



Federal Ministry
of Finance

Fourth Report on the Sustainability of Public Finances

2016

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Foreword



This is the fourth time that the German Federal Ministry of Finance has presented a report on the sustainability of Germany's public finances. The report's most important message remains remarkably constant, however: The German population will age in the coming decades and life expectancy will fortunately increase compared with preceding generations; however, the labour force will shrink at the same time. Public finances have to be prepared for that development.

The fiscal sustainability report therefore acts as a central early-warning instrument within the framework of forward-looking fiscal policy. Demographic change and the risks associated with public debt levels that are still too high create a considerable need for fiscal action, which will characterise the coming years and decades. The so-called fiscal sustainability gap, which quantifies the need for consolidation with a view to solid long-term finances, is still significant.

However, as the analysis in the report reveals, sustainable fiscal consolidation and structural reforms of the social security systems, which were implemented at an early stage, are paying off in terms of limiting fiscal risks for future generations. We were able to make some progress along the path towards sustainability during the current legislative period. The balanced budgets in 2014 and 2015 helped to reduce the burden on future generations and create new fiscal room for manoeuvre.

The report clearly identifies the measures that are necessary in order to compensate for the long-term fiscal impact of demographic change. If we succeed in further reducing structural unemployment and increasing female labour force participation, this will have a significant positive impact on fiscal sustainability. Boosting qualified labour migration would also contribute to closing the sustainability gap. Furthermore, it will be necessary to raise the effective retirement age in line with increasing life expectancy. In the very long term, the projected ageing of the population can only be stabilised or even reversed by increasing fertility rates in Germany. What is not an option is mitigating the fiscal effects of demographic change through ever-increasing transfers from the federal budget.

Overall, the report makes it clear that the remaining fiscal sustainability gap still requires decisive action. The progress of recent years provides encouragement for us to proceed with determination along the course we have taken, with the aim of limiting risks for future generations. Finally, current developments dramatically show the importance of forward-looking fiscal policies for successfully coping with unexpected challenges.

Dr. Wolfgang Schäuble

Federal Minister of Finance

I. Introduction

Sustainability of public finances as an early warning mechanism in a world of demographic change

Sound public finances are fundamental to the state's capacity for action. This is apparent in the short term when new challenges arise such as the current influx of refugees (see Section 1.2.1). Most of all, however, it is true in the longer term, when growth in the debt burden can limit the options available to the state.

It is evident that impending demographic change – driven by population ageing – will form a major challenge for the development of public finances and social security systems. If not counteracted in good times, the demographic challenges will lead to higher and higher public spending. If revenue did not rise in parallel, the final result would be an unsustainable level of public debt. The need to look well ahead and take timely countermeasures is all the more urgent because it is harder for people in an ageing society to adapt, and (future) pensioners must be able to rely on long-term commitments given by the state. The long-term outlook for public finances is the focus of the regular sustainability reports published by the Federal Ministry of Finance (BMF).

There are times when the demographic challenges are overshadowed by other problems. Yet in dealing with these, it is important to take into account the long-term fiscal risks that are already clearly foreseeable, and the extent to which those risks constrain policy choices. Beyond that, important feedback linkages exist between forward-looking budgetary management and sustained economic growth. On the one hand, 'good' fiscal policy is key to maintaining favourable growth and employment conditions. On the other, sustained economic growth in parallel with rising employment creates the ideal conditions for soundly financed public budgets.

This Sustainability Report therefore aims to identify and quantify the foreseeable effects of demographic ageing and the risks for the long-term development of public finances in Germany. The Report thus serves as an early warning system for forward-looking fiscal policy and plays a key part in strategic planning and formulation of long-term budgetary policy. Rather than forecasting long-term trends, however, it focusses on the hypothetical evolution of public finances on the basis of available and reliable data and assuming a world of "no policy" change. It must be borne in mind that long-term projections of this kind are based on numerous strong assumptions and therefore contain a great deal of uncertainty.

This fourth Sustainability Report¹ provides information in particular on the following questions as they relate to the current fiscal policy context:

- How resilient are Germany's current public finances to the impending effects of demographic change, and what are the risks to public finances stemming from demographic change?
- What is the scope for long-term action to secure sustainable public finances?
- What short to medium-term action is needed in the areas of social, economic and fiscal policy in order to create leeway for future-focused fiscal and economic policy?

¹ See also Federal Ministry of Finance (2014, 2011, 2008 and 2005).

I.1 Challenges to fiscal sustainability due to demographic change

The two salient features of ongoing demographic change in Germany in the years ahead are a shrinking and an ageing population.

In the coming years and decades, when population undergoes significant decline, the proportion of the population aged 65 or older will increase rapidly while the working age population will shrink substantially. If not counteracted, such a radical change in the structure of Germany's population will result in disproportionately higher public spending in policy areas affected by population ageing, combined with weaker economic growth and less dynamic government revenues. In consequence, the pressure on public budgets will rise sharply as time goes on.

The pivotal question then is whether the state can continue to meet the demands placed on it at current levels, and whether existing obligations can continue to be fulfilled if policies are kept as they stand. The concept of fiscal sustainability therefore assesses in fiscal policy terms the capacity to meet existing obligations over the long term.

The long-term influence of demographics on public budgets and social security systems are the main focus of the Finance Ministry's sustainability analyses. Other long-term challenges with potential impacts on public finances – such as climate change and the transition to clean energy sources – are more the domain of discretionary policy decisions and are not the subject of this report. Nevertheless, non-demographic drivers of public spending – specifically in the areas of healthcare and long-term care – are also important to the projections undertaken here.

I.2 Starting position in the context of current challenges

Public budgets are under constant pressure to adapt to changing conditions. Undoubtedly, the current influx of refugees poses special challenges. Other developments such as the digitisation of industry and society (under the heading of Industry 4.0) also have major implications for potential growth and indirectly for fiscal sustainability in Germany.

The economic starting position for tackling such recent challenges is nevertheless a good one: The German economy remains on a robust growth path. After posting real GDP growth of 1.7% in 2015, the German economy is set to grow by a further 1.7% this year and 1.5% next year. The labour market in Germany remains in very good shape. A large influx of skilled immigrant labour and mobilisation of the reserve labour pool – meaning people not previously available to the German labour market – are key factors making employment growth far stronger than the decrease in unemployment would lead to expect.

The favourable cyclical trend directly affects government revenue and spending, considerably easing the consolidation process. As recently as 2013, the Federation had to take out €22.1 billion in new borrowing. In contrast, the federal budget for 2014 was balanced, with net new borrowing of zero. At the same time, borrowing by the special Investment and Redemption Fund (ITF) was reduced by some €2.5 billion.

In the federal budget for 2015, the Federation achieved a balanced budget for the first time in the history of the Federal Republic of Germany both at the budgeting stage and in implementation.

This positive outcome is supported by the robust performance of the economy, with corresponding positive effects on tax revenues and key cyclical expenditures. That positive path enabled the Federation to transfer €12.1 billion in 2015 to reserves that will be used in the coming years to finance tasks relating to the reception and accommodation of refugees and asylum seekers. In this way, the Federation has demonstrated its commitment to sound finances while maintaining its capacity to act on future challenges.

The general government budget (federal, *Länder*, local authority and social security budgets, including off-budget entities) has been close to balance for four years. After a slight surplus of +0.3% of GDP in 2014 (compared with -0.1% in each of 2013 and 2012), the general government budget showed a surplus of 0.5% of GDP in 2015, and is expected to be close to balance in 2016 and the years ahead (see Table 1). Similarly, the general government structural balance (adjusted

for cyclical and one-off effects in accordance with EU procedures) shows a surplus of 0.6% of GDP for 2015 and should stay balanced or slightly positive in subsequent years. The medium-term budgetary objective (MTO) for the general government structural deficit under the Stability and Growth Pact (a maximum of 0.5% of GDP) is thus clearly met.

Consistent policies of pro-growth budget consolidation have succeeded in bringing about a fiscal turnaround towards lower debt levels. As a result, the debt-to-GDP ratio has fallen continuously since 2012. It is expected to decrease by some 3¼ percentage points in 2015 compared with 2014 and to fall below the 70% mark as early as 2016. The central fiscal policy target of compliance with the Maastricht Treaty maximum debt ratio of 60% of GDP is realistically within reach, with the debt ratio projected to continue falling to about 61½% of GDP by 2019.

Table 1: Trends in Germany's public finances 2013-2019

General government budget (% of GDP)	2013	2014	2015	2016	2017	2018	2019
General government balance	- 0,1	0,3	0,5	0	¼	¼	½
Structural net lending/borrowing	0,2	0,8	0,6	0	¼	¼	½
Public debt-to GDP ratio	77,4	74,9	71 ¼	68 ¾	66	63 ¾	61 ½

Source: Federal Ministry of Finance (2015, 2015a); as of January 2016; projection: for net lending/borrowing (from 2016), for debt ratio (from 2015): October 2015.

I.2.1 Challenges posed by the influx of refugees

The significant rise in the number of refugees represents a challenge for Europe and particularly for. Any attempt to estimate the number of incoming refugees in the coming years is subject to great uncertainty.

In the short term, taking care of refugees is a matter of humanitarian responsibility. Many of the decisions necessary to manage that responsibility also have implications for public finances. The full impact of the current influx of refugees cannot be reliably estimated at this point in time. In the short run – and in contrast to immigration that is geared towards the labour market – the inflow of refugees will lead to fiscal costs on humanitarian grounds (costs of subsistence and accommodation).

The 2016 federal budget provides for almost €4½ billion in additional relief for the *Länder* and local authorities to manage refugee-related tasks. On top of this comes some €3½ billion in additional federal expenditure for purposes such as integration and language courses, basic allowances for recognised asylum seekers and humanitarian aid (notably for Syria and neighbouring countries). In light of the current favourable budgetary situation, the additional short-run expenditure to boost capacity in public services (for processing applications, initial accommodation, initial integration assistance, etc.) appears sustainable. Despite this special challenge, the federal budget for 2016 contains no new borrowing.

The long-term fiscal impact of the refugee influx is connected to the issue of demographic change. If immigrants remain in Germany for the long term, the implications for public finances will depend on how long it takes to integrate them and what skills they can bring to the labour market. The costs of delayed action with regard to training and integration are substantial. Integration costs paid out of the public purse are an investment in human capital that cannot be put off arbitrarily. Only when they have taken up work can immigrants contribute to the sustainability of public finances by paying taxes and other levies.

I.2.2 The case of digitisation

Digitisation – the global permeation and interconnection of industry and society with information and communication technologies – will affect almost all areas of life. The digital transformation harbours huge opportunities to increase growth and prosperity and to extend Germany's international role as an innovative and powerful economy. The attendant productivity gains can result in enhanced value creation and rising incomes. Digitisation can then have a positive overall impact on tax revenues and public finances.

In demographically sensitive expenditure areas, the spread of digital technology in sectors such as healthcare and long-term care can help raise productivity and improve quality of service. Drivers of such improvements in service quality and productivity in the healthcare and long-term care sectors include better and faster communication of important information. Productivity gains in other areas can also relieve the burden on the ageing society.

At the same time, the spread of digital technology gives rise to new challenges for workers, because occupations change and, in many areas of employment, new knowledge has to be acquired. This poses a special challenge in an ageing society as these new challenges can reduce the value of extensive accumulated knowledge. For a country facing strong international competition such as Germany, it is all the more important to continuously renew skills and abilities relevant to the labour market, in order to ensure that the work performed in Germany remains competitive.

