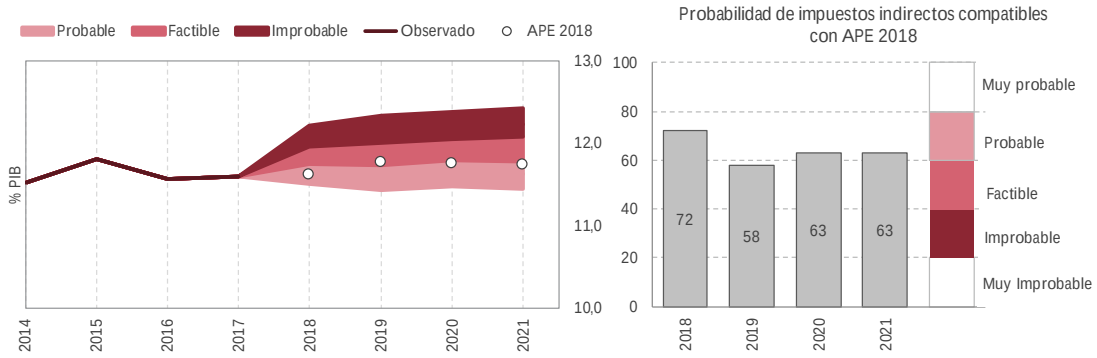
GRÁFICO 31. 2018-2021 DIRECT TAXES PATH. GENERAL GOVERNMENT IN % GDP.



Source: Stability Programme, IGAE and AIReF's estimates

The estimate of indirect taxes contained in the SPU would be slightly biased downwards in the period as a whole. According to AIReF's estimates, it is considered likely to reach the level of indirect taxes contained in the SPU. According to the path included in the SPU, the weight of indirect taxes would remain fairly stable throughout the period, recording an increase of 0.1% GDP from 2017 to 2021. In turn, AIReF's estimates are more optimistic, recording, in the absence of relevant measures, a further increase in earnings that is mainly concentrated in 2018. This growth in 2018 would be concentrated in VAT in line with the earnings forecast in the 2018 draft GSB.

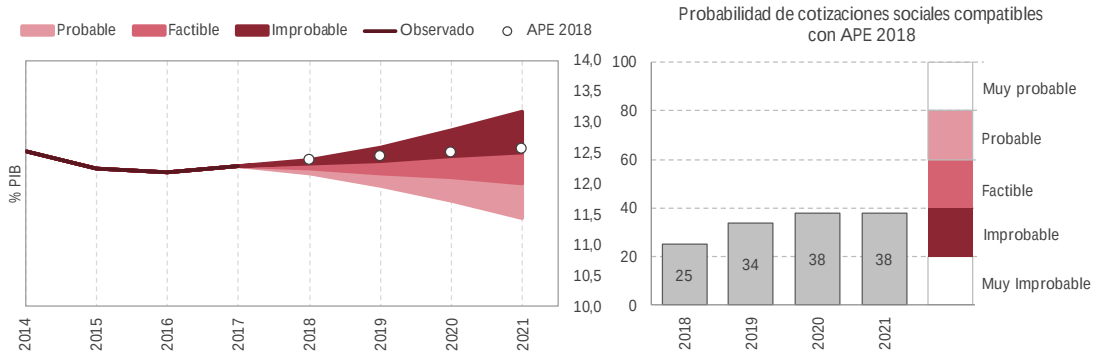
GRÁFICO 32. 2018-2021 INDIRECT TAXES PATH. GENERAL GOVERNMENT IN % GDP.



Source: Stability Programme, IGAE and AIReF's estimates

The forecast for social security contributions presents a slightly increasing weight in GDP, reaching 12.5% at the end of the period. This evolution is considered to be somewhat optimistic in comparison with AIReF's estimates. In this sense, it is considered unlikely that the level of contributions provided for in the SPU will be reached between 2018 and 2020, as shown in **¡Error! No se encuentra el origen de la referencia.**.

GRÁFICO 33. CONTRIBUTIONS 2018-2021. GENERAL GOVERNMENT IN % GDP.



Source: Stability Programme, IGAE and AIReF's estimates

Impact of the economic cycle

The cyclical recovery is generating an increase in earnings through three different channels. The first of these is associated with the recovery of prices and wages that could lead to an increase in the collection of both PIT and social security contributions. The disappearance of the nominal component (*fiscal drag*) particularly diminished the collection of PIT in the 2014-2017 period, as shown in Figure 34. Secondly, the recovery of activity in the real estate sector alongside the recovery of prices could lead to increased collection of VAT. Third, the gap between the evolution of the macroeconomic foundations of Corporate Income Tax (CIT) and its accounting bases (see Figure 35) is closing progressively, thus improving the earnings expected for the economic cycle.

GRÁFICO 34. COLLECTION OF PIT (CONTRIBUTIONS TO GROWTH)

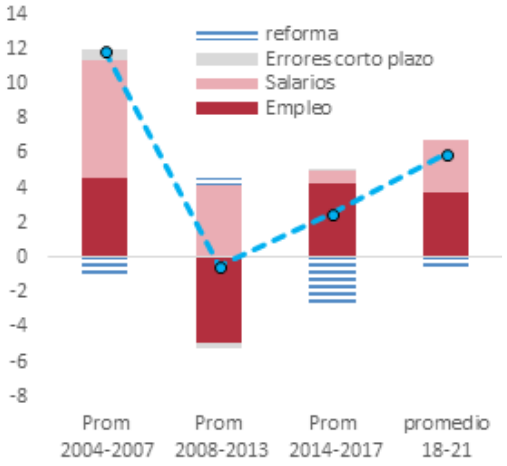
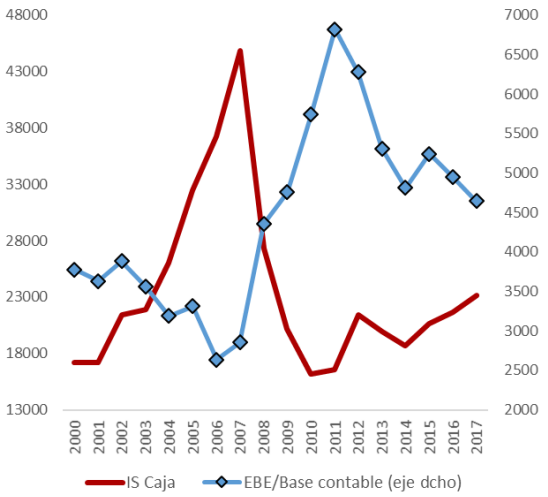


GRÁFICO 35. **CIT (M€) AND DECOUPL**ING OF BASES



Source: AEAT and AIReF estimates

Note: collection of personal income tax is corrected by the impact of policy changes

GRÁFICO 36. COLLECTION OF VAT (CONTRIBUTIONS TO GROWTH)

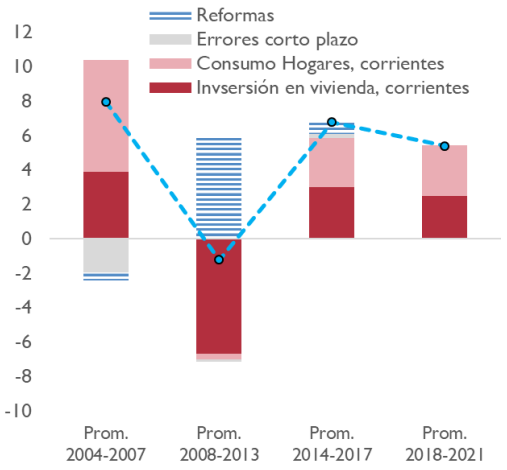
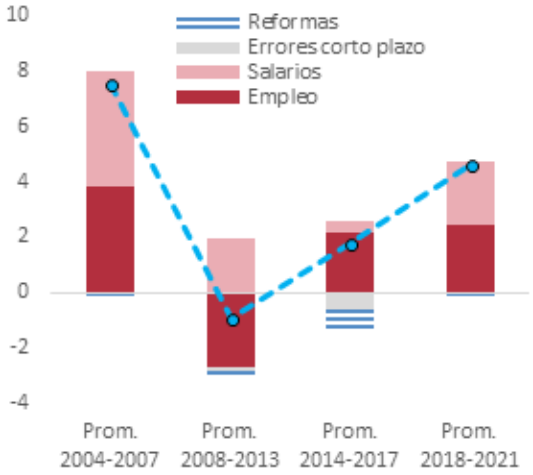


GRÁFICO 37. COLLECTION OF CONTRIBUTIONS (CONTRIBUTIONS TO GROWTH)



Evaluation of the measures

The revenue forecasts of AIReF's baseline path include the measures set out in the SPU except for the creation of the levy on certain digital services. In general, AIReF deemed the assessment of the revenue measures envisaged in the SPU for the various sub-sectors to be plausible. For this reason, with some adjustments in the distribution of the expected impact between 2018 and 2019, AIReF has incorporated all the measures in its baseline revenue scenario, apart from the creation of the levy on certain digital services.

The revenue measures of Central Administration included in the SPU have a practically zero net effect, since the impact of the PIT reform would be offset by the creation of a new levy on certain digital services. Table 2 shows a summary of the measures announced for the Central Administration for 2018 and 2019, as there are no measures for 2020 and 2021. The measure included for VAT on the implementation of the IIS has no impact in national accounting terms and therefore cannot be taken into consideration.

CUADRO 2. REVENUE MEASURES OF THE CA AND SSF

MEDIDAS DE INGRESOS MILLONES €	2018	2019	2020	2021	
Ingresos AC*	48	58			No se incorpora ninguna medida para 2020 y 2021
Impacto en el IRPF de la Ley de Autónomos	-100	-30			
IRPF aumento de la reducción por rendimientos del trabajo y de las deducciones en cuota familiares y guardería	-835	-1.373			El importe incluido en la APE es muy próximo pero no idéntico al recogido en los PGE 2018
Creación de un nuevo impuesto sobre determinados servicios digitales	600	1.500			La APE remite a la Comision del Pacto de Toledo la adopción de nuevas figuras tributarias en línea con las iniciativas europeas
Resto de medidas	383	-39			En 2018 se incluyen 318M€ de lucha contra el fraude
Ingresos FSS	-530				
Ampliacion de la tarifa plana	-530				AIReF estima un impacto progresivo y más moderado

* No se incluye el impacto de la implantacion del SII en IVA porque no afecta al déficit CN

The impact of the PIT reform, which is already included in the 2018 draft GSB, is in line with AIReF's estimates. The most relevant measures are the increase in the maximum deduction for earnings from work from the current €3,700 to €5,575 to increase the minimum taxation threshold to €14,000 and the modification of the progressive reduction for earnings from work to reach income in the amount of €18,000. Moreover, three deductions in support of families and disability are included: deduction for child care expenses, which supplements the current deduction for working mothers, through a new deduction of up to €1,000 annually for expenditure on day care centres or children's education centres for each child under three years; deduction for spouse with disabilities, establishing a deduction of €1,200 per year when the spouse, not legally separated, has disabilities and is economically dependent on the declarant; and finally, an increase in the deduction for large families. The assessment of these measures included in the SPU is in line with the budgetary information and with AIReF's estimates, explained in the report on the draft GSB, although with a slightly different provisional forecast, which would advance part of the cost from 2019 to 2018.

However, AIReF has not incorporated the creation of the levy on certain digital services in its forecasts considering the lack of materialisation of their design and implementation. According to the SPU, this levy would entail advance application in Spain of the principles contained in the proposal for a Directive on the common system of a digital services tax on revenues resulting from the provision of certain digital services, presented by the

European Commission on 21 March. The aim of this tax is for large companies in the digital economy to be taxed where added value is created. As an impact of this new levy, revenue of €600 million is expected in 2018 and an additional €1.5 billion in 2019. AIReF does not have sufficient information to assess the earnings capacity of this measure, therefore it has requested further information from the Ministry of Finance and Public Function (MINHAFP).

Regarding Social Security contributions, the only measure provided for in the SPU is the expansion of the flat rate for self-employed workers stemming from the Law on Urgent Reforms of Self-employed Work. The SPU estimates the impact of this expansion to be €500 million in 2018, while AIReF expected an impact of a similar amount, but with an incidence more distributed between 2018 and 2019 inasmuch as new beneficiaries will be incorporated into the contribution system progressively over time.

In the regional sub-sector the impacts of the measures envisaged in the SPU are not very significant throughout the period. In 2018, the lower revenue stemming from the adoption of measures is primarily attributed to the tax cuts in the Tax on Inheritance and Donations and the Tax on Property Transfers and Documented Legal Acts that partially offset other positive tax measures in environmental taxes or in the Corporate Income Tax of Navarre. The positive effect of the measures in 2019 mainly stems from the increase in regional revenue from the tax on hydrocarbons as a result of the proposed amendment of this tax which enters into force on 1 January 2019. For 2020 and 2021 lower income is expected due to regional measures on PIT.

CUADRO 2. REGIONAL REVENUE MEASURES

MEDIDAS DE INGRESOS MILLONES €	2018	2019	2020	2021	
Ingresos CCAA	-109	306	-143	-133	
Impuesto sobre sucesiones y donaciones	-117	-56			
Impuestos medioambientales	15	303			En 2019, se valora el efecto de la regulación estatal de la tarifa autonómica del I. H
Otros impuestos y tributos	-21	64	-134	-133	En 2020 y 2021, el efecto se atribuye a medidas sobre IRPF (rebajas).
Naturaleza no tributaria	14	-5	-9		

The assessment of the revenue measures contained in the SPU, without a significant impact, is consistent with the information available on the subject, therefore they are envisaged in AIReF's forecasts.

In the LG sub-sector the measures of a greater impact contained in the SPU are those relating to tax increases, the abolition of tax exemptions and rebates. The expected impact in 2018 and 2019 of these measures has experienced a reduction of over 50% in relation to its quantification in the 2017-2020 SPU. It is understood that the bulk of this reduction is a consequence of the negative effect on revenues from the Tax on the

Increase in Value of Urban Land (IIVTNU) of the implementation of the judgements of the Constitutional Court of 2017, which declared the articles of the Consolidated Text of the Law Regulating Local Finances, establishing the taxable event, as unconstitutional inasmuch as they do not exclude situations in which there are no increases in value from the levy. The text of the SPU does not quantify this fact which must dilute the positive impact of other revenue increase measures.