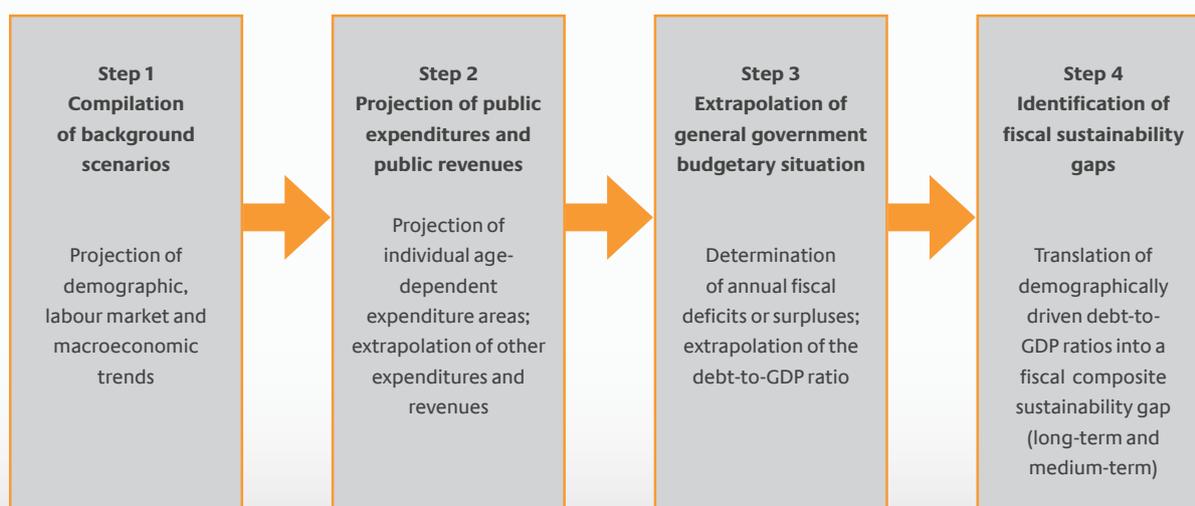
II. Projections on the long-term sustainability of public finances

In order to ensure that any undesirable developments are detected sufficiently early, responsible fiscal policy must take account of interdependencies reaching far into the future. Using advanced modelling (the methodology is illustrated in Fig. 1), demographic projections can be used as a basis for depicting the range of possible trends in key macroeconomic parameters (Step 1) that form the economic background scenarios for the budget projections. Based on those background scenarios, it is possible to quantify the dynamics of public expenditures that are determined by demographic

change in size and structure (Step 2). In this way, risks to public finances – to the extent they are strongly correlated with demographic change – can be given quantitative boundaries.

Using aggregated projections, a thorough sustainability analysis can generate baseline scenarios for the assessment of public finances (Step 3). What is referred to as the ‘sustainability gap’ quantifies the extent to which further fiscal policy adjustment measures are necessary today as a result of demographic change in the future (Step 4).

Figure 1: Methodological basis of calculations in the Fiscal Sustainability Report



II.1 Conceptual and methodological basis

The report covers the public budgets of the Federation, *Länder*, local authorities and social security schemes. The time span of the analysis covers the period 2014/15 to 2060. The projections are not forecasts in a narrow sense; rather, they chart a hypothetical trend in public finances purely based on demography while assuming no policy change. Methodological descriptions and simulation results are based on the findings of a research project commissioned by the Federal Ministry of Finance and carried out by Professor Martin Werding of Ruhr-Universität Bochum.²

Because of the long projection horizon, sustainability analyses contain a great deal of uncertainty and are heavily influenced by the assumptions made. To adequately take this into account, two base variants limit the range of possible trend values. From today's perspective, the assumptions for the two base scenarios are plausible: Variant T- applies assumptions that

have a consistently detrimental impact on public finances (pessimistic variant), while variant T+ uses assumptions that are consistently optimistic in terms of the development of public finances. The presentation of the two base variants (fan chart analysis) is supplemented with alternative analyses that illustrate the effect of different assumptions and modelling approaches as well as policy parameters.³

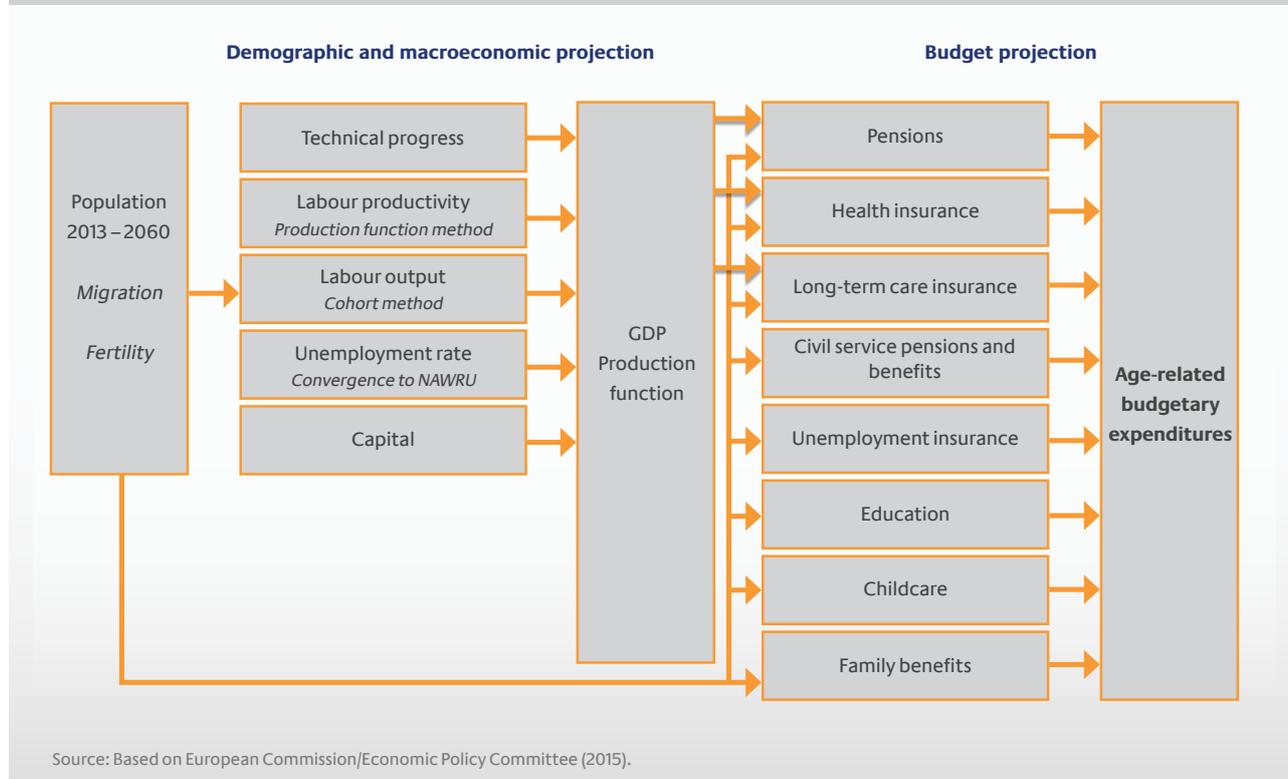
Projections of age-related expenditures use aggregated, gender-differentiated results for each birth cohort. Fundamental economic relationships are mapped by a macroeconomic model. The requirements of annual equilibria in social budgets were taken into account when extrapolating social security expenditures. The methodology differs from previous Federal Ministry of Finance Sustainability Reports only in specific components such as the specification of the production function.

Based on the long-term trends in individual expenditure areas, scenarios are extrapolated for the future path of the general government budget. On this basis – closely following an approach developed at EU level – sustainability gaps are identified for public finances on a medium and long-term time horizon (see Fig. 2 for the individual components of the overall projection).

² The projections on the development of the expenditures covered, including the macroeconomic background scenarios, were compiled using the simulation model developed by Professor Werding (SIM.13). Werding's research report, which is to be published at around the same time as this Sustainability Report, contains detailed descriptions of all assumptions, baseline data, methodologies and modelling used (see Werding 2016). The projections underlying the Sustainability Report were completed within the scope of the research project in October 2015. The data and information available up to that time were included in the long-term projections. Nevertheless, following plausibility analysis, more recent fundamental data on the general economy and public finances shows no material impact on the long-term projections.

³ Similar analyses such as the European Commission's Fiscal Sustainability Report (European Commission 2016, 2012, 2009, 2006), the EU Ageing Report (European Commission/Economic Policy Committee 2015, 2014, 2012, 2009, 2006) and reports by the Economic Policy Committee (2003, 2001) use one central reference scenario around which alternative scenarios are constructed.

Figure 2: Individual components of the overall projection



II.2 Key data and assumptions

The starting year for the projections is 2013/14 with corresponding actual data. The main projections were completed in October 2015 and take into account the status of financial planning as of that time. For the medium term (2015 to 2019), benchmark figures were incorporated from the federal government's macroeconomic projections and from the corresponding updated financial plan, together with forward expenditure estimates in specific public expenditure areas covered therein. Based on an evaluation as part of the research project, recent data that have become available in the meantime and updated short-term forecasts for the economy and financial planning do not have a material impact on the long-term outcomes of the projections. A supplementary alternative scenario is presented for the effects of immigration.

II.2.1 Population trends

Scenarios for future demographic trends contained in the 13th Coordinated Population Projection of the Federal Statistical Office from May 2015 comprise a key basis for the sustainability projections.⁴ The new population projection supersedes the 12th Coordinated Population Projection (published in 2009) and incorporates the findings of the 2011 Census. The census revealed the German resident population to be some 1.5 million smaller in 2011 than previously reported on the basis of extrapolations.⁵ The age structure of the population was largely unaffected.

⁴ Federal Statistical Office (2015).

⁵ The discrepancy between the extrapolated population figures for 2011 and the census data is attributed to ongoing under-recording of emigrations, which are less accurately tracked in official register data.

Two variants (Variant 3 and Variant 6) were selected from the population projections as scenarios combining different assumptions about the determinants of population growth (life expectancy, birth rates and net migration).

- Variant T-: The total fertility rate remains at 1.4 children per woman for the long term; life expectancy at birth rises for women from most recently 82.8 years to 90.4 years in 2060 and for men from 77.7 years to 86.7 years; annual net immigration – after a transitional period up to 2021⁶ – stays constant over the projection period at 100,000 persons per year.
- Variant T+: The total fertility rate increases to 1.6 children per woman for the long term; life expectancy at birth rises for women to 88.8 years in 2060 and for men to 84.8 years; annual net immigration settles down after 2020 at 200,000 persons per year.

Germany's resident population, starting at 80.7 million in 2013, increases again in the first variant up to 2018 and in the second up to 2023 before declining steeply in both variants over the long term. In variant T-, the population decline begins in the near future and accelerates up to 2060, whereas in variant T+ it begins later and accelerates only up to about 2040. In total, the population falls by 11.5 million in variant T- or just under 4 million in variant T+ by 2060. Notably, the statistical reduction following the 2011 Census from 81.7 million to 80.3 million inhabitants in the 2010 base year has since effectively been made up for by net immigration.

⁶ Converging in steps from 500,000 immigrants in 2014 to the constant net immigration from 2021 used in the two scenarios. The refugee influx starting in 2015 is not taken into account.

A much more important factor for the sustainability of public finances, however, is the old-age dependency ratio (the number of individuals aged 65+ per 100 individuals aged 15 to 64), which is a typical measure of demographic change in population structure. Starting at a ratio of 31.5 in 2013, it increases by 2060 to 53.7 in variant T+ and to no less than 64.1 in variant T-. This shift in the age structure of the resident population takes place at different speeds in two phases, mainly in the periods 2020 to 2035 and 2040 to 2060 (Fig. 3).

The variants referred to above are based on the May 2015 population projections and do not take into account the current large influx of refugees, which if they were to stay would result in a permanent increase in the resident population. If the younger generation of refugees were to stay, that may imply a decrease in the average age of the population. How far this is able to ease the fundamental problem of the ageing resident population depends on, among other things, the extent to which factors such as gender, fertility rates and life expectancy differ between refugees and the resident population.

II.2.2 Labour market trends

The labour pool is a key determinant of future growth. Projections for the long-term trend in labour force participation and labour supply are compiled on the basis of cohort-specific extrapolation of current rates differentiated by gender and age.⁷ Relative to the Third Sustainability Report, the expected labour force participation rate has increased for women up to age 45 and for older workers. Due to the higher average education level of current graduates compared with retiring

⁷ See the labour market module in the SIM.13 model (Werdning 2013, Ch. 4) and the work of the EU Ageing Working Group (Economic Policy Committee/European Commission 2005, Annex 4).

workers, the mean qualification level rises over time across the entire workforce, most noticeably in the years up to 2040 (qualification hypothesis).