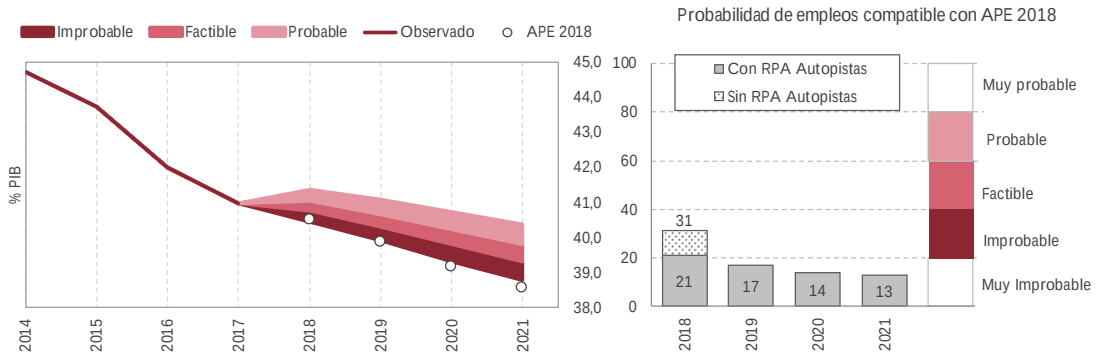
CUADRO 3. LG REVENUE MEASURES

MEDIDAS DE INGRESOS MILLONES €	2018	2019	2020	2021	
Ingresos CCLL	418	-49	646	-54	
Subidas tributarias, supresión de exenciones y bonificaciones	296	238	530	24	Incluye el efecto negativo estimado de las sentencias del Tribunal Constitucional respecto al Impuesto sobre el Incremento de Valor de los Terrenos de Naturaleza Urbana (IIVTNU).
Tasas y precios públicos	122	-287	116	-78	

3.1.3. Expenditure

AIReF considers it very unlikely to achieve the downward path for non-financial expenditure envisaged in the SPU. The expenditure path in the SPU envisages a net adjustment of 2.4% GDP that, as observed in gráfico 38, is considered very unlikely. AIReF's estimates reflect the continuation of the downward expenditure trend observed in previous years, although at a slower pace than in the SPU, especially in 2018 and 2019.

GRÁFICO 38. 2018-2021 NON-FINANCIAL EXPENDITURE PATH. GENERAL GOVERNMENT IN % GDP.

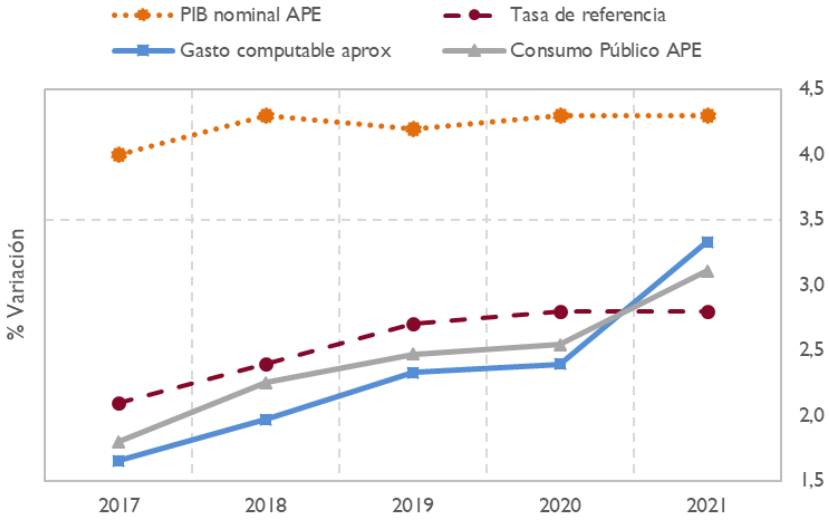


Source: Stability Programme, IGAE and AIReF's estimates

The primary expenditure path envisaged in the SPU, excluding expenditure on pensions, entails a growth below the reference rate of the expenditure rule throughout the period, except for 2021, which AIReF estimates to be difficult to achieve. In 2017, the reduced growth of expenditure alongside the impact of €3.7 billion from policy measures on taxes in the CA enabled broad compliance with the expenditure rule for the

GG. According to AIReF's estimates, this situation will probably not be maintained in the coming years for several reasons. On the one hand, it is not expected that there will be tax reform to permanently increase earnings as occurred in 2017, but, on the contrary, the measures adopted on PIT diminish spending capacity by reducing earnings. On the expenditure side, there is an upward pressure stemming from the measures adopted in the field of compensation of employees, as well as from the expected evolution of certain expenditure, such as investment or current expenditure on healthcare.

GRÁFICO 39. EVOLUTION OF PUBLIC CONSUMPTION, COMPUTABLE EXPENDITURE AND REFERENCE RATE.



Source: Stability Programme, MINHAFP 2017-2020 reference rate and AIReF's estimates for 2021

The net adjustment of 2.4% GDP in non-financial expenditure envisaged in the 2018 -2021 SPU is based on the factors discussed below:

- ✓ An adjustment of 1.2% GDP in the main expenditure items that make up public consumption, considering the agreed measures with regard to the compensation and number of public employees and in the absence of other measures, is too restrictive and would not be consistent with AIReF's estimates.
- ✓ An adjustment of 0.6% GDP stemming from the evolution of social transfers in cash, which is not in line with AIReF's estimates.
- ✓ A reduction in interest rates of 0.4% GDP in the period, an evolution that could be somewhat conservative in the context of deficit reduction and considering current interest rates.
- ✓ A slightly increasing weight of Gross Capital Formation in GDP.

- ✓ A reduction in the rest of expenditure (subsidies, other expenses and capital transfers) of 0.3% GDP, which would be excessively restrictive if we consider the foreseeable evolution of contributions to the EU among other factors.

AIReF considers the adjustment to be difficult to achieve, according to its forecasts on the evolution of certain expenditure items and considering the impact of the agreed measures. First, details are provided of AIReF's assessment of the measures set forth in the SPU to later analyse the evolution of the main expenditure items by including the effect of such measures.

Analysis of the expenditure measures

AIReF expects that the expenditure measures contained in the SPU will bring about a greater impact than anticipated. In GG the measures with the greatest quantitative impact affect expenditure on pensions and compensation of employees due to the agreement between the Government and trade unions that applies to all administrations.

The expenditure measures of the CA are primarily focused on the implementation of the agreement on wages and public employment between the Government and unions for the 2018-2020 period. This measure, which will mainly affect public consumption, has been estimated by AIReF throughout the period, with a cost higher than that reflected in the SPU and with effects until 2020 for the GG. In this regard, it should be noted that, although the agreement covers the period up to 2020, the SPU only quantifies the impact in 2018 and 2019. For these years the difference with respect to AIReF's estimates amounts to €700 million and €1.4 billion, respectively. The expenditure measures also include the increase in expenditure on civil servants' pensions included in the 2018 draft GSB, without including the effect of the increases included in the SPU for pensions of 1.6% and 1.5%, which will likely be transferred to civil servants. The SPU only includes expenditure measures for 2018 and 2019, except for the new Strategic Plan to provide momentum and transform the Public Administration.

CUADRO 4. CA AND SSF EXPENDITURE MEASURES

MEDIDAS DE GASTO MILLONES €	2018	2019	2020	2021	
Gastos AC	-2.902	-3.347	137		No se incorpora ninguna medida para 2021
Gastos de personal: Acuerdo con los Sindicatos mejora de la remuneración, aumento de la tasa de reposicion y retribuciones durante IT	-3.005	-3.484			Se incorpora aquí el efecto para el total de las AAPP. No recoge impacto en 2020, año incluido en la vigencia del acuerdo.
Mejora de pensiones de clases pasivas	-34				No recoge el impacto del conjunto de medidas anunciadas para 2018 y 2019
Nuevo Plan estratégico de Impulso y transformación de AP	137	137	137		Impacto principalmente sobre los consumos intermedios
Gastos FSS	-2.155	-1.095			No se incorpora ninguna medida para 2020 y 2021
Medidas para el fomento del empleo (PAE, RAI)	98	155			Se considera incorporado en la previsión de base
Bono formación	-500				Se corresponde con la dotación prevista para Garantía Juvenil
Semana adicional de permiso de paternidad	-106				
Incremento base reguladora de pensiones de viudedad	-215				AIReF estima un mayor impacto en 2018 y 2019
Reformas de pensiones	950	950			Impacto incorporado al modelo de gasto en pensiones de AIReF
Medidas de pensiones	-2.382	-2.200			Impacto en línea con las estimaciones de la AIReF

The SPU includes the quantification of the pension revaluation measures announced following the report on the 2018 draft GSB. The main measure included in the SPU is an increase in expenditure on pensions in 2018 and 2019 because of a revaluation expected to be above that determined by the Pension Revaluation Index (PRI), whose strict application would result in an increase of close to 300 million. The expected increase in the SPU is 1.6% and 1.5% in each of the two years, and additionally, in 2018 the minimum pensions and non-contributory pensions are revalued at 3%. The assessment of these measures contained in the SPU does not differ significantly from that carried out by AIReF.

For widowers' pensions, the SPU also provides for an increase in the percentage applicable to its regulatory base from 52% to 60% between 2018 and 2019. This increase would be applied to the pensions that meet certain conditions. According to the measures recently announced, in 2018, this percentage would increase from 52% to 56% and in 2019 this percentage will increase to 60%. In this case, AIReF estimates a significantly higher cost in each of the years. Other increases in expenditure stem from the increase of paternity leave by one week and the so-called training bonus, in the context of the National Youth Guarantee System.

The SPU estimates that there will be insignificant impacts on the expenditure measures adopted by the Regions. In 2018, the SPU reflects the expected savings in pharmaceutical expenditure that continue to be offset by the increase in wages (in addition to the agreement with trade unions, partially offset by the least lower expenditure reimbursement of the extra pay of 2012) and the non-repetition this year of the non-availability and withholding of credit in the previous year. For 2019 it reflects a positive impact of pharmaceutical expenditure saving measures, in addition to the savings stemming from other measures, such as the staff measures (€45

million); while for 2020 and 2021 the additional effect of expenditure measures is expected to be barely appreciable.

The table relating to the Regions does not estimate any impact from the measure that enables financially sustainable investments excluded from the expenditure rule to be made in the Regions. The text of the SPU highlights the actions stemming from the draft GSB that affect the Regions regulated in the 106th additional provision, about the possibility of making financially sustainable investment excluded from the computation of the expenditure rule in the Regions, and in the 136th additional provision on incentives to the Territorial Administrations without specifying their implementation or specific content and without quantifying their impact.

CUADRO 5. REGIONAL EXPENDITURE MEASURE

MEDIDAS DE GASTO MILLONES €	2018	2019	2020	2021	
Gastos CCAA	-224	370	21	53	
Medidas de gestion/planificacion personal y retribuciones	-141	45	-49	-17	No incluye Acuerdo Sindicatos, el mayor gasto en 2018 puede atribuirse a sentencias y otras medidas previstas por las CCAA ajenas al Acuerdo. Hasta 2019 los incrementos se compensan por el menor gasto de devolución de paga extra 2012
Acuerdos de no disponibilidad art. 25 LOEPSF	-326				La AIReF no atribuye efecto en 2016 y 2017 a los AND, por lo que no tiene en cuenta el impacto negativo de 2018
Gastos farmacéuticos y en productos santinarios	250	250			La AIReF considera el efecto derivado de compra centralizada (50M€). Se desconoce el contenido e instrumentación de la medida de gasto farmacéutico distinta, asociada a regla gasto sanitaria, su efecto en 2017 fue muy limitado por lo que no se incorpora en las estimaciones de la AIReF
Gastos financieros	-95	-10	-5		Deriva de las medidas de mejora de las condiciones finanacieras de los mecanismos de financiación (reversión)
Otras medidas en gastos : gastos corrientes, transferencias y conciertos	88	85	75	70	

AIReF considers that the impact of the expenditure measures in the Regions will be similar, as a whole, as that envisaged in the SPU for 2018 and lower in 2019. The SPU envisages increased expenditure in 2018 because of the end of the impact of the non-availability agreements of 2017, which AIReF did not include as it considered the impact of this measure to be null in all years. On the other hand, AIReF does not include the savings that the SPU attributes to expenditure measures on pharmaceutical and healthcare products into their estimates, in the absence of information on the same. In the previous SPU, the effect of these measures was attributed to the adhesion of the Regions that entered the Regional Liquidity Fund (RLF) to the healthcare expenditure rule[26] and the signing of the memorandum of

[26] The instrument created in 2015 in support of the sustainability of regional pharmaceutical and healthcare expenditure limits, for those participating, the growth of pharmaceutical and healthcare expenditure to the reference rate of the expenditure rule regulated in the LOEPySF. The conditionality of the 2016 RLF determined adherence to this instrument by all Regions that entered this mechanism. For these Regions, the growth of pharmaceuticals and healthcare expenditure in 2016 was limited to 1.8% and to 2.1% in 2017.

understanding with Farmaindustria, and valued the savings at €400 million for 2017 and an additional €400 million for 2018. Given that the impact finally observed for 2017 is considerably lower than that expected at the time, without having more information in this regard, AIReF's estimates for 2018 and 2019 do not included the additional savings envisaged by the SPU in this area. In the Spanish National Reform Programme 2018[27], it was noted that bilateral cooperation mechanisms were initiated with several Regions due to non-compliance with the "healthcare expenditure rule" spending in 2016, and that in 2018 compliance with the rule in 2017 will be monitored[28], although the content and implementation of the mechanisms or measures were not specified, and there are no reports evaluating compliance with the rule or reports or agreements of the Delegate Commission of the Government for Economic Affairs on possible corrective measures that may be applicable.

In the LG sub-sector, the SPU reflects expenditure measures of limited impact for which it does not provide information on their contents. Among these measures, the SPU includes the estimated effects of the Law 27/2013 of on the Streamlining and Sustainability of the Local Administration whose update is explained in point 4.4.2. of the SPU. The net effect of this update is the result of the greater savings expected due to the momentum from the integrated management of services by the provincial councils, town councils and island councils, the slower pace of savings made due to the process of public sector resizing, as well as the elimination of savings motivated by the judgement of the Constitutional Court of 3 March 2016 which declared the provisions substantiating the transfers to the Regions for healthcare, education and social services as unconstitutional, leaving the same to that regulated by the respective Regions. The net impact of all expenditure measures has been revised downward in the current SPU considerably in 2017 (almost €400 million) and in 2018 in which the expectation of a cost reduction of €200 million becomes an expectation of an increase in the same of almost €300 million.

The consequences of non-compliance with the healthcare expenditure rule are those referred to in article 115 of the General Healthcare Law: (i) not approving the supplementary services portfolio or providing services other than the common portfolio of services of the national health system; (ii) access to the distribution of economic resources in the area of healthcare subject to prior favourable report of article 20.3 of the LOEPySF and (iii) obligation to implement measures agreed by the Delegate Commission of the Government for Economic Affairs.

[27] Spanish National Reform Programme 2018

[28] According to the latest data published by the MINHAFP, in 2016 four Regions adhering to instrument exceeded the maximum rate of growth; in 2017, this figure was 10.

As in the Regions, the framework of measures does not envisage any impact from the extension that enables financially sustainable investments excluded from the expenditure rule to be made. The effect on the local surplus of the extension of this measure is not envisaged in the text of the document nor in the table A.8 on the estimated impact of the measures adopted or envisaged for local corporations, especially after the adoption of the Royal Decree-law 1/2018, of 23 March, which extends the allocation of the surplus of LGs for financially sustainable investments for 2018 and amends the objective scope of these, substantially expanding the type of investments that can be classified as such. Nor does said table envisage the effect of the 136th additional provision on incentives to Territorial Administrations.

CUADRO 6. LG EXPENDITURE MEASURES

MEDIDAS DE GASTO MILLONES €	2018	2019	2020	2021	
Gastos CCLL	-294	187	-456	240	Incluyen fundamentalmente la actualización de los efectos esperados por aplicación de la Ley de Racionalización y Sostenibilidad de la Administración Local. Por su cuantía conjunta poco significativa el impacto neto de las medidas puede considerarse incluido dentro del intervalo de estimaciones AIReF.
Retribuciones	21	-279	-334	99	
Reducción de gastos en bienes y servicios	-850	-426	-350	80	
Desaparición de EELL menores, supresión de servicios no competencia local y reducción de inversiones	520	892	228	61	
Gestión integrada de servicios y fusiones de municipios	15				

Analysis by expenditure headings

Evolution of public consumption

According to the information in the SPU, the main expenditure items that make up public consumption (compensation of employees, intermediate consumption and social benefits in kind) will be adjusted by 1.2% GDP. The adjustment of 1.2 % GDP is based on a growth in public consumption below the nominal growth of the economy to ensure compliance with the expenditure rule. Although the limitations for assessment of the expenditure rule stemming from interpretation issues and the lack of information necessary for the calculation persist, AIReF has made an approximation of the computable expenditure during the period 2018-2021, based on the information contained in the SPU. As shown in **¡Error! No se encuentra el origen de la referencia.**, the computable expenditure, as well as the main component of the same, i.e. public consumption, would evolve far below that which would be allowed by the reference rate for those years.

The restriction of the public consumption items contained in the SPU is not consistent with the forecasted evolution of healthcare and education expenditure for the 2018-2021 period, policies that represent

50% of the main public consumption headings. Figure 40 and Figure 41 respectively show the expected trend in healthcare and education expenditure, in % GDP, comparing the results of AIReF's projection model, whose methodology has been published in the report of 10 May 2016 on the 2016 -2019 SPU[29],with the forecasts of the SPU for this type of expenditure. It should be noted that, in relation to healthcare expenditure, the estimated evolution in the SPU is at the lower limit of the AIReF's forecast range. In any case, the evolution expected by the SPU for this type of expenditure does not seem consistent with the evolution included in the public consumption headings document, largely affected by healthcare and education expenditure.

GRÁFICO 40. EVOLUTION OF HEALTHCARE EXPENDITURE. AIREF-SPU FORECASTS (%GDP)

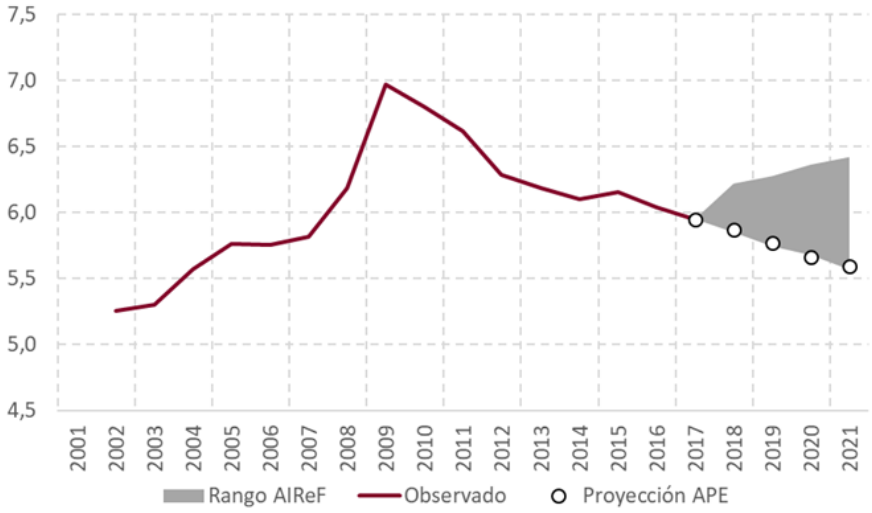
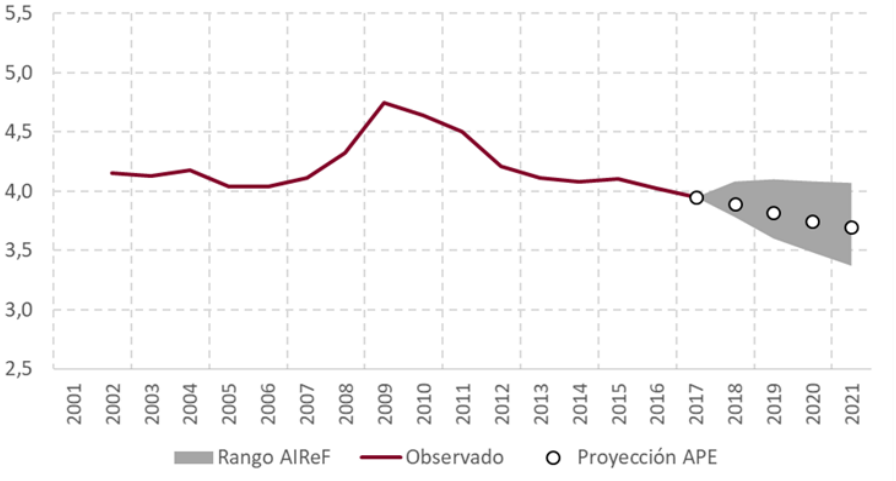


GRÁFICO 41. EVOLUTION OF EDUCATION EXPENDITURE. AIREF-SPU FORECASTS (%GDP)



[29] Report on the 2016-2019 SPU

Thus, the SPU forecasts imply year-on-year growth of healthcare and education expenditure close to 3% and 2.5%, respectively. AIReF's considers year-on-year growth of healthcare expenditure close to 4% in the period, and slightly above 2.5% in education expenditure.

Regarding AIReF's healthcare expenditure forecasts, these do not incorporate the effect that in the SPU is attributed to the healthcare expenditure rule to which most Regions adhere, in the absence of information or evidence of savings in this area in previous years. According to the current data published by the MINHAFP on the growth of pharmaceutical and healthcare expenditure[30], this expenditure grew above the reference rate in 5 regions since 2016, 4 of which were adhered to the healthcare expenditure rule; and in 2017, in 14 Regions, 10 of which were adhered to the instrument, with an increase in the whole of the sub-sector of 3.1%.

The evolution of compensation of employees envisaged in the SPU is not consistent with the expected impact of the measures announced. The Agreement between the Government and the trade unions for the improvement of public employment indicates a horizon of multi-annual growth in wages between 2018 and 2020 which will range between a minimum of 6.9% and a maximum of 8.8% in cumulative terms. Although the measures described in the SPU only include its impact in 2018 and 2019, the agreement is effective also in 2020. Adopting a prudent approach, AIReF has assumed a cumulative intermediate wage increase of 7.4% in its estimates, consistent with AIReF's macroeconomic scenario. On the other hand, AIReF considers an increase in the number of staff of around 1% per year to be in line with the forecasting models for healthcare and education expenditure and the latest evolution of public employees and anticipated GDP and population. Finally, a wage drift is considered that takes into account the recent past and equal pay measures of the State Law Enforcement Organisations. As a result, AIReF's estimates would result in the stabilisation of the weight of the compensation of employees following a moderate decline in 2018 and 2019, against the reversal of 0.7% provided for in the SPU.

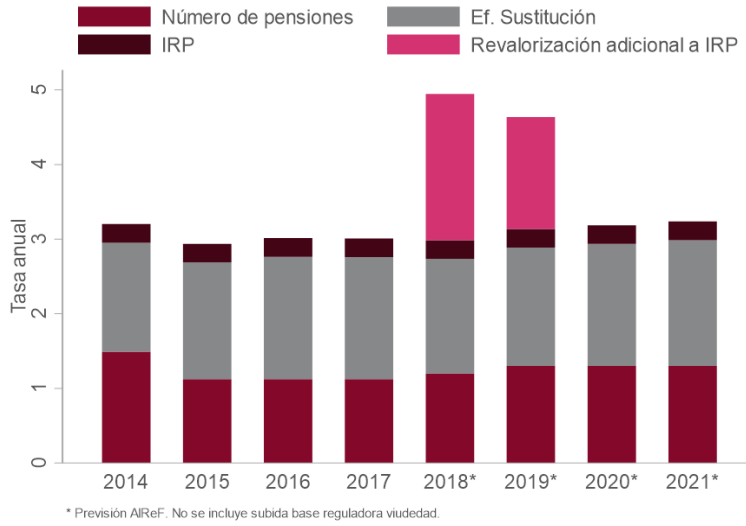
[30] The data published by the MINHAFP on the Pharmaceutical and Healthcare Expenditure Indicators, which serve as the basis for calculation of compliance with the rule -sixth transitional provision of the General Healthcare Law- reflect the year-on-year variation in 2016 and 2017 of the total pharmaceutical and healthcare expenditure Pharmaceutical and Healthcare Expenditure Indicators

The evolution of intermediate consumption and social transfers in kind included in the SPU does not seem fully reflect the expected growth in healthcare and education expenditure, appearing to be more restrictive than that estimated by AIReF in the period. For this period SPU expects growth rates for these items generally below 2.5%, which does not seem consistent with the expected evolution in healthcare and education expenditure. In its estimates, AIReF takes the results of the estimation model for healthcare and education expenditure as a reference, which represent the main part of both headings. For the rest of the heading, an evolution compatible with the expenditure rule is estimated.

Evolution of social transfers in cash

The social transfers in cash envisaged in the SPU show a reduction of 0.6% GDP. This path, which takes the measures announced for pensions into account as the evolution of the macroeconomic scenario, is considered somewhat optimistic in relation to that envisaged by AIReF for pensions and expenditure on unemployment.

GRÁFICO 42. GROWTH OF EXPENDITURE ON PENSIONS. AIREF FORECASTS (%GDP)



The SPU considers the increase in pensions for 2018 and 2019 to be accurate, resuming application of the PRI of 0.25% for 2020 and 2021. The SPU includes the measures announced in the budgetary scenario, although it does not include them in the long-term pension expenditure forecasts previously made, or in the growth estimate for expenditure on pensions in the section “Labor market and Social Security measures" where no reference is made to the revaluation of all pensions at 1.6%. The difference in treatment may lead to confusion about the effect of the same.

According to AIReF's estimates, the measures announced would entail an increase of the weight of expenditure on pensions on GDP in 2018 and 2019, reversing the trend observed in recent years. Once a return is made to application of the PRI with an increase of 0.25% in 2020 and 2021, expenditure on pensions would return to a level similar to 2017 in terms of GDP.

The SPU does not refer to the suspension of the application of the sustainability factor until 2023 announced by the Government. This measure would have a limited impact, although increasing in the SPU period, of below €400 million in 2021, since it would only affect pensions. However, its application in the medium and long term has an effect on the sustainability of the Social Security system.

According to the SPU unemployment benefits continue to fall to a historical low of 1.1% GDP in 2020. This evolution would be somewhat optimistic, according AIReF's estimates, which provide for a lower reduction of the weight of unemployment benefits due to the expected increase in the level of coverage of the benefits that would partially offset the decline in the number of unemployed. This recovery of the level of coverage would be explained by the accumulation of entitlement to the benefit stemming from a normalisation of the labour market, by increasing the weight of Beneficiaries of contributory versus non-contributory benefits. On the other hand, mention should be made of the intense job creation that the Spanish economy is experiencing, with a cyclical gain stemming from this concept along the horizon of the SPU.

Evolution of interest rates

The SPU provides for a reduction in interest rates of 0.4% GDP in the 2018-2021 period, which would be more conservative than AIReF's estimates. AIReF's estimates are based on its own primary balance forecasts for each sub-sector, the stock-flow adjustment, the individual detail of the composition of the Regions' debt, the forward yield curve and the maturity structure, with an average internal rate of return (IRR) associated with the initial debt portfolio of the State. This IRR is estimated with individualized information on the State's bonds and securities, and incorporates Treasury bills and loans according to information published by the General Secretariat of the Treasury and Financial Policy and information relating to the Territorial Administrations provided by the MINHAFP.

The monetary policy of the ECB has favoured continued savings in interest rates. In 2015 the European Central Bank (ECB) decided to support recovery through a large-scale asset purchasing programme, given the low margin to which interest rates were subject. Three years later, the ECB

continues to maintain its expansive policy although it could be contained at the first signs of a pick-up in inflation. This continued action has led to a significant fall in sovereign yield curves and a reduction in the spreads or risk premiums for Spanish debt. The savings in terms of expenditure on interest are felt as the emissions portfolio of the Public Treasury is renewed, and emissions made during the crisis are replaced by other with lower marginal rates.

Evolution of gross capital formation

Gross capital formation increases by 0.1% GDP in 2021 in relation to 2017, once the impact of the financial liability of toll roads subsides, which in 2018 will result in an increase of 0.2% GDP. However, AIReF considers that this estimate may be overly conservative. On the one hand, it is necessary to consider the multi-year investment commitments, both civilian and military, as well as the impact of the amendments made to the regulations on investment financially sustainable of the Regions and LGs that are reflected in the 2018 draft GSB.

Public investment stands at levels that could be considered below what is necessary to ensure the replenishment of existing public capital. Despite the slight recovery of investment expected in the SPU, gross capital formation continues at historic lows, mainly because of the years of fiscal consolidation and the need to re-programme future investments. This level of investment and the need to replenish and maintain the existing investment can also lead to tensions in the evolution of this expenditure item in the coming years.

The impact of the State's financial liability for toll roads and the re-tendering process presents a high degree of uncertainty. This uncertainty affects, on the one hand, the quantification of its total impact on the public accounts, including the possibility of recovering part of the cost through re-tendering of the toll roads. On the other hand, the time horizon in which this impact on public accounts will occur is also not clearly defined, which in any case is non-recurrent. Finally, the disputes arising from the bailout process and the quantification of the State's financial liability for toll roads should also be noted as a risk to the targets.

Subsidies and other expenditure

Subsidies and other current expenses evolve in a very contained way in the SPU, reducing their weight on GDP by 0.3%. On the one hand, according to the SPU the heading of other current expenditure reduces its weight on GDP. In this case, AIReF's estimates are higher, mainly due to the increase in contributions to the EU budget in 2018 and which would be

maintained throughout the period. In this respect, it should be noted that the execution of the Community budget was exceptionally low in 2017, which implies a low point of departure in historical terms. According to the SPU, the subsidies will also fall in nominal terms over the period. This reduction would not be in line with AIReF's estimates that incorporate the new Renfe - Operadora fee, as shown in the 2018 Draft GSB and would entail an increase of €500 million in this heading, offset by the reduction in transfers to ADIF.