As there is uncertainty about the size of the change in the age-specific labour force participation rates resulting from the increase in statutory retirement ages through to 2029, the following assumptions were applied:

- *Variant T-/T+*: The two-year increase in the statutory retirement age leads to an increase in the effective retirement age of one year (T-) or two years (T+) in the period from 2012 to 2029.

The employment figures for the two base variants are derived by combining assumptions on demographics, labour force participation rates and unemployment rates. The following assumptions are applied for the structural unemployment rate:

- *Variant T-*: Increase to 5.5% from 2019 to 2030 and constant thereafter;
Variant T+: Decrease to 3.0% by 2030 and constant thereafter.

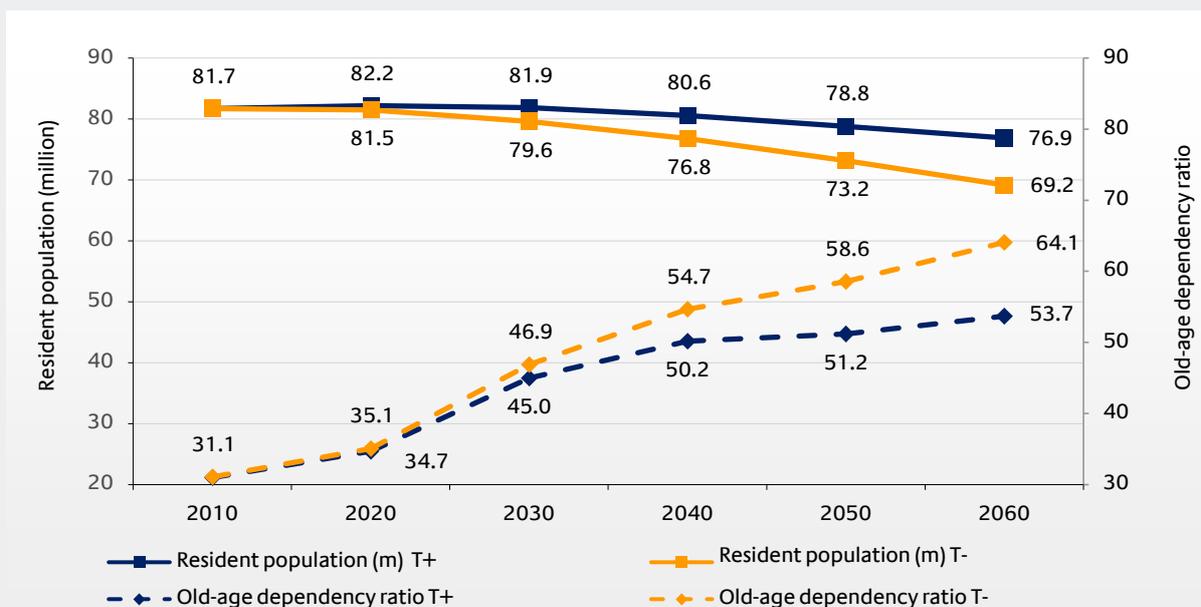
II.2.3 Macroeconomic trends

The main macroeconomic parameters for the model are taken for the years up to 2019 from the federal government's medium-term macroeconomic projections of spring and autumn 2015. Beyond that period, the macroeconomic background scenario is based on a national neoclassical growth model supplemented with the factor human capital with data from the European Commission's Annual Macro-Economic Database (AMECO).⁸

As a measure of technical progress, total factor productivity is assumed to vary symmetrically by 0.125 percentage points downwards (T-) or upwards (T+) around an annual rate of 1.0%. For the long-term trend of government public finances, assumptions have to be set about interest rates for interest payments on the various components of public debt. It is assumed here that the real interest rate will reach a long-term average of 3% in 2026

⁸ Annual Macro-Economic Database (AMECO) of the European Commission, European Commission (2015).

Figure 3: Projected trends in the resident population and the old-age dependency ratio in Germany



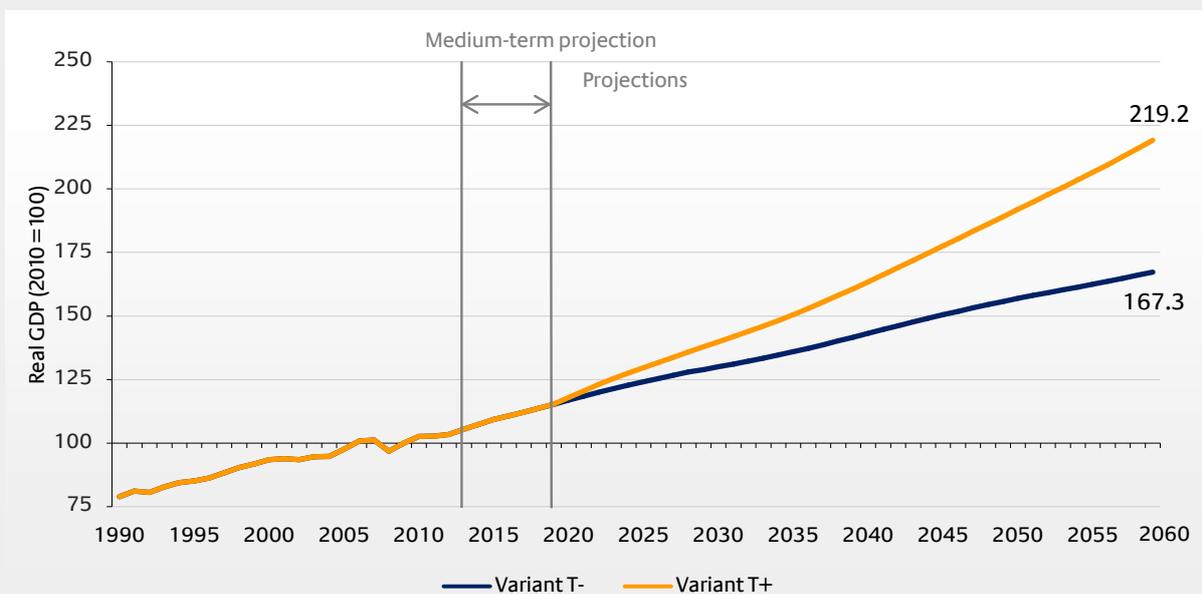
Source: Federal Statistical Office (2015); Werding (2016).

and then remain constant. The inflation rate is held constant for the projection period from 2020 at 1.9%, a rate considered unproblematic in monetary policy terms.

the size of the workforce. For clearer presentation of the diverging real GDP trends in the two base variants, the trend is presented in index values (2010 = 100) (Fig. 4).

The real growth in aggregate GDP and per capita GDP then depends on the expected decrease in

Figure 4: Real gross domestic product in the period 1991–2060 (indexed)



Source: Werding (2016).

III. Results of the base variants

The macroeconomic and demographic assumptions serve as background scenario for the budget projections, which notably take into account the various sectors of social security and civil service pensions and benefits (including healthcare and long-term care), basic income support for job seekers, along with education (including childcare) and core elements of the family benefits system.

A further assumption is no policy change (see box below). All changes are taken into account that have been adopted with binding force under prevailing law (as of 30 June 2015) and that (fully) enter into effect during the projection period.

No policy change assumption

Old-age pensions: The standard retirement age under statutory pension insurance increases to the age of 67 by 2029; current pensions are adjusted in accordance with the pension adjustment formula; the 2014 pension reform package is taken into account. In civil service pensions and benefits, it is assumed that the 2004/07 pension reforms are applied to the same effect in federal civil service law and in all *Länder*.

Healthcare and long-term care: Statutory health insurance typically provides comprehensive cover; the 2007/10 reforms have the effect of moderating future expenditure. The same applies to healthcare and long-term care insurance for civil servants. In statutory long-term care insurance, current additions to benefits are taken into account; the benefits are extrapolated in such a way that benefit levels stay constant relative to the expected cost trend, with two trend variants assumed.

Unemployment benefits: No change in the law concerning unemployment insurance and other expenditures by the Federal Employment Agency. The regular assessment and revision of standard rates is taken into account with regard to basic income support for job seekers.

Education and families: Public education expenditure takes into account agreements between the Federation and *Länder* regarding additional resources for expanding and operating institutions of higher education. Public expenditure on childcare continues to rise. For family benefits, it is assumed that benefit levels remain unchanged through the projection period.

Determining factors for the *expenditure extrapolations* in each benefit sector are thus as follows:

- Statutory pension insurance: pension entitlements accumulated during the working phase and pension adjustments;
- Civil service pensions and benefits: gross wage growth and pension changes;
- Statutory health insurance: per capita GDP growth rate;
- Statutory long-term care insurance: gross wage growth;
- Healthcare and long-term care insurance for civil servants: per capita GDP growth rate (illness)/gross wage growth (long-term care);
- Unemployment insurance/Federal Employment Agency: gross wage growth;
- Basic income support for job seekers: gross wage growth; multi-annual average;
- Childcare and education: gross wage growth;
- Family benefits: gross wage growth.

Other public expenditure and all *public revenue* remain constant relative to GDP throughout the projection period.

III.1 Expenditure projections in specific policy areas

Statutory pension insurance

Pension reforms enacted in 2004 and 2007 (implementation of a sustainability factor in the pension adjustment formula and phased increase in the retirement age from 65 to 67) have had a substantial impact on expenditure trends in the statutory pension insurance system. These changes have enhanced the sustainability of the statutory pension insurance system and help ensure that pension expenditure increases less rapidly in future than the trend in the old-age dependency ratio would suggest.

Pension provisions were revised in a number of aspects when the Act Improving Pension Benefits (*RV-Leistungsverbesserungsgesetz*) – referred to as the “2014 pension package” – entered into force in July 2014. The new rules affect (a) the retirement age for persons who have paid into the pension system for an especially long period of time (retirement

at 63), (b) the crediting of child-raising periods for mothers of children born before 1992 and (c) the assessment of reduced earning capacity pensions. These changes led in the short run to an increase in the retirement figure. The extra pension credits for mothers of children born before 1992 mean that an estimated 64,000 women fulfilled the qualifying period for a pension entitlement for the first time in 2014. According to Deutsche Rentenversicherung statistics, the possibility to retire under certain conditions at age 63, introduced in the second half of 2014, was taken up by some 136,000 individuals in 2014, of whom about 97,000 (71%) were men. These high numbers are partly due to the effect of the new rules' introduction. The data on persons actually entering retirement in 2014 also show that the pension amount for persons eligible to retire at age 63 (without a reduction for early retirement) tends to be relatively high, at 1.3 times the average old-age pension for men and 1.9 times for women. Moving forward in the projection horizon, the number of eligible individuals will become smaller as the age threshold for the new arrangement transfers converges to the earlier rules.

Although statutory pension expenditure is inevitably subject to significant upward momentum due to demographic ageing, a number of effects relieve the strain on pension finances. These relate to the increase in labour force participation and the effective retirement age, and to the general decrease in pension amounts due to the pension adjustment formula now in force. The projected increase in pension expenditure is therefore comparatively moderate given the expected rise in the old-age dependency ratio. Starting from just under 9.3% of GDP in 2015, pension expenditure will increase more sharply once the moderating effect of the increased standard retirement age comes to an end. Depending on the scenario, this is the case either beginning in 2020 or not before 2025/30. At the end of the projection horizon, in 2060 pension expenditure reaches 12.8% of GDP in the pessimistic scenario and 11.6% in the optimistic scenario. This makes for a total increase of 3.5 (T-) or 2.4 (T+) percentage points.

Statutory health insurance

The legal basis for long-term developments in statutory health insurance expenditure is shaped by the structural reforms of recent years. A variety of measures helped to boost competition in the statutory health insurance system and to enhance the financial structure and quality and cost-effectiveness of the system (including the *GKV-Wettbewerbsstärkungsgesetz* from 2007 and the *GKV-Finanzstruktur- und Qualitätsweiterentwicklungsgesetz* in 2014).