Contingent liabilities

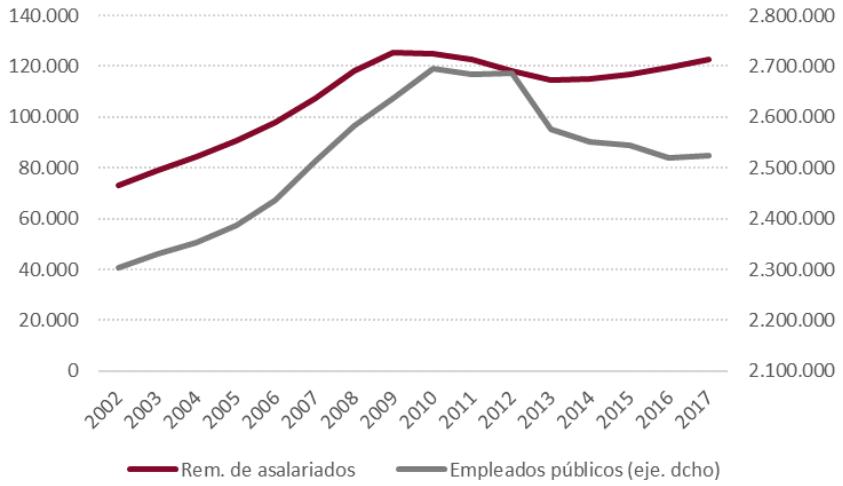
In the contingent liabilities section, the stability programme exclusively includes guarantees granted by Public Administrations. The contingent liabilities section of the SPU only includes information corresponding to guarantees, but it does not provide information on the possible responsibilities borne by the Public Authorities arising from judgements, information relating to Public-Private Partnerships or other type of risks that could affect the budgetary stability and financial sustainability targets of the PAs that may result, for example, in non-performing loans. As has already been noted in previous reports, the PAs have seen their deficit significantly increased as a result of the execution of sentences or reclassifications of derivative contracts for Public-Private Partnerships, therefore more information should be included for the sake of greater transparency.

For 2018 the impact of the State's financial liability for toll roads will be significant, which, valued at €1.8 billion, could generate future claims whose risk is not known. In the regional sub-sector note the possible effect of the judgement to cancel the sale in 2012 of the concession of Aigües del Ter - Llobregat in Catalonia, whose impact could also be significant.

BOX 3: Compensation of employees

Compensation of employees amounts to around a quarter of the total costs of the PAs. The following chart[31] shows its evolution both in nominal and in number of employees[32]. This evolution has led to a steady decline in the weight of this item on GDP, reaching 10.6% in 2017 from the peak of 11.6% GDP in 2010.

EVOLUTION OF COMPENSATION OF EMPLOYEES (MILLIONS OF EUROS) AND NUMBER OF PUBLIC EMPLOYEES



The evolution of this heading must be analysed in terms of the number of public employees and their compensation. The general increase in compensation of public employees is included in the GSB laws each year. Between 2000 and 2009, this annual increase stood consistently at 2%. As part of the fiscal consolidation measures, in 2010 a reduction in public salaries of 5% was approved, the effects of which were distributed between 2010 and 2011. Subsequently public salaries have been frozen until the increase of 1% adopted with the 2017 GSB.

Finally, a significant part of the growth in the compensation of employees would neither be explained by the evolution of the number of employees nor by the wage increases included in the GSB. This factor, which we will call the wage drift, is explained by factors such as changes in the structure and composition of public employment, accumulation of three-yearly service bonuses or the modification of the special allowances associated with the job.

The 2018-2021 SPU reflects the results of the Agreement for the Improvement of Public Employment 2018-2020 signed on 8 March 2018, at least for the first two years of the period. For the first time this agreement links the public-sector wage increases to the evolution of GDP in a multi-year framework, as well as to compliance with the fiscal rules for 2020. For the entire period, the Agreement

[31] To better analyse trends, the series of compensation of employees has been corrected for the effect of the withdrawal of the extra pay in 2012 and its subsequent return in 2015 and 2016.

[32] According to the data of the Central Staff Register.

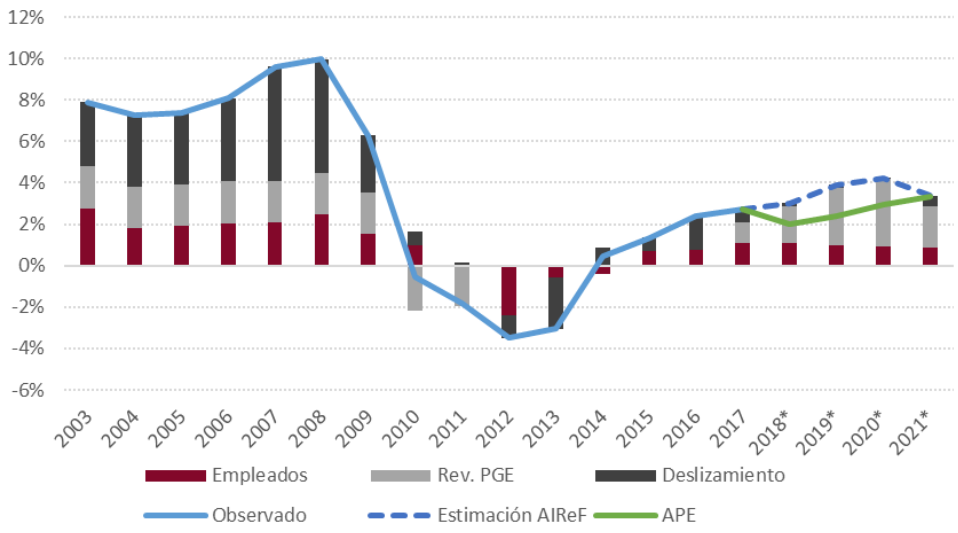
includes a growth between a minimum of 6.9% and a maximum of 8.8% in cumulative terms.

AIReF's estimates on the compensation of employees for the 2018-2021 period can be explained on the basis of the factors identified above. The number of staff was estimated based on recent evolution, including data from recent months on affiliation to the Social Security services in the public sector, and the number of retirements of civil servants. In addition, in the case of the Regions, the result obtained from the structural models that estimate the overall expenditure on healthcare and education was considered. Account was also taken of the relationship between the number of public employees and the evolution of the population and GDP. As a result, it is assumed that there will be a growth in the number of employees in line with that of 2017.

Regarding wage increases, a cautious scenario is assumed, consistent with the macroeconomic scenario for the implementation of the Agreement with the trade unions, which entails a cumulative increase of 7.4% until 2020. For 2021, a revaluation of 2% is assumed. Finally, a reduced wage drift is assumed, in line with that observed in recent years. In this sense, if we look at the evolution of this factor prior to the crisis, there is the risk of greater wage drifts that would entail a greater growth in the compensation of employees.

As can be seen in the figure, the SPU includes lower growth rates for compensation of employees, which seem to be difficult to reconcile with the implementation of the Agreement. In fact, according to the SPU for 2018 the growth in the compensation of employees would be less than in 2017 when the wage increase was 1%.

GROWTH IN COMPENSATION OF EMPLOYEES. AIREF-SPU FORECASTS (%)



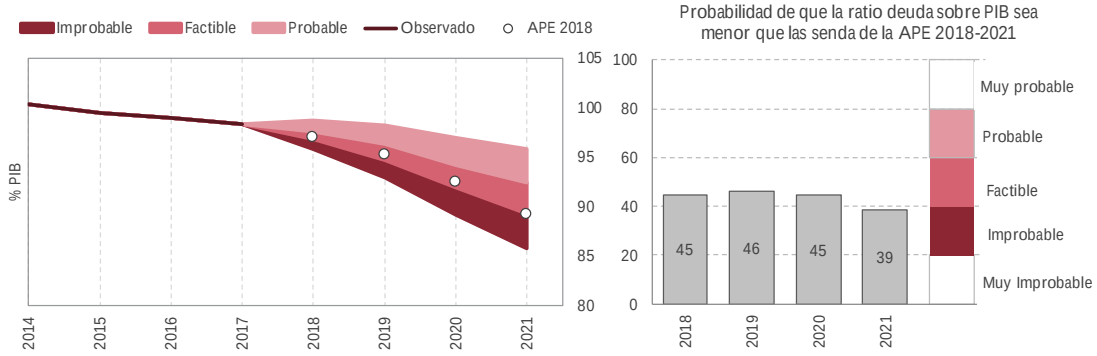
3.2. Debt sustainability analysis

The 2018-2021 SPU includes a declining government debt-to-GDP ratio throughout the period, with an accumulated adjustment of 9.2% GDP, above AIReF's baseline forecasts. The forecasts included in the 2018-2021 SPU reflect a reduction of the debt-to-GDP ratio that is accelerated throughout the period, reaching a cumulative adjustment in the four years of 9.2% GDP. This path places debt at 89.1% GDP in 2021, below AIReF's forecast in its baseline scenario. The difference between the two estimates is mainly explained by the evolution of the primary balance.

The debt path included in the SPU is consistent with the debt targets approved for the 2018-2020 period. The debt target approved in July 2017 is slightly higher than the forecast of the SPU for 2018 and 2019, and practically consistent with the forecast for 2020. However, according to AIReF's forecast for 2020 the debt may be slightly higher than the target.

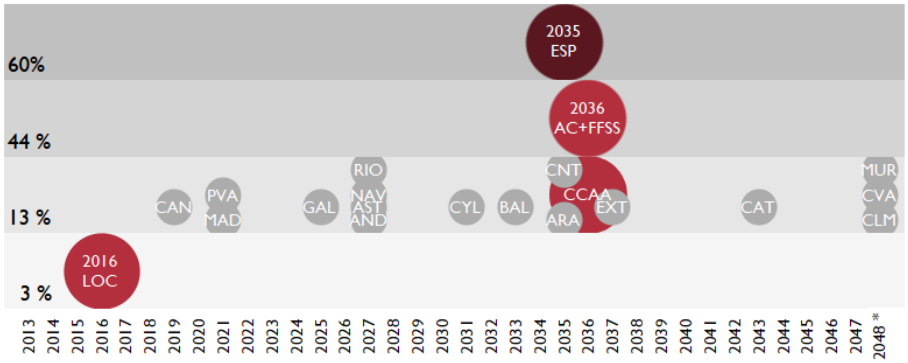
GRÁFICO 43. 2018-2021 SPU DEBT FORECASTS AND STOCHASTIC ANALYSIS

Source: 2021-2018 SPU and AIReF



Although descending throughout the entire forecasting horizon, the pace of decline in the debt-to-GDP ratio is not sufficient to comply with the 1st TP of the LOEPySF. According to this provision, in 2020 the level of government debt should stand at 60% GDP and, therefore, when the national economy reaches a real or expenditure growth rate of at least 2% per year, the government debt-to-GDP ratio should be reduced by a minimum of 2% annually. However, it is expected that the level of debt will stand at 92.4% GDP in that year which represents a gap of 32.4 percentage points. The pace of adjustment planned for 2018 is less than required, but for the whole of the 2018-2020 period the decline of 5.9 percentage points is in line with the 6 percentage points enforceable according to the provision.

GRÁFICO 44. YEAR OF ESTIMATED COMPLIANCE WITH THE REFERENCE TARGET, SUB-SECTORS AND REGIONS



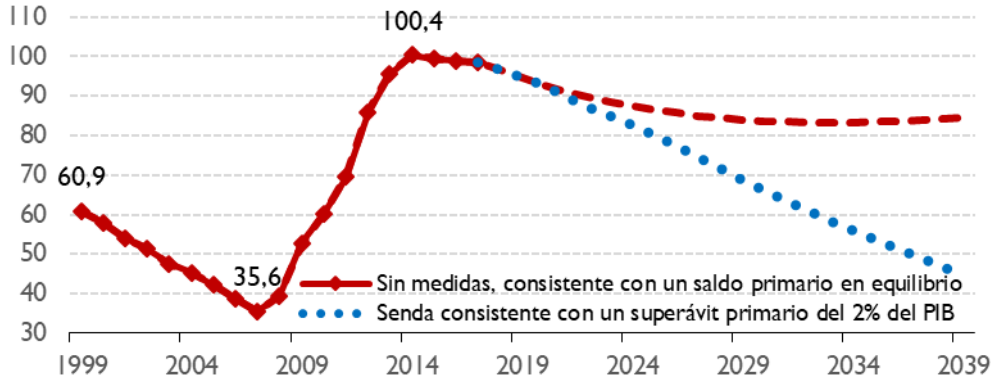
The debt-to-GDP ratio forecasts provided for in AIReF's baseline scenario confirm that only the LG sub-sector has reached the reference value laid down in the 1st TP, while the rest of the sub-sectors and the GG will need almost two decades to reach the reference level, as mentioned in previous reports. Given the current stock and the outlook for the main determinants of debt in the coming years, the only sub-sector that would comply with this provision before 2020 (achieved in 2016) is the LG sub-sector, while the GG would not reach 60% GDP before 2035. At the regional level, the best placed are the Canary Islands, Madrid, and the Basque Country, which in 2020 will reach a level close to the reference value established in the LOEPySF. On the contrary, the Regions that are furthest away from the reference level are Catalonia, Valencia, Murcia and Castile-La Mancha. The factual impossibility of reaching the debt targets established by the 1st TP of the LOEPySF in 2020 calls for a review of the same in line paragraph 4 of the same Provision. The paths of convergence to the reference levels should be demanding but realistic.

The increase in expenditure pressures associated with pensions could be an upward factor in the debt dynamics in the medium-long term, although of limited impact. The long-term pension expenditure forecasts of the SPU assume the application of the PRI beyond 2019 and the maintenance of the Sustainability Factor, as has been discussed above. However, the increase in pressures associated with the expenditure on pensions allows the estimate of a sensitive scenario, in which the purchasing power of pensions is maintained (revaluation by the CPI) and the application of the Sustainability Factor is postponed beyond 2019 and the horizon of the SPU, to be considered reasonable. In the medium-long term, this alternative scenario would imply a limited cost to the pension system. Towards 2030, the annual expenditure on pensions would be 1.5 percentage points above the SPU scenario, with 90% of this increase corresponding to the revaluation by the CPI. The relevance of the Sustainability Factor increases significantly

from this time horizon onwards. The final impact on the debt dynamics will depend on the generation of sufficient additional sources of income, to help offset the deterioration in the primary balance of the alternative scenario, which features higher expenditure.

AIReF's sensitivity analysis highlights the importance of improving the primary balance. A no-policy-change scenario consistent with a primary balance in balance maintains a very high debt-to-GDP ratio in the medium term (around 85%), increasing the risks to sustainability against any future contingency. On the contrary, the path consistent with a primary surplus of 2% GDP would accelerate the decreasing debt dynamics so that the ratio of 60% GDP would be reached around 2032.

GRÁFICO 45. EVOLUTION OF THE DEBT-TO-GDP RATIO AGAINST DIFFERENT PRIMARY BALANCE SCENARIOS



Source: AIREF

To ensure sustainable debt dynamics, it is vital to achieve a continued primary surplus. The sensitivity analysis of the debt dynamics against macro-financial disturbances highlights the importance of adjustment in primary terms. While macro-financial disturbances are not enough to change the declining debt dynamics in the long term, although they slow it down, the assumptions on the evolution of the primary balance are key to future sustainability. National and EU fiscal rules are essential for maintaining declining debt ratio dynamics.

4. Retrospective analysis of forecasts of previous SPUs

4.1. The Stability Programme as a tool for fiscal supervision

The SPUs are the main instrument of fiscal supervision of the EU. The main objective of the SPUs is to prevent incurring excessive deficits and endangering the sustainability of the public finances of the Member States and the euro zone at an early stage in the cycle. For this reason, they are medium term documents in which Member States should reflect their fiscal strategy, i.e. define their targets in terms of deficit and debt at 3 years (in addition to the current); adequately explain (including impact) the measures to achieve them and justify any deviations or modifications of the targets with respect to previous programmes. In addition, they should include analysis exercises over the long term, such as the impact of ageing on public finances or considering the potential effect of contingent liabilities.

However, presenting a SPU is not a substitute for an adequate national medium term budgetary framework. SPUs have some limitations which do not allow them to comply with the functions of a medium-term fiscal framework. For example, the SPUs are not useful for establishing a clear relationship between the medium-term targets and the annual budget, as they are overly focused on the aggregate of the Administrations and provide little detail on the strategies of the sub-sectors. This is especially serious in decentralised countries, as is the case in Spain. On the other hand, the formal requirements of the SPU follow the criteria of national accounting, while the annual budgets follow budgetary accounting, which complicates the traceability of measures and comparability. Partly due to the above, analysing the consistency between the medium-term programmes and the annual commitments undertaken by the various administrations that make up the public sector is a complicated task, even for the IFIs.

In practice, the Member States do not take the SPUs as legally binding documents. At the EU level, fiscal supervision by EU institutions is biased toward the short-term. The European Commission’s analysis and the Council's recommendations tend to focus on the budget for the following year. Partially due to this, medium-term supervision has not proved to be effective, at least in the facts. Although there are revisions carried out due to

changes in the fiscal priorities, in particular, against changes in government, macroeconomic surprises, or the uncertainty of the estimates of the impact of the measures, in general there is little information on the revisions, which ends up undermining the credibility of the SPUs and, in short, the fiscal targets undertaken. On the other hand, at the national level in many cases the SPU is wrongly understood as a substitute for the establishment of a medium-term fiscal strategy, which is not its purpose.

In the Spanish case, the forecasts of the SPUs have undergone systematically important revisions with a lack of consistency between the macroeconomic scenario and the budgetary commitments. Since 2011 there have been two major revisions in the path of deficit targets, with parallel shifts of the paths in 2013 and 2016, years in which departure from the EDP was already clearly unfeasible (see Figure 46). At first glance, the lack of relationship between these revisions and those made in the growth forecasts stands out (see Figure 47). In the 2012 SPU, for example, despite the major downward revision in the expected growth with respect to the 2011 SPU, no changes were made to the objectives for t+1 and t+2, which implied a structural correction of over 2% GDP in 2013. This ultimately required the deficit targets to be reconsidered in 2013, adopting a more gradual correction of the same. In 2015, a SPU was sent to the European Commission that revised the growth forecasts substantially upward but that practically did not alter the trajectory of the targets referred to in the previous year for t+1 and t+2, which implied a relaxation of fiscal policy regarding the 2014 SPU. However, in 2016 an extension of time to exit the EDP was granted again.

GRÁFICO 46. BUDGETARY BALANCE SPUS 2011 TO 2018 (% GDP)

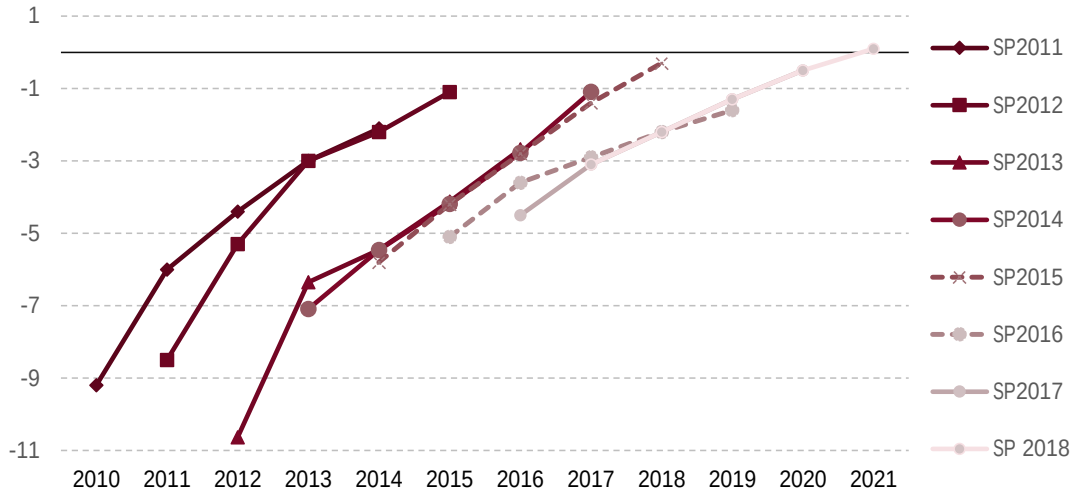


GRÁFICO 47. GDP GROWTH (% VAR)

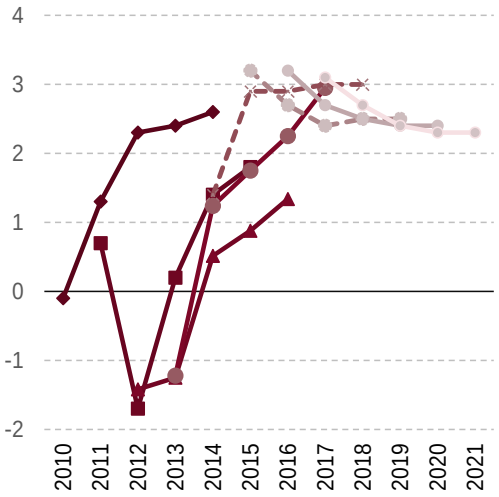
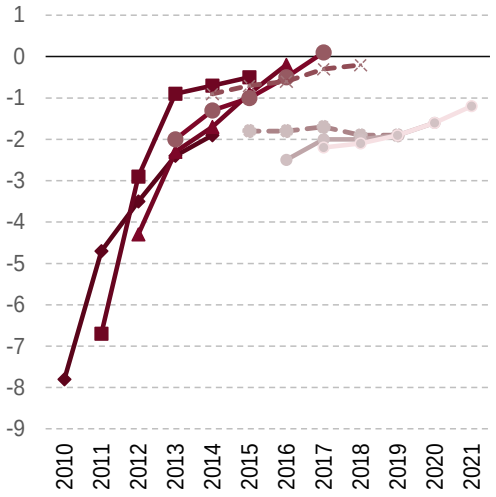


GRÁFICO 48. STRUCTURAL BALANCE (% POTENTIAL GDP)



Source: MINECO

The lack of consistency between the deficit path undertaken and the macroeconomic scenario is most evident on the expenditure side. A simple visual inspection of the paths undertaken for the main items on the expenditure side (which, in principle, are affected by the cycle to a lesser extent) notes that they undergo frequent shifts to the right (see Figure 49). Since 2011, virtually all SPUs have envisaged reductions in their time horizon, the practical non-viability later required subsequent revisions. While it is true that the total expenditure-to-GDP ratio declined in the 2011-2017 period, the pace was slower than initially projected. Going down to the component level, the change in the paths of the successive SPUs highlights the deficiencies in medium-term programming, with a clear optimistic bias. For example, in the case of compensation of employees almost all the SPUs expected a sustained reduction of its weight in GDP until the end of the

forecasting horizon (see Figure 50). However, from 2011 to 2017 its weight in GDP has remained consistently around 11%, largely explaining the forecasting errors in total expenditure (see the next section on ex-post analysis of biases). This item seems to be more stable than intermediate consumption, which is more volatile, or public investment, which has suffered the bulk of the adjustment with ratios to GDP below the pre-crisis level.

GRÁFICO 49. TOTAL EXPENDITURE (%GDP)

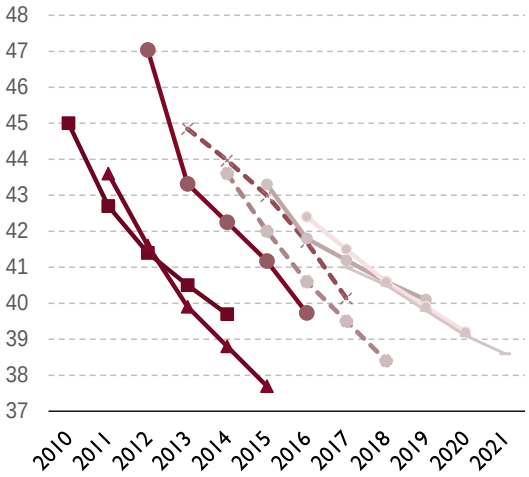
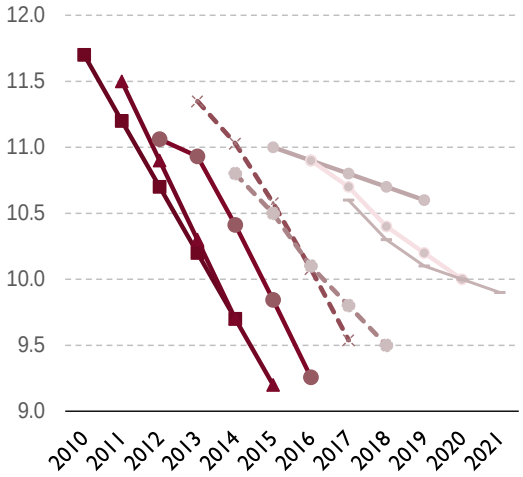


GRÁFICO 50. COMPENSATION OF EMPLOYEES (% GDP)



Source: MINECO

In addition to providing information on the relationship between the macroeconomic scenario and the budgetary forecasts, the commitments contained in the SPUs should be the result of an exercise in budgetary planning coordinated between all sub-sectors, to encourage later involvement. First, in addition to the necessary consistency between fiscal and macroeconomic variables, there are also inconsistencies between the fiscal forecasts at the sub-sector level. In this sense, AIReF has repeatedly emphasised the need to include scenarios with and without measures, to assess the economic impact of the same and their transmission channels. Second, the information that the SPU now provides is not enough to make a full assessment, as it does not offer detailed information on the forecasts for each sub-sector in national accounting terms. Among other limitations, the above makes it impossible to know which sub-sector will be responsible for implementing the fiscal policy measures included in the SPU. Finally, it is crucial to ensure that the SPUs cease to be a *pro forma* document (merely complying with certain community requirements) that do not reflect any type of fiscal commitment from the Government. Although it is neither easy nor desirable to establish totally stable fiscal targets, it is important to explain their revisions with sufficient clarity and transparency, avoiding seeming to be the reflection of poor fiscal programming. To this end, the Government should take steps to ensure

better coordination and planning between sub-sectors, so that the successive SPUs (including the establishment of the targets contained therein) are the result of a medium-term planning process with the participation of all the administrations concerned, and are strategic.

4.2. Analysis of ex-post biases

4.2.1. Forecast comparison criteria

The underlying macroeconomic scenario in previous SPUs is analysed with the aim of identifying significant biases. The economic forecasts made in previous years are compared, on the one hand, with those made by other public and private institutions, and, on the other hand, with the figures observed. [33] For each of the main variables of the macroeconomic scenario, the forecasting error (i.e. the expected value for a variable minus the observed value) is significant if it is large (i.e. if the figure forecasted by the Government falls outside of the interquartile range of the panel's forecast distribution), not justified by a better approximation to the observed results and systematic (i.e. repeated at least during the last 4 years).[34]

4.2.2. Biases in the forecasts of the main variables

As in 2017, the retrospective assessment of the macroeconomic forecasts associated with the last four SPUs was carried out in a recent report. Last March, due to the unusual date on which the 2018 draft General State Budgets were presented before parliament, AIReF decided to carry out the ex-post analysis based on forecasts made in spring and not in autumn, as is usual in the case of the GSB[35]. Biases were identified by analysing the errors for the current year, t, and the following year, t+1, of the main items in the macroeconomic scenario and the budgetary balance of the PAs.

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[33] Article 14.4 of the Organic Law creating the AIReF requires this report to include an assessment of whether the macroeconomic forecasts display any considerable bias over a period of four consecutive years, according to Council Directive 2011/85/EU, of 8 November 2011, on the requirements applicable to member States' budget frameworks.

[34] A detailed description of the methodology can be found in the Report on the Macroeconomic Forecasts of the Draft General Government Budget 2015

[35] Report on the Macroeconomic Forecasts in the Draft General State Budgets for 2018, published on 27/03/2018.

Although there were no significant biases, the assessment of the forecasts for the current year and the next identified a significant increase in the number of large errors unjustified by the result observed ex-post. AIReF's analysis did not find large errors not justified ex-post consecutively for the past four years in any of the variables analysed. However, and as in previous reports, AIReF found that the deterioration in the Government's forecasting accuracy continues, especially during the last two years. For the forecasts of the following year, the proportion of large errors increased from 20% in 2014 to 70% in 2017, with almost half of the errors found to be unjustified when comparing them with the observed value. In relation to the items, over half of the large errors found were concentrated in private and public consumption, rate of unemployment and the government debt-to-GDP ratio, with the forecasts for GDP and foreign trade being more accurate. At the same time, AIReF deemed that the systematic prudent bias in the growth forecasts observed during the last expansionary phase could be substantially corrected if the Government's forecasting accuracy for public consumption were improved.