For the base variants, it is assumed that the gender and age-specific expenditure profiles remain constant over the projection horizon and that aggregate healthcare spending can be extrapolated using annual per capita GDP growth rates. The main expenditure driver is then an ageing-induced increase in statutory health insurance spending.

Potential determinants such as changes in age-specific morbidity related to rising life expectancy, i.e. lower expenditure due to healthier ageing, and a future cost impact of technical progress in the healthcare sector are not taken into account in the baseline. Nevertheless, in order to reduce risk, it is

crucial that the path of structural reform is continued so as to achieve longer-term efficiency gains.

The simulation for statutory health insurance reveals an increase in expenditure, starting from 7.0% of GDP in 2015 and rising by 0.8 or 0.3 percentage points to levels between 7.8% and 7.3% of GDP in 2060.

Statutory long-term care insurance

Provision under statutory long-term care insurance was expanded substantially recently under the Act to Restructure Long-term Care (*Pflege-Neuausrichtungsgesetz*) and the First Act to Enhance Long-term Care (*Pflegestärkungsgesetz I*), with additional expenditure funded by higher contributions.⁹ For the rate of change in expenditure, it is therefore assumed that the costs of care provision will essentially track the labour productivity growth rate and hence wage growth, in the absence of measures to reduce benefits. The main reason is that, as long-term care is relatively labour-intensive, wage growth is the predominant cost factor.

The expenditure curves projected on this basis show a marked increase that accelerates in the two base variants up to 2040 and only levels off towards the end of the projection horizon. Starting at 1.0% in 2015, expenditure is expected to increase by between 0.8 and 1.5 percentage points respectively, to 1.8% or 2.5% of GDP in 2060.

To limit expenditure growth, the general inflation rate has been applied since 2008 as a benchmark for future adjustments in provision. Such a 'soft' constraint is intended in the medium term to slow expenditure growth in long-term care insurance and thus plays an important disciplining role. If rigorously applied, inflation-based adjustments would lead to slower expenditure growth and possibly to a fall in long-term care insurance expenditure as a percentage of GDP.

⁹ A further reform phase restructuring levels or degrees of care from 2017 – the Second Act to Enhance Long-Term Care (*Pflegestärkungsgesetz II*) – had to be left out of the projections.

Civil service pensions and benefits, including healthcare and long-term care

The Federation has aligned civil service pensions and benefits with the rules of the 2004 and 2007 pension reforms, applied analogously to pensions and benefits for federal civil servants (including the increase in the statutory retirement age to 67) under the 2009 Act to Restructure Civil Service Law (*Dienstrechtsneuordnungsgesetz*). Since the 2006 federalism reform, there is no longer a legal obligation for *Länder* civil service laws to track the federal civil service law in basic issues of pay, pensions and benefits. Nonetheless, it can be assumed for the projections that the legal framework in the *Länder* and local authorities is based on federal civil service pensions and benefits.

Alongside pensions and other benefits, healthcare and long-term care expenditure is also taken into account under the benefits system for civil servants, civil service pensioners and their families. The calculations are based on aggregate data using the same approach as statutory health insurance and statutory long-term care insurance expenditure, with allowance made for significant differences (such as in life expectancy or treatment costs). Starting from 2.1% of GDP in 2015, the results for this type of expenditure show an increase to 2.7% or 3.5% of GDP in 2060.¹⁰

Unemployment insurance and basic income support for job seekers

Future trends in the labour market and the number of unemployed persons are influenced by the demographic decrease in the labour pool. The long-term projections therefore also take account of expenditure for the unemployed that is linked to labour market trends (benefits under Books II and III of the Social Code, active labour market policies of the Federal Employment Agency, and basic income support for job seekers). For this purpose, unemployment risk and workers' benefit entitlements are extrapolated on a separate basis according to qualification level. Standard rates are assumed to increase on average in line with general wage growth.

Based on an assumed increase in the unemployment rate to 5.5% between 2019 and 2030 (scenario T–) or, alternatively, a decrease in the unemployment rate to 3.0% in 2030 (T+), projections result in either a 0.3 percentage point expenditure increase or a substantial 1.1 percentage point decrease by the year 2060, based on the current expenditure ratio of 3.5% of GDP in 2015.

Education, childcare and family benefits

The calculations include all public education expenditure as defined in the financial statistics based on the information provided in the annual Education Finance Report.¹¹ The extrapolation over the entire projection period uses the labour productivity and wage growth rate as anchor values.

For child daycare, it can be assumed that the number of daycare places needed will continue to increase for children aged under three and for children aged between six and ten, with the rate of increase proportionate to the projected increase in female labour force participation.

Alongside public expenditure for children and adolescents in daycare and education, the projections also take account of key elements of the family tax relief and benefits system, such as child benefit, income tax allowances for children, and parental benefit.¹² For the future, child benefit and child allowances will be regularly adjusted in line with general wage growth. Changes to parental benefit ('Parental Benefit Plus') entered into force on 1 July 2015 with more flexible options for claiming the allowance over a longer time. The impact on the total amount of spending and on long-term expenditure trends is likely to be small, however. In sum, it is expected that benefits per child will increase over time with the same growth rate as gross wages.

¹¹ Published by the Federal Statistical Office.

¹² In departure from the legal position applicable in general, the home childcare allowance (*Betreuungsgeld*) introduced in 2013 is not included in this study as the Federal Constitutional Court declared the legal basis of this allowance null and void with immediate effect in a decision of 21 July 2015.

¹⁰ See also Werding (2015).

The net outcome, taking education and family expenditure together, is an increase in expenditure, starting from 5.7% of GDP in 2015 and rising by 0.4 or 0.1 percentage points to 6.1% or 5.8% of GDP in 2060, according to the respective scenario.

III.2 Aggregate expenditure projections

As an intermediate step in deriving the sustainability gap, the effects of the individual expenditure projections are aggregated (Fig. 5). To do this, it is necessary to consolidate or eliminate double counting due to transfers between the sectors under analysis.

In 2014, the total of all demographically sensitive public expenditures included in the analysis came to approximately 25.8% of GDP. This corresponds to roughly 60% of general government spending. Rising steeply from 2020 (T-) or 2025 (T+), the expenditures in the pessimistic variant T- climb particularly quickly from 2020 to 2035 reaching 32.7% of GDP by 2060 (+6.9 percentage points). In the fiscally more favourable variant T+, the increase is most pronounced in the period from 2025 to 2040. By 2060, the aggregate expenditure ratio then reaches 29.1% of GDP (an increase of 3.3 percentage points).

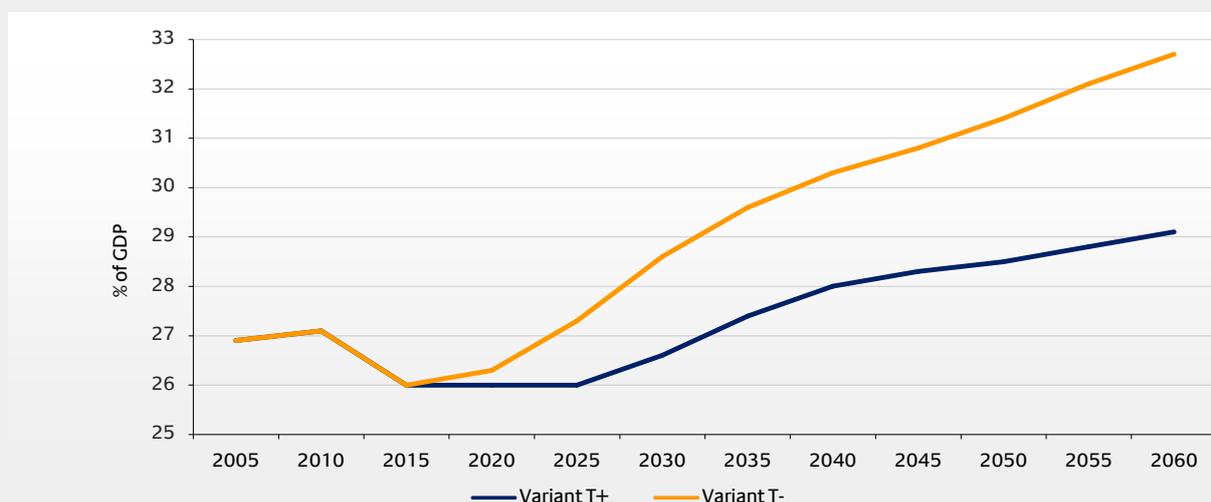
III.3 General government balance and public debt

In order to determine net lending/borrowing and debt from the expenditure projections, both (a) expenditures not sensitive to demographic factors and (b) revenues are derived on the basis of the GDP growth rate. The change in net public lending/borrowing in relation to GDP then basically follows the changes in demographically driven expenditure areas.

After large fluctuations in the 2000/10 period, the general government budget in 2014 posted a surplus of 0.3% of GDP. For the primary balance, excluding interest payments on existing debt, this implies a surplus of some 2.1% of GDP. Over the medium term, it can be assumed for now that this budgetary situation will in principle remain unchanged until 2019, despite significantly higher expenditure risks.¹³

¹³ Updated main figures out of the general government budget are included here up to autumn 2015. It is also taken into account that while the current refugee crisis makes for an exceptional burden on public finances, the prevailing uncertainties mean that no other medium-term trajectory can be assumed; see Werding (2016) with reference to BMF (2015, 2015a).

Figure 5: Aggregate expenditure ratios for demographically sensitive expenditures (2000–2060) using variants T- and T+



Year	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060
Variant T- (% of GDP)												
Pensions	10.3	9.7	9.3	9.3	9.5	10.0	10.7	11.1	11.5	12.0	12.4	12.8
Healthcare	6.1	6.6	7.0	7.3	7.4	7.5	7.6	7.8	7.9	7.9	7.9	7.8
Long-term care	0.8	0.8	1.0	1.0	1.2	1.3	1.5	1.7	1.9	2.2	2.4	2.5
<i>Inflation index (for reference)</i>	0.8	0.8	1.0	0.9	1.0	1.0	1.1	1.2	1.3	1.4	1.5	1.5
Civil servants	2.0	2.0	2.1	2.3	2.5	2.7	2.9	3.0	3.1	3.2	3.3	3.5
Unemployment benefits	4.2	3.7	2.6	2.4	2.7	3.0	3.0	2.9	2.9	2.9	2.9	2.9
Education and family	5.4	5.8	5.7	5.6	5.6	5.8	5.9	5.8	5.7	5.6	5.7	5.8
Total	26.9	27.1	26.0	26.3	27.3	28.6	29.6	30.3	30.8	31.4	32.1	32.7
Variant T+ (% of GDP)												
Pensions	10.3	9.7	9.2	9.1	9.1	9.5	10.1	10.5	10.9	11.1	11.4	11.6
Healthcare	6.1	6.6	7.0	7.2	7.3	7.4	7.4	7.5	7.5	7.5	7.4	7.3
Long-term care	0.8	0.8	1.0	1.0	1.1	1.2	1.3	1.5	1.6	1.8	1.8	1.8
<i>Inflation index (for reference)</i>	0.8	0.8	1.0	0.9	0.9	0.9	0.9	1.0	1.0	1.1	1.0	1.0
Civil servants	2.0	2.0	2.1	2.3	2.4	2.5	2.6	2.6	2.6	2.6	2.6	2.7
Unemployment benefits	4.2	3.7	2.6	2.2	1.9	1.6	1.6	1.5	1.5	1.5	1.5	1.5
Education and family	5.4	5.8	5.7	5.6	5.6	5.9	6.0	6.0	5.9	5.9	6.0	6.1

Source: Werding (2016).

It would then be possible to comply with both the budget rule and the medium-term budgetary objective under the Stability and Growth Pact without additional consolidation measures.