As was the case one year ago, AIReF uses this report to extend its retrospective analysis to the medium term by incorporating the publication of statistics in real time as a new feature. Given the nature of the methodology used to analyse the macroeconomic forecasts accompanying the 2018 GSB, the comparison horizon should be limited to the current and next year, due to the structure of the forecasts contained in the of FUNCAS forecasting panel. That is why, like last year, in this report AIReF proposes to enrich the forecasting error analysis by extending it to the medium term, using the information contained in the estimates of the SPUs, which extend up to t+3. This year, the calculation of the forecasting errors from the first publication of the annual National Accounts data is also included.[36]

The use of data observed in real time does not qualitatively change the results of the analysis undertaken in the previous year. Although there are significant differences for some variables in specific years, in general a substantial loss in accuracy is identified for many variables as the time horizon progresses, with the difference in size between the forecast errors of t and t+1 (i.e. the forecast horizon that receives the most analytical effort from the European Commission, as explained in the previous section) and

[36] Currently the first publication of the data observed for National Accounts from the year 2010 is accessible (available in the Spring Forecasts of the European Commission 2011). The forecasting errors for previous years are calculated with the oldest data set published (i.e. that previously mentioned).

t+2 and t+3 being especially marked. In addition, growth forecasts continue to show the cyclical pattern of prudent bias during expansionary phases (expected growth greater than that observed) and optimistic bias during contractions (expected growth lower than that observed) for both GDP and the sub-components of private consumption and investment. In turn, although there are cyclical and relatively substantial errors in the components of net external demand, the forecasts for the same do not seem to be particularly biased.

At the level of domestic demand, the inclusion of 2017 confirms the worsening of the forecasting accuracy observed in recent years and emphasises the cyclical pattern identified in previous reports. In the case of the economic growth forecasts, the size of the average error increases for t, t+1 and t+2 when moving from the analysis interval 2013-2016 to 2014-2017. In addition, for the whole forecasting period the prudent bias (more negative errors) observed in previous years is accentuated. On the domestic demand side, the negative errors (underestimation) are accentuated, which is mostly due to the contribution of the private consumption errors, which becomes more prudent than in the previous analysis window, and public consumption, which is even more optimistic. Conversely, the substantial decrease in the forecasting errors for investment in t+2 and t+3 should be noted.

In addition, the poor relative accuracy of forecasts and the optimistic bias identified in public consumption seem to become more pronounced. Considering the entire analysis period (2000-2017), it is possible to observe that the relationship between the errors appears to increase as the forecasting horizon extends for certain items. In the case of private consumption and investment, the forecasting errors appear to be strongly linked to GDP from t+1 onwards. However, in the case of public consumption, based on the comparison of simple correlation coefficients or the adjustment of regression lines it is possible to observe that this relationship is much weaker, in line with the largest "normative" component that this item contains. Considering the above, it should be noted that the distribution of errors is concentrated on negative values (underestimation) in all forecasting intervals, presenting the lowest variation coefficient for t and t+1 (years where the use of information relating to fiscal policy measures can supposedly be exploited more) of all items of the macroeconomic outlook. In fact, by standardising by the degree of variability, the size of the forecasting error for t and t+1 is the largest of all items that make up the macroeconomic

outlook[37]. The inclusion of 2017 in the analysis contributes to an increase in the optimistic bias in t+2 and t+3.

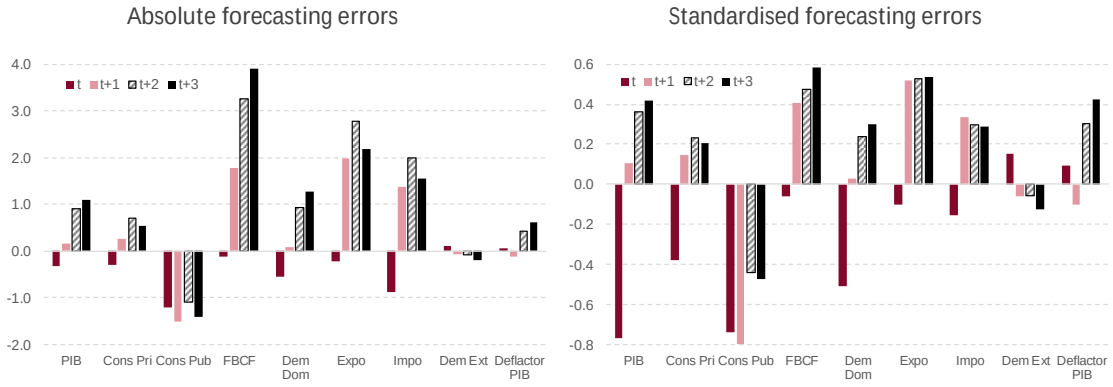
On the external sector side, the Government's forecasting performance is relatively better than that observed in the domestic demand forecast. However, this aggregated result hides the compensation between the errors in the imports forecast and the optimistic bias associated with the forecasts for demand for exports, especially in the medium term. To the extent that the forecast for demand for imports is determined by the forecast for investment in equipment and for private and public consumption, it would be expected that the forecasting errors for domestic demand would evolve in line with those observed in the demand for imports. However, considering the entire analysis period (2000-2017), it is not possible to find evidence of this, observing very low correlation coefficients between these series. The inclusion of the year 2017 in the assessment of the forecasting errors highlights a slight decrease in the forecasting accuracy for t+2 and t+3, increasing the bias toward overestimation (and therefore, underestimation of GDP) as noted previously. Considering the entire analysis period, it is possible to observe that the forecasting error substantially increases (changing the from negative to positive), as the growth rate forecasted, on average, is higher by about 2 percentage points from t+1 to t+3. On the export side, the differences between the analysis of the periods 2013-2016 and 2014-2017 are minor and do not implicitly involve major changes to the analysis of the 2000-2017 period, where the forecasting errors denote an optimistic bias from t+1 to t+3 (between 2 and 3 percentage points for each year). However, the size of the forecasting errors for exports and imports from t+1 onwards, and their joint contribution to the GDP forecasting errors, are minor, as they offset each other, as already mentioned in the previous report on the 2017-2020 SPU.

In the case of the GDP deflator, the loss of forecasting accuracy as the forecasting horizon extends and the prudent/optimistic cyclical bias does not vary by incorporating the observed data for 2017. The GDP deflator forecast is important for several reasons, although a very important reason perhaps lies in its impact on the nominal GDP forecast. In this way, forecasting errors in this variable directly impact the forecasting errors of the ratios that use GDP as the denominator (as is the case of the deficit ratios of PAs and the debt-to-GDP ratio), as there is a clear incentive to overestimate its evolution (given a deficit target, a greater forecast of nominal GDP would require a lower contraction in expenditure and would imply higher income). In

[37] This is accomplished by dividing the average error of a variable by its typical deviation.

its previous report on the 2017-2020 SPU, AIReF highlighted the presence of a cyclical bias in the GDP forecast, which is overestimated in times of recession and underestimated in stages of growth until the year 2013. Starting in 2014, with the change of cycle, this behaviour seems to have been reversed, systematically overestimating the dynamism of prices during the recovery period. This may be due to the lack of capacity of the forecasting models used by the Government, which provide a faster convergence towards values consistent with medium-term objective of the European Central Bank and do not appear to incorporate the impact of structural reforms of recent years that have an impact on the evolution of prices[38]. In this sense, the average error of the forecasts in the last 4 SPUs shows a clear pattern of worsening from t to t+3, from around 1 percentage point.

GRÁFICO 51. ERRORS IN THE SPU MACROECONOMIC FORECASTS (PERCENT, AVERAGE 2000-2017)



Source: Ministry of Economy and Competitiveness, European Commission and AIReF's estimates

The errors identified in the estimates that make up the macroeconomic outlook are reflected in fiscal forecasting errors with the same pattern of deterioration in the forecasting accuracy as the time horizon extends, something particularly evident in the evolution of the Budgetary Balance to GDP ratio. By analysing the forecasting errors throughout the period (2000-2017) two phenomena can immediately be observed. First, the average forecasting error of the net lending/borrowing ratio, measured as a percentage of GDP, is negative for all forecasting horizons. Second, the size of said error increases by approximately 0.5

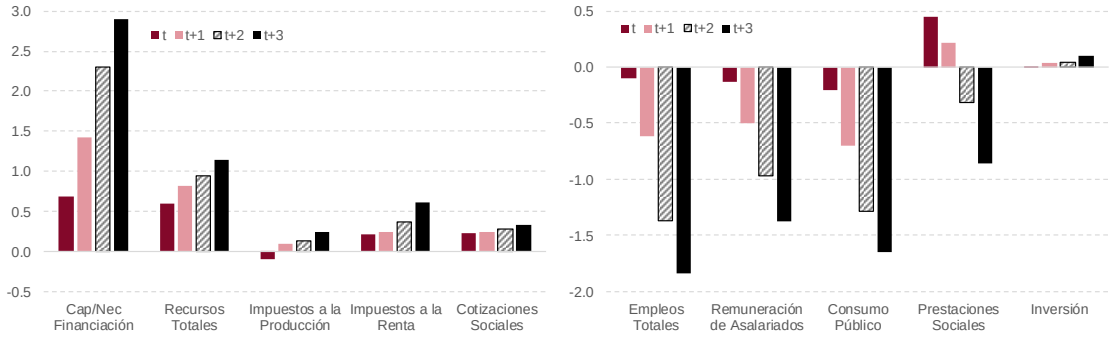
[38] See for example Cuerpo, Geli and Herrero WP 1/2018 "Some unpleasant arithmetics: A tale of the Spanish 2012 Labor Market"

percentage points each year as the forecasting horizon extends, from 0.7% in the current year to 2.9% in t+3. The above is in line with the existence of less interest on the part of the European institutions when scrutinising medium-term forecasts. The optimistic bias only disappears during the first expansionary stage within the analysis period (2000-2007).

In the case of revenue forecast the existence of a clear optimistic bias was noted, which increases as the time horizon extends. On the revenue side, the analysis of the 2000-2017 period shows the existence of a marked optimistic bias for forecasts of the current year (average error of about 0.6% GDP) that increases to almost double, in a sustained manner, when reaching t+3 (see Figure 52). For example, the magnitude of the forecasting error in cumulative terms for that period implies an overestimation of the total resources available to the PAs of about 10% GDP for the current year and approximately 20% GDP for the period t+3. In this sense, it should be noted that, on average, the aggregate errors in total revenues almost entirely explain the forecasting error in the budgetary balance ratio for the current year. From t+1 onwards its contribution to the error in said variable decreases to less than half. The loss of forecasting accuracy in revenues can also be observed in the main sub-items, which show a systematic increase of optimism (increase in the size of the average error) as the forecasting horizon extends.

However, in the case of expenditure the optimistic bias is only observed from t+1 onwards, as the forecast errors for the current year are practically balanced. Taking the 2000-2017 period as a reference, the average forecasting accuracy for the total revenue to GDP ratio is very high for the current year (forecasting error around 0.1% GDP). However, as the forecasting horizon extends the forecasting accuracy decreases substantially, reaching 1.8% GDP (about 33% GDP in cumulative terms during the period under analysis). Going into the expenditure sub-items, it is possible to observe that the evolution in the forecasting errors for total expenditure is largely explained by the errors made in forecasting compensation of employees (see previous section). On the other hand, the average error made in the forecast for social security benefits shows some prudence for the current year and next, but then in t+2 and t+3 the same optimistic bias common to most fiscal forecasts is observed. Finally, we should note the small prudent bias that is identified in the forecasts for Interest on debt and Public investment between t+1 and t+3, whose errors are always positive and significant in relation to the size of the variable (due to its size in relation to GDP, errors are small in percentage points of GDP).

GRÁFICO 52. ERRORS IN THE SPU FISCAL FORECASTS
(% GDP, AVERAGE 2000-2017)



Source: Ministry of Economy and Competitiveness, European Commission and AIReF's estimates

5. Recommendations and suggestions for best practice

5.1. Recommendations

Budgetary Stability and sustainability of public finances.

The path envisaged in the SPU reflects a deficit reduction of 3.2% GDP for the General Government (GG) in the 2018-2021 period, reaching a surplus of 0.1% GDP in 2021. In line with the SPU of previous years, the expected adjustment would be achieved, to a greater extent, through a reduction in expenditure of 2.4% GDP (from 41% to 38.6%) in addition to a revenue increase of 0.8% GDP (from 37.9% to 38.7%). However, the expenditure reduction path is not credible, to the extent that, for most of the period it entails over-compliance with the expenditure rule, which seems unlikely with the information available. On the other hand, the distribution of targets by sub-sector envisaged in the SPU does not reflect the foreseeable consolidation of the surplus of the LGs in the period analysed.

The SPU, as a central medium-term budgetary document, should avoid becoming a relatively formal exercise for setting a deficit reduction path, not based on measures with a sufficient degree of specificity.

In order provide more realism and credibility to medium-term budgetary planning, it would be desirable to establish greater social and political consensus on how to ensure the sustainability of public finances. To this end, greater debate and participation of the various administrations and agents in the preparation and decision-making processes in the various milestones of medium-term budgeting would be essential. Any move in this direction would strengthen the legitimacy and enforceability of the fiscal rules.

On the other hand, in the previous report on the SPU AIReF recommended to incorporate expenditure requirements, income sufficiency and the expenditure rule into the process of distributing the budgetary stability target between the different levels of government, avoiding the inconsistencies observed between the individual application of the LOEPySF to each administration and the joint evaluation of the PA sub-sector.

For this reason, **AIReF recommends that:**

1. ***To strive to implement the measures to be able to verify the plausibility of the fiscal path envisaged in the SPU that, in any case, must ensure their consistency with the evolution of the relevant macroeconomic variables and with the discretionary measures to be adopted.***
2. ***Promote the implementation of a medium-term budgetary fiscal framework with greater consensus and participation of all actors involved***

5.2. Reiterated recommendations

Transparency and evaluation of fiscal rules

AIReF reiterates the following recommendations:

3. ***The Stability Programme should include:***

- ✓ ***Budgetary projections for both the Public Administrations and each of the sub-sectors that incorporate the measures, thereby allowing us to see which part of the reduction in the expected deficit would be achieved through the adoption of measures.***
- ✓ ***Government debt targets distributed by sub-sectors.***
- ✓ ***Detailed information for the analysis of the expenditure rule, for each of the sub-sectors, the computable expenditure, as well as the reference rates for the calculation of the expenditure rule for all years covered in the Stability Programme Update.***
- ✓ ***More information about the risks that, if it they were to materialise, could affect the budgetary stability or debt targets.***

Background.

Since the beginning of its activity, AIReF has repeatedly emphasised the importance of the coordination of the fiscal scenario contained in the SPU and the annual budgets through which the different PAs, analysed as a whole, can comply with the path set. The SPU contains a multi-year scenario

in which the budgets that define the actions of the Public Administrations each year should be rooted, including the mandate of the legislative power of how much should be spent, when and on what, considering the resources with which they expect to be financed.

The SPU is considered as a national medium-term fiscal plan, in accordance with Article 4 of Regulation (EU) No 473/2013, and therefore must comply with the requirements laid down for multi-year frameworks in article 29 of the LOEPySF and Council Directive 2011/85/EU of 8 November 2011, on the Requirements for budgetary frameworks of the Member States.