The primary balance at the end of the medium-term period provides the basis for extrapolating long-term fiscal trends and thus impacts on the entire extrapolation period. Given that revenues and non-demographic expenditures correlate with the GDP growth rate, the further development of primary balances mirrors demographically sensitive expenditure trends. If social security contribution rates are held constant¹⁴, the ageing-induced rise in expenditure would result in the primary balance deteriorating from as early as 2019 (T-) or from 2024 (T+) and switching to a primary deficit

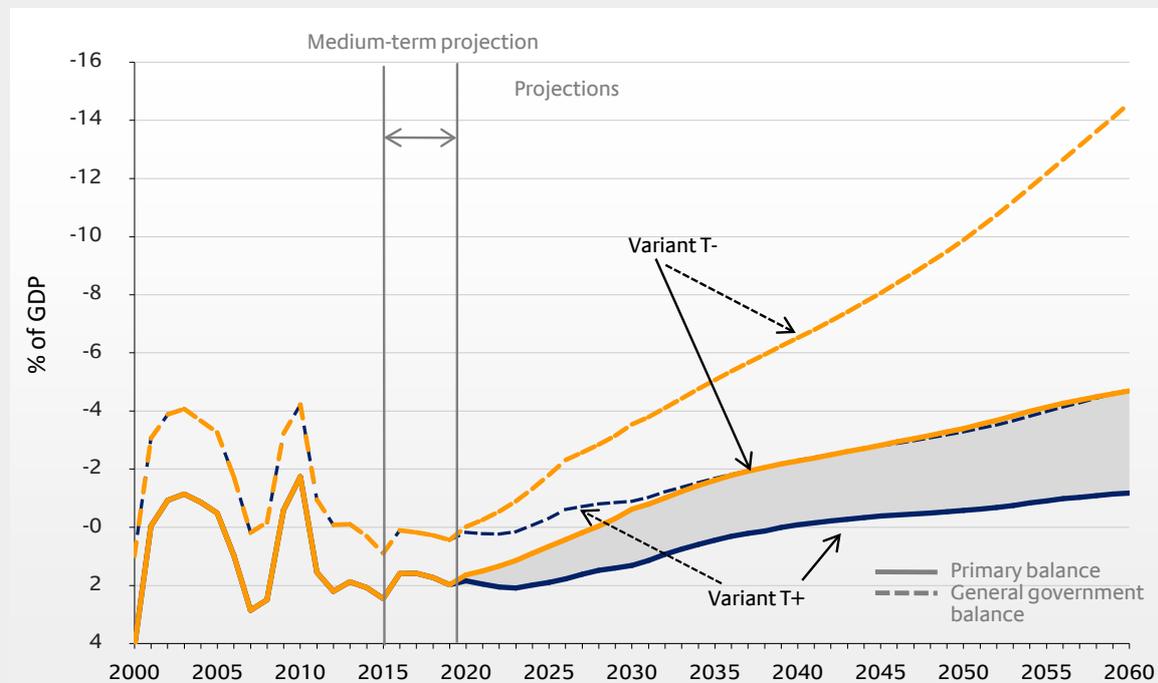
¹⁴ The projection is based on the social insurance contribution rates applicable today.

in 2030/2045. By 2060, the primary deficit widens to 4.7% of GDP in T- and 1.2% in T+. Different levels of interest payments on accumulated government debt then cause the projected general government deficits to diverge substantially from 14.6% to 4.7% of GDP in 2060 (Fig. 6).

Over time, the general government deficit would also be projected in both scenarios to breach the federal and *Länder* budget rules. In both cases, most of all in the pessimistic base scenario, substantial consolidation measures are needed to ensure the sustainability of the general government budget.

In turn, the trend in the debt-to-GDP ratio is also heavily affected by the cumulative effect of the interest burden. By 2060, the debt ratio increases continuously in scenario T- to some 220% of GDP and in scenario T+ to a still substantial 76% of GDP (in the latter case after a temporary decrease to about 45% of GDP in 2035, see Fig. 7).

Figure 6: Primary and general government balances (2000-2060) – base variants



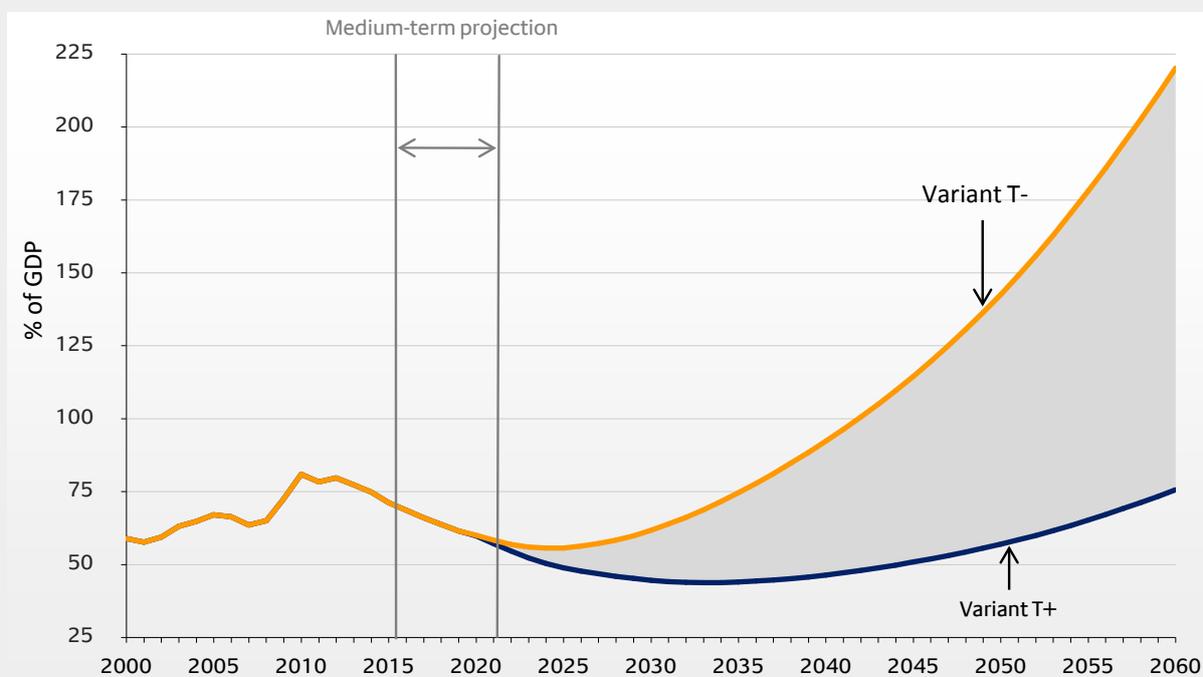
Source: Werding (2016).

It should be stressed again that these figures are to be viewed as an extrapolation, not a forecast. They chart hypothetical trends in state finances assuming a no policy change and constant revenues relative to GDP. Compliance with the constitutional constraints is by definition ignored to highlight the action needed to secure sound state finances in the long run. Assuming compliance with legislative debt constraints would conceal the long-term need for consolidation in public budgets.

III.4 Implications for fiscal sustainability

In order to assess the long-term sustainability of public finances, aggregate indicators are used that quantify the demographically induced need for consolidation (so-called ‘sustainability gaps’, see Table 2). The indicator most commonly referred to in international discussions, labelled as S2, is a comprehensive measure of sustainability risks focussing on compliance with government

Figure 7: Projection of debt-to-GDP ratio ignoring legislative budget constraint



Source: Werding (2016).

Table 2: Calculation of long-term fiscal sustainability gaps

Indicator		Variant T+	Variant T-
S2		1,22	3,81
S2 ^{mt}	2016 to 2020 p.a.	0,25	0,79
	cumulative	1,25	3,94

Source: Werding (2016).

intertemporal budget constraints over an infinite time horizon¹⁵ Positive values ('sustainability gaps') indicate the improvement in primary balances as a percentage of annual GDP necessary in the starting period (in this case 2016) in order to balance all public expenditure and debt service with public revenues every year.

As shown by indicator S2, the primary balance would have to be corrected in a single jump by 1.22% (T+) or 3.81% (T-) of GDP in 2016 in order to make public finances sustainable. Given the demographic profile, the fiscal balances over time would be sufficient to cushion the demographically induced additional expenditures, achieving sustainable primary balances as of 2060.

¹⁵ The established concept of sustainability indicators is based on earlier work by the OECD and the EU Economic Policy Committee (*Economic Policy Committee (2001; 2003); European Commission (2006; 2009)*). The European Commission Sustainability Report presents the indicator S1 and introduces a new (medium-term) indicator, S1 – *European Commission (2013)*. The 'new' indicator S1 quantifies the improvement in the primary balance that would have to be achieved immediately and permanently for the debt-to-GDP ratio in 2060 to exactly attain the Maastricht reference level of 60% of GDP. In the case of Germany, however, the projected rise in demographically sensitive public expenditure means that a fiscal policy goal of a 60% debt-to-GDP ratio is not ambitious enough to secure the long-term sustainability of public finances – see *Werding (2016)* and *Werding/Schinke (2014)*.

The assumption of a 'one-off' but lasting consolidation adjustment in line with S2 presupposes a single jump adjustment that was immediately in effect. For a more realistic consolidation path, the burden would tend to be spread over several years. In light of this, the indicator S2^{mt} extends the adjustment over the medium term. However, spreading consolidation over time means, relative to immediate consolidation, accepting an additional cost of delay. The cumulative consolidation adjustment at general government level increases to 1.25% of GDP (optimistic scenario) or to 3.94% of GDP (fiscally pessimistic scenario).

Spreading the elimination of the sustainability gap through to the end of the medium term (2016–2020) might result in annual adjustments in the amount of 0.25% or 0.79% of GDP. This corresponds to an annual general government adjustment on the order of €23 billion p.a. (at 2014 prices) in T-, while the adjustments are smaller in the optimistic scenario, at just over €7 billion p.a. up to 2020.

It should be noted that sustainability gaps can be closed both by reducing expenditure and by increasing revenue. From an economic perspective, however, the effects of the two strategies are obviously not equivalent as they trigger very different incentive and behaviour effects (for example in labour supply and/or demand).

III.5 The results of sustainability analyses in retrospect

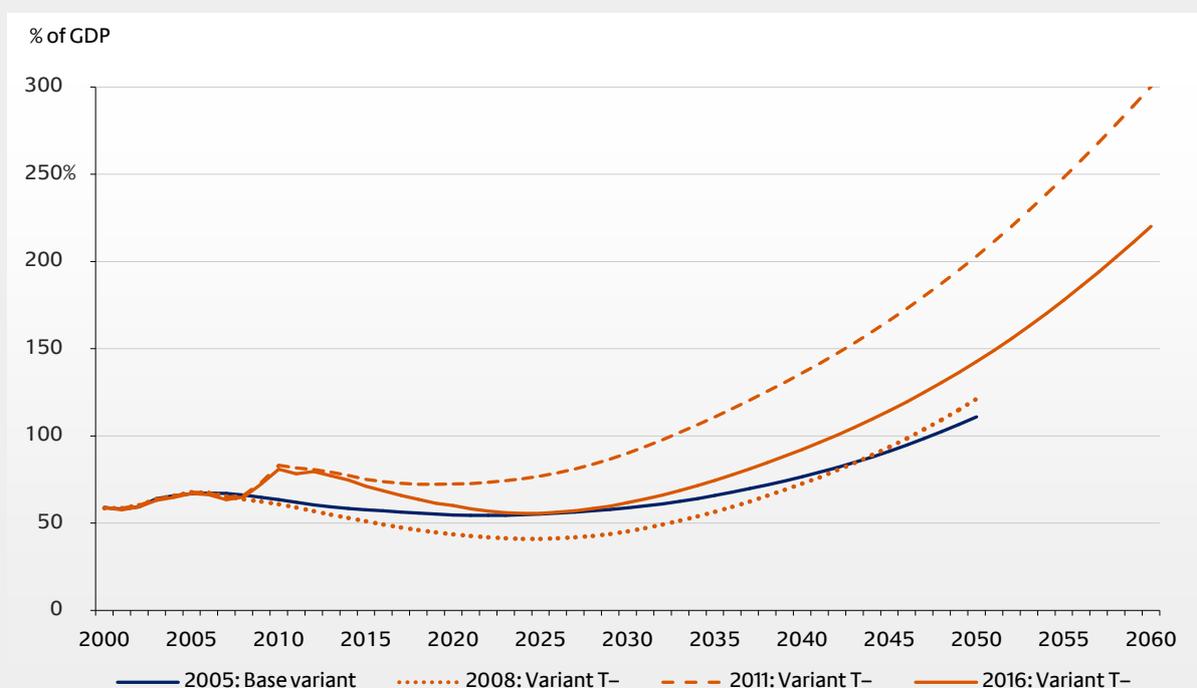
The Federal Ministry of Finance has presented sustainability reports in 2005, 2008, 2011 and 2015, and has also published interim updates on the basis of expert opinions, most recently in 2014. In any retrospective survey, allowance must be made for limited comparability between the projections used, as they are based on different underlying data/assumptions and changed expectations of economic actors. This is clearly visible from the example of population trends, where substantial immigration beginning several years ago caused a marked change in the starting situation and also raised expectations with regard to future immigration. Previous projections, in contrast, were based on population figures from before the last census and included much lower expectations for immigration.