Reason for reiteration: partial compliance

For the first time, and in response to a recommendation made by AIReF, the Government has submitted a "no policy change" macroeconomic outlook to AIReF, accompanying the official outlook. The publication of the "no policy change" scenario (although not for the entire forecast horizon, since it does not include 2020 and 2021) responds to a reiterated recommendation from AIReF and represents important progress in terms of transparency, as it enables assessment of the impact of the measures adopted, as well as their transmission channels.

However, the 2018-2021 continues to omit all the necessary information to corroborate the consistency between the macroeconomic and budgetary scenarios and evaluate the adequacy of the budgetary stability targets, debt targets and expenditure rule and the sufficiency of the commitments adopted by each of the PAs.

AIReF reiterates the following recommendation:

4. ***To publish the CDGAE assessments on the degree of compliance with the healthcare expenditure rule and the measures agreed, if any, to correct the deviations. Likewise, to publish the percentage of excess deficit regarding the target decided by the CDGAE for each year, which must be compensated for in the Budgets of subsequent years, specifying the periods in which the Regions will compensate for this deviation.***

Background.

Among the measures of the previous SPU in the Regions the impact of the measures in pharmaceutical expenditure stemming from adhesion to their healthcare expenditure rule was assessed, without specifying the instrumentation or specific content. The CDGAE should evaluate the

compliance with the healthcare expenditure rule and determine the percentage of the deviation of each year that must be compensated for in subsequent years. The assessment of the effective impact of this instrument and of the measures that have been agreed, if any, requires greater transparency. For this reason, in the report on the previous SPU, AIReF recommended that the assessments made by the CDGAE in this regard be published.

Reason for reiteration: non-compliance

The current Spanish National Reform Programme for 2018 mentions the existence of the reports submitted to the CDGAE in relation to non-compliance with the rule in 2016, which are not public, and the existence of bilateral commitments with the Regions that have incurred such non-compliance, although their content is neither determined nor published.

Finally, the 2018-2021 SPU contains a descending path of government debt to GDP throughout the period, with a cumulative adjustment of 9.2%, above AIReF's baseline forecasts. This debt path would be consistent with the debt targets approved for the 2018-2020 period. However, the pace of decline in the debt-to-GDP ratio is not sufficient to comply with the 1st TP of the LOEPySF. According to this provision, in 2020 the level of government debt should stand at 60% GDP and, therefore, when the national economy reaches a real or expenditure growth rate of at least 2% per year, the government debt-to-GDP ratio should be reduced by a minimum of 2% annually.

As AIReF has noted in previous reports, the setting of unrealistic targets such as, in this case, those contained in the 1st TP of the LOEPySF harms the credibility and effectiveness of the national fiscal framework. For this reason, in its recent reports published on the 2018 draft GSB, AIReF reiterated the recommendation to review the above provision, requesting "***Use of the legal mechanisms to extend the transitional period for compliance with the limit laid down in article 13 of the LOEPySF, adapting the requirements specified in the first transitional provision of said law and defining a credible and demanding reference path for the sustained reduction of the debt ratio"***

This recommendation is pending response.

5.3. Suggestions for best practice

AIReF also provides the Government with two **suggestions for best practice** around transparency:

1. Integrate the key elements of the forecasts into a simplified framework of National Accounts, so that it is possible to understand the connections between economic activity, demand and expenditure, on the one hand, and income flows and financing requirements, on the other.
2. Expand the information on the methodologies, assumptions and relevant parameters underlying the forecasts, in line with the provisions of Directive 2011/85 on budgetary frameworks and article 29 of the LOEPySF, which defines the content of the Budgetary Plans of the PAs

6. ANNEX: TABLES AND CHARTS

C.1) Basic hypotheses for the 2018-2021 scenario

Variación anual en %, salvo indicación en contrario

	2017	Δ APE 17-20	2018	Δ APE 17-20	2019	Δ APE 17-20	2020	Δ APE 17-20	2021
Tipos de interés a corto plazo (euribor a tres meses)	-0.3	*0.0*	-0.3	*-0.2*	-0.2	*-0.3*	0.4	*0.3*	0.7
Tipos de interés a largo (deuda pública a 10 años, España)	1.7	*0.0*	1.6	*-0.5*	2.0	*-0.9*	2.3	*-0.6*	2.6
Tipo de cambio (dólares/euro)	1.1	*0.1*	1.23	*0.2*	1.23	*0.2*	1.23	*0.2*	1.23
Tipo de cambio efectivo nominal zona euro (% variación)	2.1	*1.6*	4.7	*4.7*	0.1	*0.1*	0.0	*0.0*	0.0
Crecimiento del PIB Mundial, excluida la UE	3.9	*0.2*	4.2	*0.3*	4.2	*0.1*	4.1	*0.0*	4.0
Crecimiento del PIB de la zona euro	2.5	*0.8*	2.4	*0.6*	2.0	*0.2*	1.8	*0.0*	1.8
Volumen de importaciones mundiales excluida la UE	5.1	*2.1*	5.0	*1.2*	4.5	*0.8*	4.1	*0.4*	3.7
Mercados españoles de exportación	4.4	*0.8*	4.5	*0.6*	4.2	*0.4*	3.8	*0.0*	3.5
Precio del petróleo (Brent, dólares/barril)	54.2	*0.7*	67.7	*14.5*	63.9	*10.7*	63.9	*10.7*	63.9

2018-2021 Previsión.
Fuentes: Comisión Europea y Ministerio de Economía, Industria y Competitividad.

C.2) Government macroeconomic forecasts

	2017	Δ APE 17-20	2018	Δ APE 17-20	2019	Δ APE 17-20	2020	Δ APE 17-20	2021
PIB	3.1		2.7		2.4		2.3		2.3
PIB a precios corrientes: miles de millones de euros	1,163.7		1,213.2		1,264.5		1,319.0		1,375.1
PIB a precios corrientes: % variación	4.0		4.3		4.2		4.3		4.3
COMPONENTES DE DEMANDA (% variación real)									
Gasto en consumo final nacional	2.2		1.8		1.6		1.5		1.5
- Gasto en consumo final nacional privado (a)	2.4		2.0		1.8		1.7		1.7
- Gasto en consumo final de las AA.PP.	1.6		1.1		1.2		1.2		1.2
Formación bruta de capital	5.5		4.5		4.3		4.2		4.2
- Formación bruta de capital fijo	5.0		4.7		4.4		4.3		4.3
Activos fijos materiales	5.2		5.0		4.7		4.6		4.6
Construcción	4.6		5.0		5.2		5.4		5.3
Bienes de equipo y activos cultivados	6.1		4.9		4.0		3.5		3.5
- Variación de existencias (contribución en p.p.)	0.1		0.0		0.0		0.0		0.0
Demanda Nacional (contribución al crecimiento del PIB)	2.8		2.3		2.2		2.1		2.1
Exportación de bienes y servicios	5.0		4.8		4.6		4.4		4.2
Importación de bienes y servicios	4.7		4.1		4.2		4.0		4.0
Saldo exterior (contribución al crecimiento del PIB)	0.3		0.4		0.3		0.2		0.2
PRECIOS (% variación)									
Deflactor del PIB	1.0		1.5		1.8		1.9		1.9
Deflactor del gasto en consumo final privado	1.8		1.4		1.6		1.7		1.8
COSTES LABORALES Y EMPLEO (% variación)									
Remuneración (coste laboral) por asalariado	0.1		1.2		1.5		1.8		1.9
Remuneración (coste laboral) total	3.3		3.8		3.9		4.0		4.0
Empleo total (b)	2.8		2.5		2.3		2.1		2.0
Productividad por ocupado (b)	0.2		0.2		0.1		0.2		0.3
Coste Laboral Unitario (CLU)	-0.1		1.0		1.4		1.5		1.6
Pro memoria (datos EPA)									
Paro: % población activa	17.2		15.5		13.8		12.3		11.0
SECTOR EXTERIOR (%PIB)									
Saldo cuenta corriente	1.8		1.7		1.6		1.5		1.4
Cap.(+) / Nec.(-) financiación frente resto del mundo	2.0		1.9		1.8		1.7		1.5

2018-2021 Previsión
(a) Hogares e ISFLSH
(b) Empleo equivalente a tiempo completo
FUENTE: INE y Ministerio de Economía y Competitividad

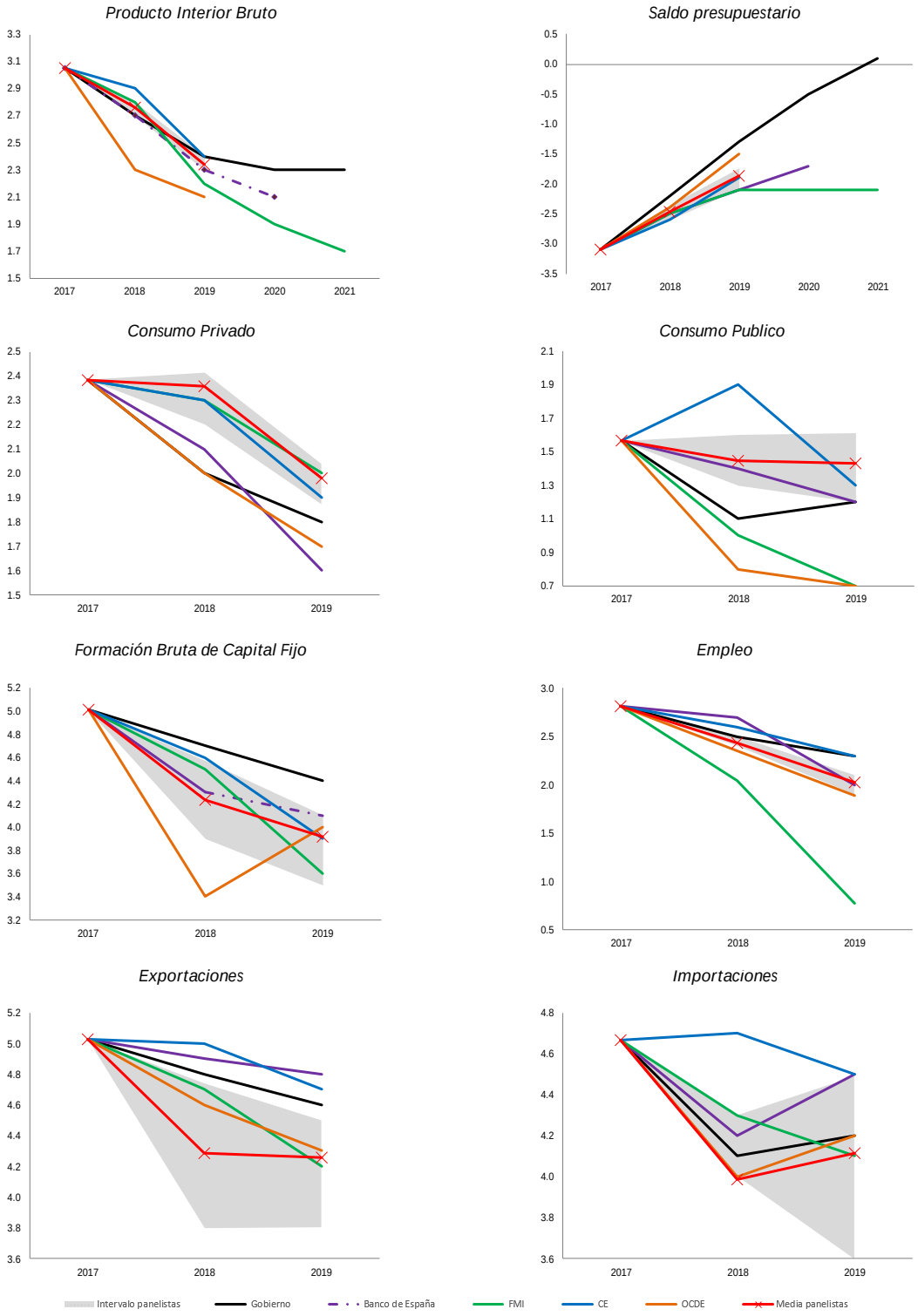
C.3) Forecasts by international organisations

(variación % sobre el año anterior, salvo indicación)

		2017	Δ APE 17-20	2018	Δ APE 17-20	2019	Δ APE 17-20	2020	Δ APE 17-20	2021
BCE (Marzo 2018)	PIB mundial (ex área del euro)	3.8	0.3	4.1	0.3	3.9	0.1	3.7	-	-
	PIB del área del euro	2.5	0.7	2.4	0.7	1.9	0.3	1.7	-	-
	Importaciones de bienes y servicios (ex. área del euro)	5.5	2.1	4.7	1.0	4.1	0.3	3.6	-	-
	Precios del petróleo tipo Brent (USD por barril)	54.4	-2.0	65.0	8.5	61.2	5.3	58.3	-	-
	Euribor a tres meses (%)	-0.3	0.0	-0.3	-0.1	-0.1	-0.1	0.4	-	-
	Tipos de interés de la deuda pública del área del euro a 10 años (%)	1.0	-0.3	1.3	-0.3	1.6	-0.3	1.9	-	-
	Tipo de cambio USD/EUR (nivel)	1.13	0.06	1.23	0.16	1.24	0.17	1.24	-	-
	Tipo de cambio efectivo del euro	2.2	3.2	4.5	4.5	0.1	0.1	0.0	-	-
FMI (WEO Abril 2018)	PIB mundial	3.8	0.3	3.9	0.3	3.9	0.3	3.8	0.1	3.8
	PIB del área del euro	2.3	0.7	2.4	0.8	2.0	0.4	1.7	0.1	1.5
	PIB de la UE	2.7	0.7	2.5	0.7	2.1	0.3	1.8	0.1	1.7
	Comercio de bienes y servicios	4.9	1.1	5.1	1.2	4.7	0.7	4.3	0.3	3.9
	Precios del petróleo Brent (USD por barril)	54.4	-0.8	64.7	9.6	60.7	6.6	58.0	4.1	56.6
	Libor a tres meses (%)	-0.3	0.0	-0.3	-0.1	0.0	-	-	-	-
Comisión Europea (Mayo 2018)	PIB mundial	3.7	0.3	3.9	0.3	3.9	-	-	-	-
	PIB del área del euro	2.4	0.8	2.3	0.5	2.0	-	-	-	-
	PIB de la UE	2.4	0.6	2.3	0.5	2.0	-	-	-	-
	Importaciones mundiales de bienes y servicios (ex área del euro)	5.3	2.0	5.1	1.3	4.4	-	-	-	-
OCDE (Noviembre 2017)	PIB OCDE	1.7	-0.3	2.0	-0.3	2.3	-	-	-	-
	PIB del área del euro	1.7	0.1	1.6	0.0	1.6	-	-	-	-
	Comercio de bienes y servicios	4.8	1.9	4.1	0.9	4.0	-	-	-	-
Expectativas de mercado (Abril 2018)	Tipos de interés a largo (deuda pública a 10 años, España)	1.6	-0.1	1.4	-0.5	1.5	-0.7	1.7	-0.8	2.0
	Precios del petróleo tipo Brent (USD por barril)	54.4	0.9	63.7	10.2	58.2	4.8	54.5	0.8	52.3

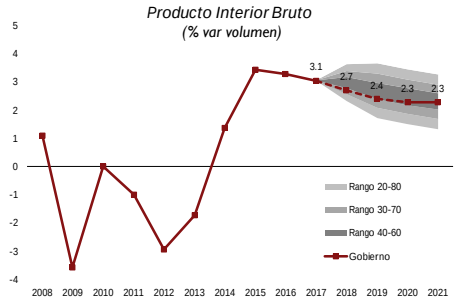
Previsión 2018-2021.