Looking at the sustainability gaps, one observation is that the effects of changes such as the

2011 census, the 2014 pension reform and the extrapolation method now selected for long-term care expenditure have increased the sustainability gaps in the present report relative to the third report. Conversely, the improved budget situation, more favourable labour market trends and the net immigration of recent years have notably enhanced fiscal sustainability.

The present debt projections are more favourable than those in the Third Sustainability Report of 2011 (Fig. 8). This improvement can be attributed to a better initial position of public finances, due to the fiscal policy course of recent years. The balanced budgets of 2014 and 2015 – the first since 1969 – make for a far more favourable starting situation than was the case in earlier sustainability reports. Past reports incorporated expectations of substantial improvements in budget balances over the medium-term horizon, which were notably countered by the impact of the global financial crisis.

Figure 8: Comparison of public debt trends between fiscal sustainability reports



Sources: based on Federal Ministry of Finance (2016, 2011, 2008, 2005); Werding (2016).

The demographic risk for public finances has been deferred significantly compared with the scenarios in 2011, improvements being particularly visible in relation to long-term debt ratios (assuming constant policies in each case). Without countervailing action, the debt-to-GDP ratio would be back up to 75% in as early as 2023 under the

pessimistic variant in the previous sustainability report, whereas in the present scenario this does not occur until 2036.

This welcome (time) gain ought to be used to take the necessary action in a way that the government's policy options are not constrained further.

IV. Alternative scenarios

A key element of sustainability reporting is the identification of determinants of long-term fiscal trends that are susceptible to control in order to analyse policy options. Key parameters can be brought out by starting with the baseline policy range and moving from variant T- to variant T+.

IV.1 Sensitivity analysis as transition from pessimistic to optimistic scenario

Sensitivity analyses show how strongly the outcomes of the projections depend on central assumptions with regard to demographics, the labour market and other basic macroeconomic conditions. Additional scenarios are able to account for – non-demographically driven – uncertainties by adjusting the trend model for specific expenditure areas (healthcare and long-term care). This also helps illuminate policy options for enhancing the sustainability of public finances.

Moving step by step from T- to the more optimistic fiscal policy assumptions of T+ implies more favourable trends in the aggregate expenditure ratios (except the consequences of higher birth rates, Fig. 9). In the current framework, lower unemployment rates had the largest impact on long-term expenditure trends. To highlight this, in an intermediate step the unemployment rate is assumed to stay constant at 4.0% instead of increasing to 5.5% by 2030 as in scenario T-. A second step then shows the full transition to scenario T+ with the unemployment rate declining to 3.0%. The more favourable assumptions for unemployment account for about half of the improvement in the expenditure and debt trend

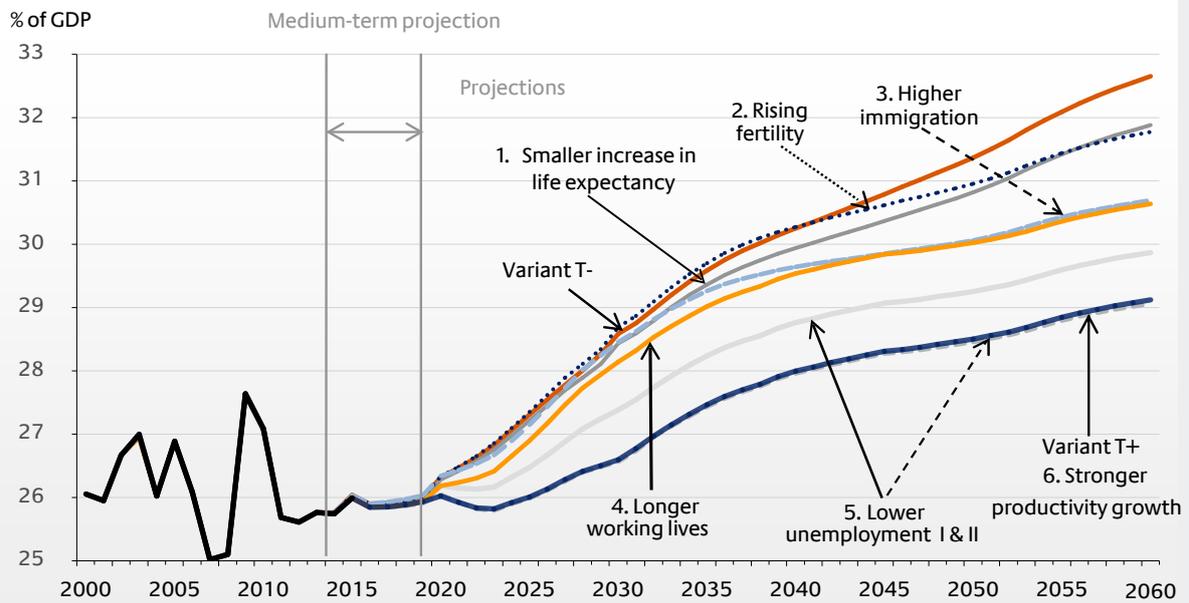
over the transition to T+. This finding underscores the importance of activating unused resources in the labour market in attaining the goal of sustainability.

Faster growth in multifactor or labour productivity proves to have a minor effect on the expenditure trends. The amplified GDP growth and higher tax revenues are countered here, in accordance with the assumptions, by stronger expenditure growth. At the same time, the higher incomes and prosperity attendant with stronger productivity growth may make dealing with the economic effects of demographic change easier in political terms, for example by mitigating distributional conflicts. The expenditure growth also creates greater freedom of scope within the budget.

Against the backdrop of the gradual two-year increase in the standard retirement age, a larger increase in the actual length of working lives (by two years in T+ instead of one year in T-) is beneficial most of all in years with increasing effective working lives. Once the baby boomers have retired, their larger pension entitlements from their working years partly offset the effect of the longer working lives on the expenditure ratio.

The foreseeable ageing of German society can be ameliorated in the long term or even permanently reversed if birth rates increase again on a lasting basis. After the long period of successively smaller generations, the effect of a higher birth rate would show through only gradually. A sharp, rapid rise in birth rates to the level of the United States (1.9) or France (2.0) would initially make for added public

Figure 9: Aggregate expenditure ratios (2000–2060) – sensitivity analyses



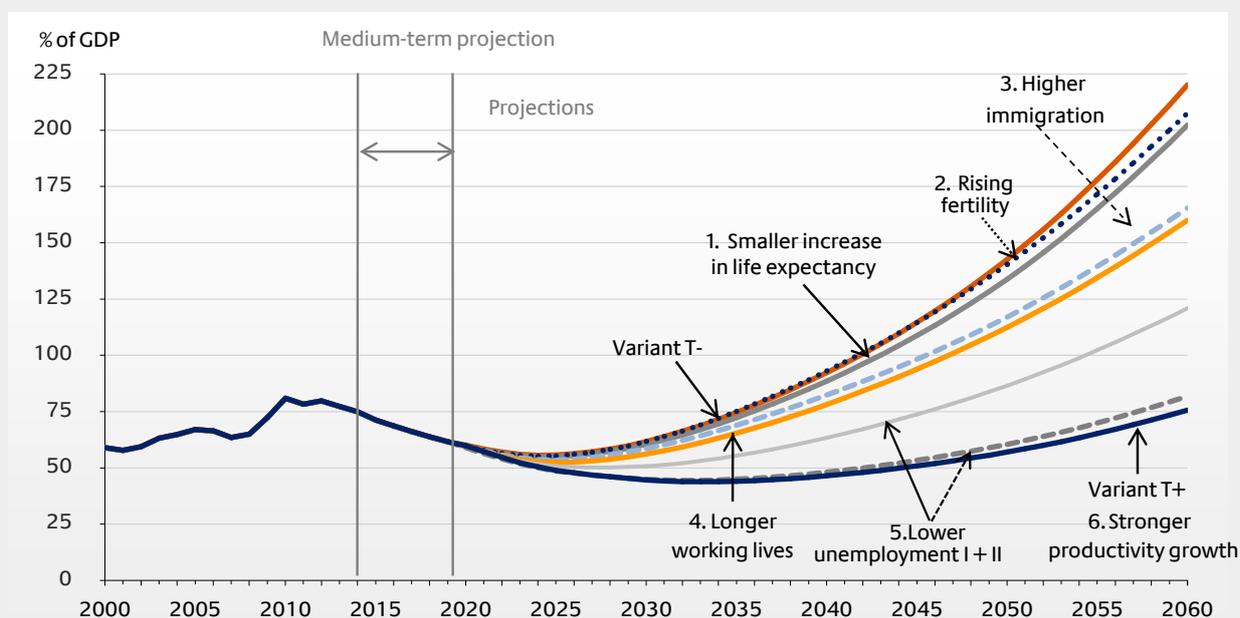
Source: Werding (2016).

expenditure (education and childcare) due to the increased numbers of children. Later on, however, such an increase may have a positive impact on the working population and thus contribute significantly in closing sustainability gaps. When sufficient numbers of the additionally born children reach the active phase of life and have more children in turn, demographically sensitive variables such as the old-age dependency ratio and the debt-

to-GDP ratio change substantially in response. In the projections, this would not happen before 2055.

The outcomes of the sensitivity analyses can be translated into figures for the sustainability indicators and the implied debt trend. Corresponding general government debt-to-GDP ratios can be derived from the underlying expenditure trend (Fig. 10).

Figure 10: General government debt-to-GDP ratio – sensitivity analyses



Source: Werding (2016).

The presentation of debt ratios instead of sustainability gaps additionally highlights how the cumulative deficits (sustainability gaps) resulting from rising expenditure ratios affect debt ratios and how interest payments further widen the deficits. This precautionary effect again serves as a rationale for early action. The step-by-step transition from T- to T+ reveals a similar picture for the debt trend to that seen for the rise in expenditure ratios.

IV.2 Effects of immigration on fiscal sustainability

Sustained high net immigration can slow down and lastingly mitigate the process of population ageing. A temporary immigration surge of the kind that began in 2010 is good for the population age structure in the short to medium term. According to the federal government's 2014 Migration Report, the age structure of the immigrant population differs significantly from that of the population as a whole. The immigrant population is characterised by a large percentage of younger people (age 18 to 39): In 2014, three-quarters (75.9%) of immigrants were under 40; the equivalent figure for the

population as a whole was only 42.3%. At the same time, the share of women in the immigrant population was between 40% and 43% in the late 1990s but showed a falling trend in more recent years, from 42.9% in 2002 to 39.4% in 2014. Taking account of these elements, it is currently unclear what effect the current immigration may have on the old-age dependency ratio in the long term.

Sustained higher net immigration rates as assumed in scenario T+ with net immigration of 200,000 individuals from 2021 and thus 100,000 more than in scenario T- could lastingly contribute to the solution of the sustainability problem.