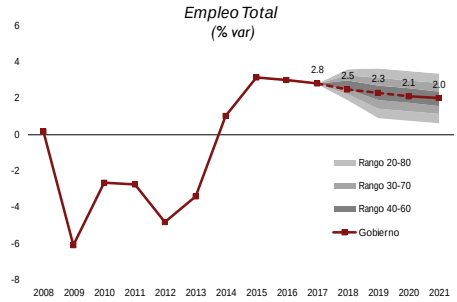
G.1) Forecasts for the Spanish economy 2018-2021

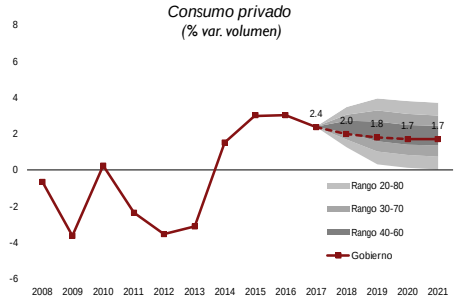


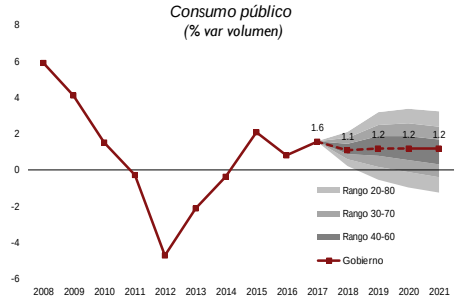
Sources: Own elaboration based on INE, FUNCAS, MINEICO and AIReF's estimates.

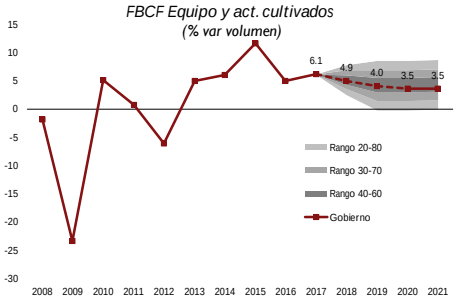
G.2) Government forecasts and AIReF uncertainty ranges

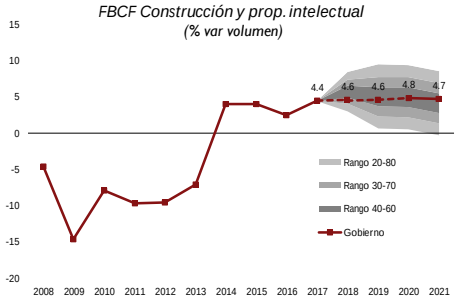


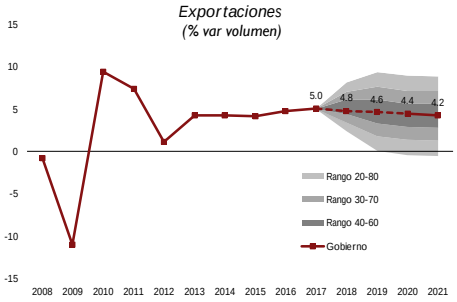


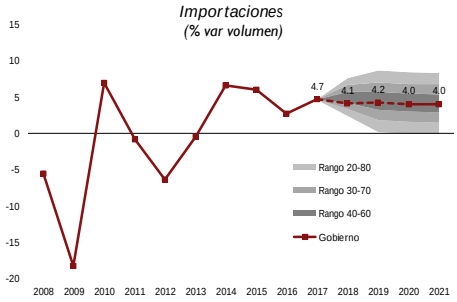












Sources: Own elaboration with data from INE, MINEICO and AIReF estimates.

METHODOLOGY ANNEX

For a Report on Macroeconomic Forecasts, a range of econometric tools have been used, covering a relatively broad methodological spectrum. This note provides a summary of their main characteristics with the aim of describing the methodology supporting the report.

The first section presents the uniequational structural models and their design methods. These models have served as a basis on which to examine the consistency of official forecasts for the behaviour of their macroeconomic determinants. The technique applied uses quarterly data and error correction models.

The second section describes the employee reduced-form multivariate model. This model shows the dynamics for the main aggregates for real activity in the macroeconomic outlook and allows quarterly confidence intervals for the envisaged trends in these aggregates, with very little a priori conditioning. The methodology is included in the autoregressive vector models with exogenous variables and also uses quarterly data.

The third and last section briefly details the dynamic factorial models used for short-term (2 quarters) forecasts of GDP and its components, which permit the impact of the present time information on said aggregates to be reflected.

6.1. Uniequational structural models

For a quantitative assessment founded on a structural formula suggested by economic theory, several behavioural equations have been used based on the representation of error correction. A simplified presentation using Excel spreadsheets is available on AIReF's website for use by analysts.

The general principle of this approach is, first, to define a behavioural relationship between a given variable and its determinants, as suggested in economic theory. This theoretical relationship is quantified by means of a linear relationship characterising the long-term behaviour between the variable that is being described and its conditioning factors. This equation defines what is known as the "equilibrium relationship", acting as point of attraction toward which the variable under analysis should converge, but this is not always the case period for period. This deviation or error between the value compatible with the theoretical and the observed fundamentals mainly reflect shocks that distort long-term relations between the variable and its fundamental properties.

The short-term dynamic, usually characterized by the trend in the quarterly growth rate, results from combining two elements. The first of these is the partial correction of the error arising in the long-term relationship. This

adjustment quantifies the rhythm in which the variable closes the gap with the level compatible with its fundamentals in the long term. The second is a purely statistical, short-term dynamic that is complementary to the first and that defines the empirical relationship between the growth rates for the variable being described and the rates that apply to its determinants.

This equation, known as error correction, is supported by the econometric method known as co-integration analysis, which conducts comparative checks on any stable, well-defined long-term relationships for the quantification, in a second step, of the short-term dynamic.

Below is a brief description of the equations used herein: in all the equations, the frequency of observation was quarterly, the data were adjusted to seasonality and the calendar, and the sampling interval ranged from 1995:TI to the most recent quarter observed.

6.1.1. Final household consumption

The equation describing the demand for final household expenditure considers that the trend depends on the gross real income available to households, their financial and real estate (taken separately) wealth, compensation per employee, the unemployment rate, and the value of real credit available for consumer goods.

6.1.2. Investment in fixed capital: capital assets

Companies are expected to determine their investment in capital goods according to the evolution of the aggregate demand, the envisaged profitability of their investment projects, the price of the labour factor, the user cost of capital and the use of the productive capacity. Aggregate demand is approximated in volume by means of the Gross Domestic Product. The expected profitability measure is determined from Tobin's Q, estimated as the quotient of the IBEX-35 over the productive capital stock. The price for the work factor will be given by the compensation per employee.

6.1.3. Fixed capital investment in construction

The determinants of gross fixed capital formation in construction included in this equation are the real available gross income, financial wealth and real estate wealth in the household sector, the flow of credit for housing purchase and refurbishing in real terms, relative prices of freehold property, deflated by

the price index for expenditure in final household consumption and the construction sector confidence indicator.

6.1.4. Exports of goods and services.

The volume of exports in goods and services is set to depend on a variable that approximates external demand for goods and services, and on prices relative to exports of products that are substitutes for said goods, produced and exported by the rest of OECD countries.

The variable that approximates the external demand for goods and services is global trade in goods by volume, provided by the Dutch Central Planning Bureau (CPB). In addition, as a variable for relative prices, the competitiveness trend index is taken, calculated through a comparison of domestic consumer price indices with those of the OECD, adjusted for changes in nominal exchange rates.

6.1.5. Imports of goods and services

Demand for imports of goods and services is set to depend on the capacity for expenditure by the units residing within the economic domain, and on prices of imported goods in relation to their domestic substitutes. Thus, imported goods and services compete with those produced internally in the overall expenditure.

As the variable representing the demand for imported goods and services, an index is designed that ponders each component in the final demand (Consumption, Investment and Exports) according to the share of imports. The indicator applied for relative prices is the quotient of the deflator of imports and goods and services over the deflator of domestic demand.

6.1.6. Private wage earners

The level of activity, represented by GDP in volume, the active population and the stock of private capital are considered as determinants of private employment.

6.1.7. Private compensation per employee

The evolution of private compensation per employee will be conditioned by the behaviour of the level of prices, reflected in the general CPI, productivity per employee, obtained as the quotient between GDP in volume and the total full-time equivalent employment, and the public compensation per employee.

6.1.8. Underlying inflation

Underlying inflation will depend on unit labour costs, GDP in volume, the rate of unemployment, the effective rate of VAT and a dummy variable introduced from the fourth quarter of 2012 that reflects the effect of the labour reform.

6.2. Reduced-form multivariate model

The Bayesian Vector of Autoregressions (BVAR) with exogenous variables was used for the assessment of the projections given in the macroeconomic outlook.

These types of models offer both flexibility and objectivity. Flexibility is achieved through allowing a high degree of adaptability to the dynamic observed. Objectivity is assured since, having determined the set of variables to model, estimates for the model parameters are conducted according to statistical, objective and replicable criteria.

The Bayesian component in the model has been incorporated to improve its predictive performance, and captures purely statistical interactions of the variables with the dynamics, in part or in whole of the series analysed. Likewise, specifically included in this extra-sample information component are behavioural traits of the economy in the medium term.

In the BVAR model with exogenous variables, the level of any variable at a given moment is expressed by the linear combination of four parameters: lagged values of the variable itself (dynamic), offset values for the remaining variables involved in the model (crossed dynamic), contemporary values of exogenous variables, and a purely random innovation that captures any other aspect that is not attributable to the variables taken into account in the system.

The weight of each component is determined empirically by finding the best sampling fit and the Bayesian elements offset the effects of over-rating that may exist due to the high number of parameters being estimated.

Projecting the aforementioned BVAR model forward gives both specific prediction values and their associated confidence intervals. The confidence intervals quantify the degree of uncertainty attributable to the predictions of different variables for different horizons.

The endogenous variables included in this model are: the GDP deflator, the GDP volume index, the full-time employment equivalent, real credit (financing to business and households deflated by the core CPI) and net incomes with cyclical sensitivity (defined as the sum of taxes on production and imports, current taxes on income and wealth and social contributions, from which unemployment benefits are deducted) as a percentage of GDP. The exogenous variables considered are: the exchange rate of the euro, the dollar price of oil, the EU GDP, interest rates (loans requested by companies of up to 1 million euros) and a constant term.

A secondary BVAR model is also used to represent the joint dynamic of five series that describe the breakdown of GDP from the viewpoint of demand. The variables studied are: final consumption by households and not-for-profit institutions at the service of households (ISFLSH); consumption by Public Administrations; gross fixed capital formation; exports of gross fixed capital formation and imports of goods and services.

6.3. Dynamic Factor Models

For short-term (2 quarters) predictions of GDP and its main components of demand (private consumption, public consumption, investment in equipment, investment in construction, exports and imports of goods and services), dynamic factorial models are used, synthesized on the model known as MIPReD. The joint estimates for GDP and its components provides a more comprehensive and detailed perspective of the economy, allowing the composition of growth to be identified, its external and domestic origins. These in turn lead to determining the composition of Final Consumption and Investment in Domestic Demand.

Technically, estimates are made in two stages:

In the first, GDP and each of its components are predicted independently, following the dynamic factorial model methodology for real time forecasting. Forecasts are based on a combination of short-term information, issued at different frequencies (quarterly and monthly), using the respective dynamic factorial models. This combination allows forecasts to be updated as new information becomes available for the indicators in the model, providing a real-time or permanently updated vision of the aggregate status of Spanish economy.

The methodology used in each of the models consists of the following stages:

1. Seasonal and calendar adjustments for all indicators in the system.

2. For quantitative indicators, the variation rates are calculated for the immediately preceding period, to obtain a short-term growth signal. Qualitative indicators are not transformed, as these offer an immediate (directional) interpretation of growth.

3. All the indicators, whether qualitative or quantitative, are typified rendering their mean as zero and their variance as one.

4. The series thus obtained are combined into a dynamic factorial model, breaking down its temporal evolution into a part attributed to elements that are common to all and another part that is specific to each.

5. The dynamic factorial model is represented in the space of states, combining a transition equation (that describes the system dynamic) and a measure equation (that defines the connection between the observed series and their underlying factors).

6. Estimates for the parameters in the model are made maximising their feasibility. Such maximisation considers both the presence of series with a different sampling frequency (monthly or quarterly) and asymmetrical series lengths among those included in the panel of data, either because they do not all commence at the same time or because they do not all end in the same period.

7. Having estimated the dynamic factorial model, its representation in the space of states permits, by means of Kalman filtering, both the forward projection of the series comprised in the model and the calculation of the typical deviations from said projections, thus obtaining a measure of the uncertainty surrounding them.

8. One of the series making up the set of series used is the aggregate, for which forecasts are obtained simultaneously with those of the remainder of indicators. In this manner, the internal consistency of forecasts is assured.

9. Whenever new data becomes available for any of the indicators in the model, the above steps are repeated, reviewing all forecasts depending on the sign and magnitude of the innovation. This continuous updating process defines the real-time nature of the system.

In the second stage, individual forecasts are reconciled with those for GDP, by means of the balancing method proposed by Van der Ploeg (1982), in which individual forecasts are combined with the accounting restriction that establishes that GDP growth should be equal to the aggregation of

contributions to its growth from its components. Final forecasts are the result of adjustments to the individual forecasts according to the discrepancies observed between the sum of the corresponding contributions to GDP growth, and GDP growth foreseen in its own model, bearing in mind the historical correlation among the series for contributions to growth. The initial forecasts are thus modified, considering their discrepancies when incorporating accounting restrictions. These discrepancies are weighted according to their precision, that is, inversely to the uncertainty associated with initial estimates.

This procedure has several desirable properties:

1. The greater the variance in the initial forecast, the greater the magnitude of the revisions, as an absolute value. In other words, the greater the uncertainty regarding the initial forecast, the greater the amount in the modification it may be subject to.

2. If a given preliminary estimate is known with absolute precision, no adjustments are made in the corresponding forecast.

3. When the historical correlation between two components is positive, their revisions are made in the same direction: both upward or both downward. If, on the contrary, they correlate negatively, adjustments will take opposite directions: one upward and the other downward, or vice-versa.

6.4. References

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