A critical factor for the impact of higher immigration on public finances, however, is the rapid and successful integration of immigrants into the labour market. This is assumed in the base scenarios for this report and also as a rule in relevant international studies (such as by the European Commission). Labour market integration presupposes a will to train and language proficiency among immigrants. It also places demands on the state, such as with regard to the provision of necessary infrastructure.

As already stated, the impact of the current influx of refugees cannot be estimated reliably because of uncertainties about the total number of people involved, their cultural and occupational backgrounds, length of stay, and the development of the political situation in the countries of origin. In any case, the key factors for the sustainability of public finances would be long-term effects such as length of stay in Germany and labour market integration.

It should be noted that the sustainability analysis already allows for net immigration of more than two million people between 2014 and 2021, with significant positive effects on sustainability. In contrast with purely labour market-oriented immigration, the inflow of refugees initially incurs significant costs in terms of subsistence and accommodation. Where refugees soon return to their home countries, such expenditure is humanitarian in nature and is not a lasting burden on public finances.

In the event that refugees stay for the long term, that expenditure and other costs of integration met out of public funds typically have the character of investment in human capital. The implications for public finances then depend on how long it takes to integrate people and what skills they bring to the labour market. The costs of delayed action with regard to training and integration are substantial as immigrants can contribute to the sustainability of public finances by paying taxes and other levies only when they have taken up work.

These considerations can be illustrated by modelling three scenarios, in each of which a million refugees come to Germany in 2015, 500,000 of whom still remain in the country after three years. The scenarios include very rough estimates of the cost of (a) taking in the refugees and (b) providing them with the necessary training and skills during the first few years, together with one of three alternative assumptions that they:

1. migrate elsewhere or return home after five years, without ever taking up employment;

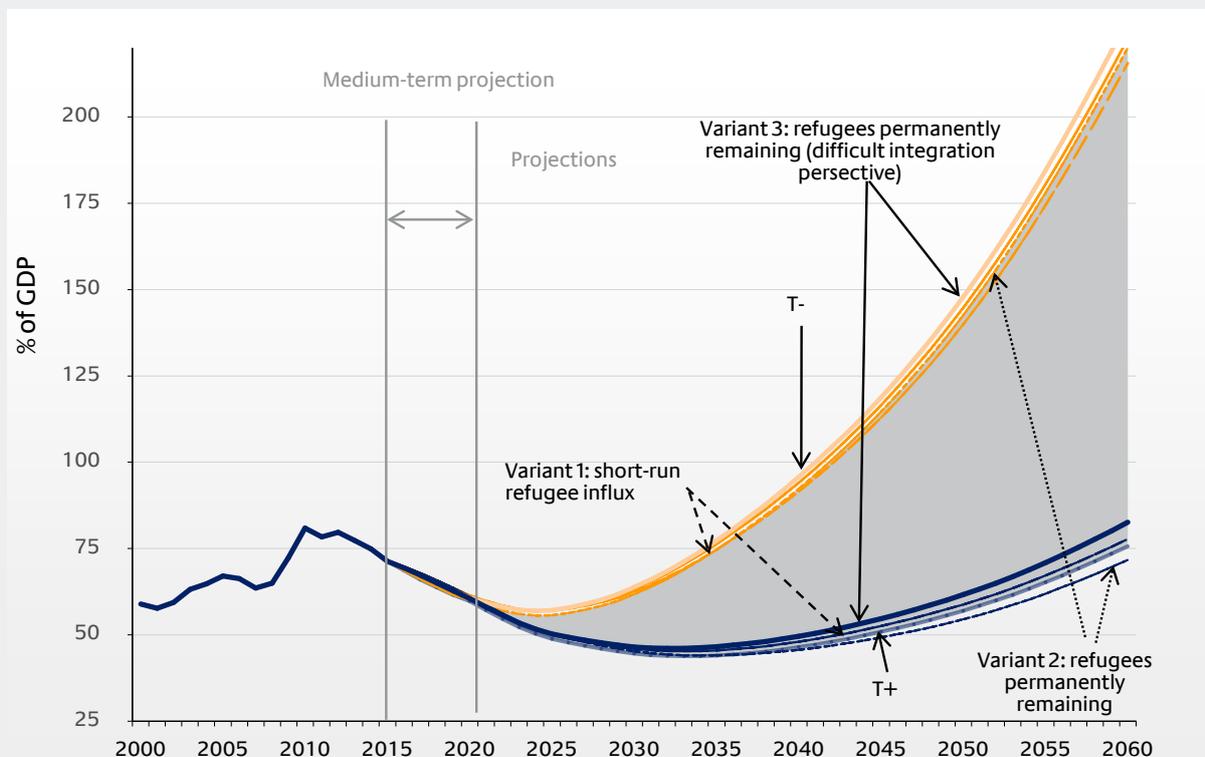
2. permanently remain in the country and gradually integrate in normal numbers into the labour market, although it takes ten years for their employment rate to approximate to that of the rest of the resident population;
3. permanently remain in the country but integrate into the labour market only with difficulty, such that after ten years their employment rate is only half that of the rest of the resident population.

The projected impacts are then as follows:

1. In the case where the refugees quickly return home, there is virtually no change in sustainability gap S2 (it rises by about 0.02 percentage points).
2. In the case where 500,000 refugees permanently remain and are partly and gradually integrated into the labour market within ten years, the sustainability gap may be reduced by 0.1 percentage points of GDP. Such a population influx would consequently have visible positive effects on the long-term development of public finances (Fig. 11).
3. Conversely, with limited integration into the labour market, the sustainability gap may be increased by more than 0.1 percentage points of GDP. Such a population influx would consequently have negative effects on the long-term development of public finances.

Compared with the labour market-oriented migration already in progress, the modelled influx of 500,000 people would not be very significant in the long term from a sustainability point of view. In the event of a larger sustained influx, however, the effects would be amplified correspondingly.

Figure 11: Modelling the impact of a one-off refugee surge on the public debt ratio



Source: Werding (2016).

IV.3 Macroeconomic framework and fiscal sustainability

The decrease in the employed population due to demographic ageing is likely to slow German economic growth significantly. It would therefore be desirable for this development to be compensated for by productivity growth or other favourable factors.

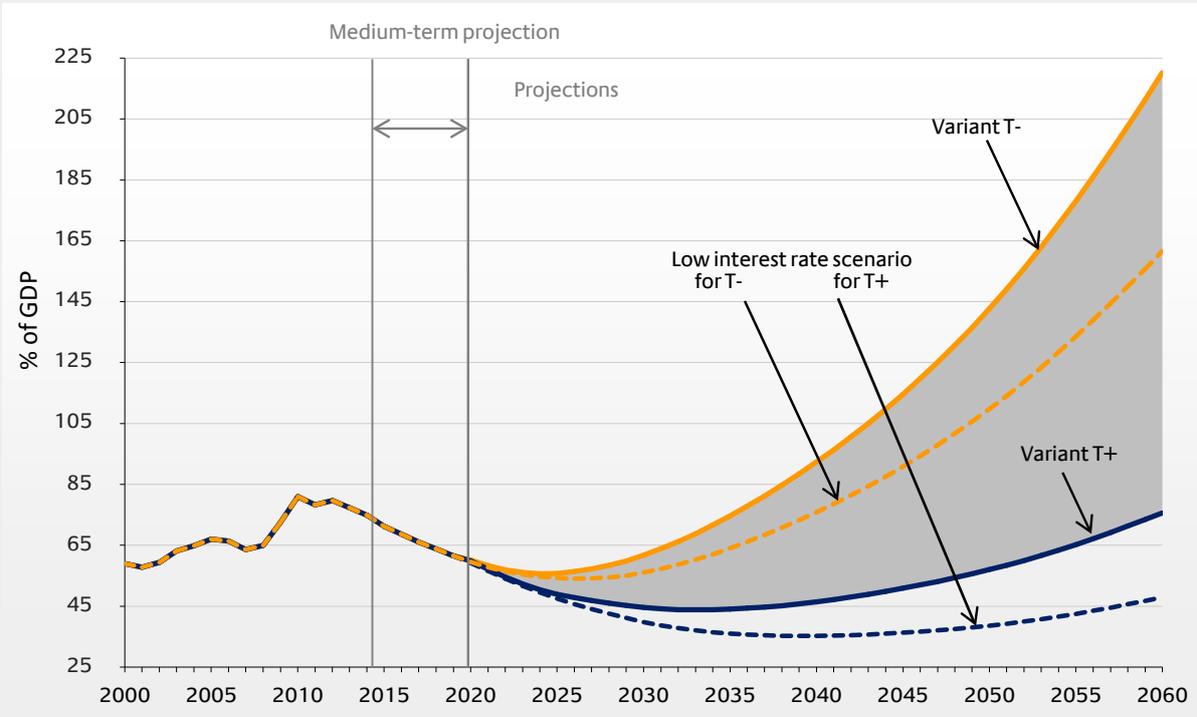
Potential drivers of future growth in (labour) productivity are currently discussed under headings such as digitisation or the fourth industrial revolution.

When it comes to implementing policy measures, it can make a crucial difference whether benefits rise more slowly than other forms of current income or whether they have to be reduced (where productivity growth is low).

According to the projections, the impact of productivity on fiscal sustainability is generally small. In the model, productivity growth not only boosts GDP and government revenues, but also triggers near-proportionate increases in ageing-driving public expenditure.

As an additional macroeconomic feature, there is currently considerable uncertainty about the future trend in interest rates, with unclear implications for long-term public finances. The real rate of interest on long-term government debt has been well below its long-term average of about 3% p.a. since 2010 and was even negative for some time. From today's perspective, the timing and extent of any recovery are almost impossible to predict. In light of these uncertainties, it is assumed that the real interest rate will slowly increase, reaching its long-term average again by 2026. In contrast, a lower level of interest rates over the long term would have favourable impacts on the trend in the debt-to-GDP ratio (see Fig. 12).

Figure 12: General government debt-to-GDP ratio (2000–2060) in a low interest rate scenario



Source: Werding (2016).

It should be noted that government debt is subject to substantial interest rate risk that can materialize at the same time as the demographically driven expenditure dynamics is expected. The logical

response is to reduce interest rate risk sensitivity and enhance the system's resilience against such shocks.

IV.4 Alternative scenarios for trends in healthcare spending

Significant unknowns in relation to long-term trends in public healthcare expenditure are brought out in scenarios that vary both the implications of a decreasing age-specific morbidity and the effects of technical progress in medicine. In the following, the effects of different assumptions are shown on the basis of changes in the more pessimistic scenario T-.

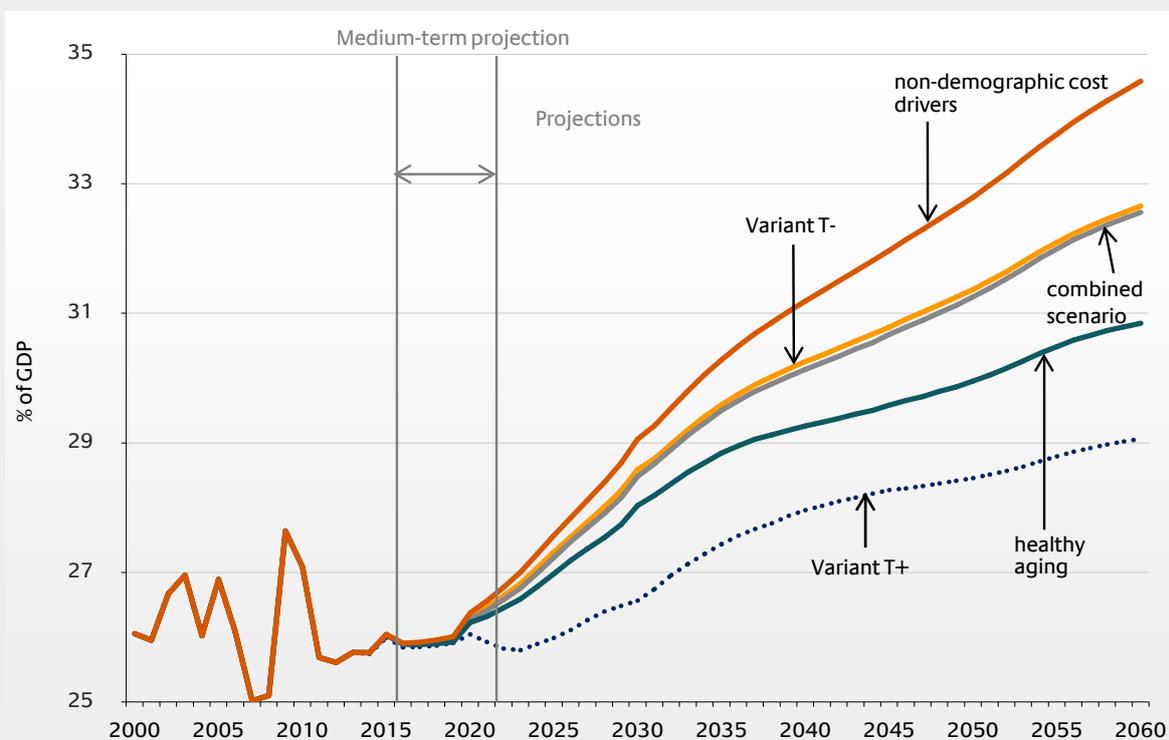
With regard to the health of the population, it can be assumed that at least some of the increased life expectancy is spent in good health, in contrast with the more pessimistic base scenario. In parallel, it is possible to assume that less use is made of provision under statutory long-term care insurance. This kind of ‘healthy ageing’ can be simulated by extending the age profiles of health expenditure

and prevalence rates in long-term care insurance by 0.75 years for each year of additional life expectancy, resulting in a marked reduction in the sustainability gap (Fig. 13).

On the other hand, medical progress may lead to a marked widening of the sustainability gap, depending on the assumed size of the cost impact of medical progress. In consequence, healthcare expenditure by statutory health insurance could rise relative to the pessimistic variant at a rate half a percentage point a year higher than the per capita GDP growth rate.

The two competing scenarios for the health expenditure projections show contrary and substantial impacts and could either give a massive added boost to the expenditure trend or noticeably slow it down (by about two percentage points in each case, relative to variant T-; see Fig. 13).

Figure 13: Healthcare cost scenarios and aggregate expenditure ratios



Source: Werdning (2016).

IV.5 Policy simulations

Policy simulation models quantify the effects of specific reforms on the development of public finances. The focus here is on the impact of the pension, healthcare and long-term care reforms in 2004, 2007 and 2014 as well as the effects of policy strategies targeting the labour market (see Fig. 14). In addition, a scenario is picked out in which long-term care insurance provision is extrapolated not with the labour productivity and wage growth rate but with the inflation rate (in line with the 'soft' constraint currently in force).

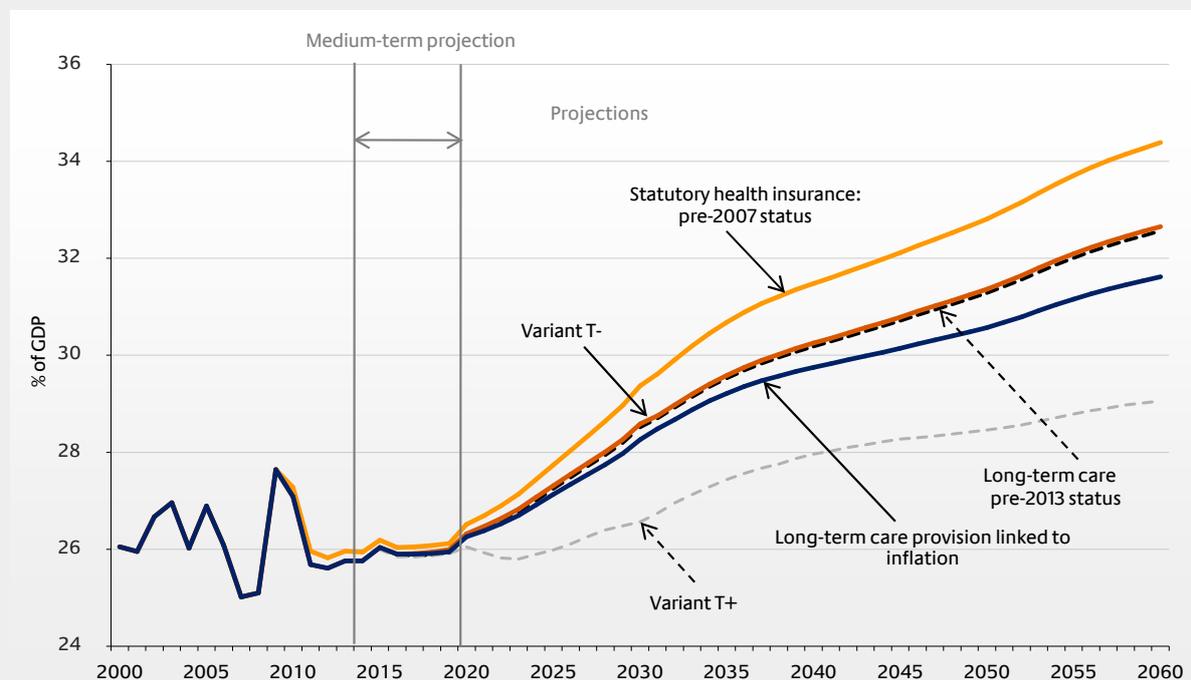
Whereas the effects of the pension reforms can be measured fairly accurately, those of the healthcare reforms can only be roughly estimated. The same applies to figures for statutory long-term care insurance. The effects of the most recent pension reform are presented separately on the basis of

current data. All projections presented in Fig. 14a/b show how far the respective policy variant diverges from scenario T+.

Reforms in statutory health insurance, private health insurance, and civil service pensions and benefits

The effects of efficiency-enhancing reforms in statutory health insurance (efficiency improvements and cost reduction by boosting competition) are important most of all in the context of the fiscally unfavourable base variant. Furthermore, there would be a strong impact on the long-term development of public finances if increases in statutory long-term care insurance provision could be linked to inflation for the long term (instead of to wage growth as assumed in the baseline) (Fig. 14a).

Figure 14a: Effects of statutory healthcare and long-term care policy variants on aggregate expenditures



Source: Werding (2016).

2007/2004 pension reforms

The alternative projections underscore that the reforms adopted from 2007 in statutory pension insurance (and their application to civil service pensions and benefits) contributed very substantially towards improving the long-term sustainability of public finances. Without those reforms, demographically sensitive expenditure would have increased far more rapidly (Fig. 14b). The pension reforms in 2007 (increase in the standard retirement age from 65 to 67) and 2004 (adoption of a sustainability factor) were instrumental in taking much of the momentum out of the public expenditure and public debt dynamics resulting from demographic ageing. The stronger the actual rise in the old-age dependency ratio, the greater their braking action on expenditure. In fact, the two reform elements also prove to be complementary in effect. The sustainability factor automatically exerts less of a limiting effect on pension adjustments if the average retirement age increases more rapidly, and vice versa. Reforms of

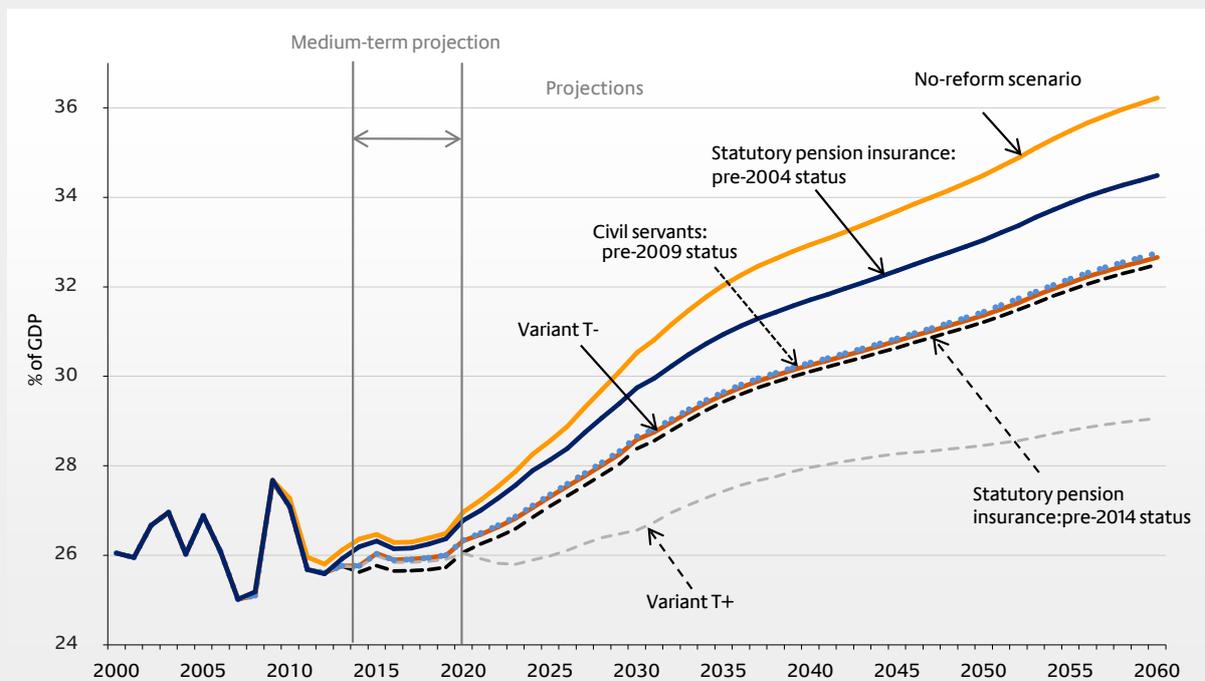
civil service pensions and benefits had a similar impact within the system.

Effects of the 2014 pension reform package

Initial empirical figures are now available for the pension reform in force since 1 July 2014 (eligibility to retire at age 63 under certain conditions, extra pension credits for child-raising periods, and changes in the assessment of reduced earning capacity pensions), and the long-term effects of the reform are clearly visible on a trend basis. The effects have become evident very quickly but lead only to a small overall increase in statutory pension insurance expenditure.

The aggregate expenditure ratios over the projection period show additional annual expenditure of 0.2 to 0.3 percentage points of GDP in base variant T- (equivalent to about 2% to 3% of the gross pension expenditure) and of 0.3 to 0.4 percentage points of GDP in base variant T+

Figure 14b: Impact of pension policy variants on aggregate expenditure ratios



Source: Werding (2016).

(about 3% to 4% of the pension expenditure; see Fig. 14b). The sustainability indicator S2 therefore increases by around 0.15 percentage points of GDP in variant T- and around 0.2 percentage points in variant T+.

The contribution of each reform element to the overall impact varies significantly over time: Extra pension credits for child-rearing periods for mothers of children born before 1992 have an immediate impact as they raise the amounts of current and new pensions for all eligible individuals from the outset, approximating them to the pension entitlements of insured persons raising children born in 1992 or later,; however, the number of eligible individuals falls rapidly through to 2060. Additional expenditures for individuals eligible to retire at age 63 rise fairly quickly. Effects of the changes in the assessment of reduced earning capacity pensions, on the other hand, ramp up only gradually over the projection period as the changes only apply for new pensions.

Overall, the effects of the 2014 pension reforms are seen to be limited, albeit unfavourable with regard to the aggregate expenditure ratios and debt-to-GDP ratios over time as the extra burden is at its highest precisely when ageing costs are growing most rapidly. At the same time, taking into account all pension reforms taken into account in the analysis, the favourable impact of the 2004 and 2007 pension reforms dominate in the expenditure trend.

Finally, a counterfactual combined 'no reform' scenario shows a very large sustainability impact. In the pessimistic case (not depicted here), the aggregate expenditure ratios would have risen by up to four percentage points and the sustainability gap relative to the base variants by up to 2.7 percentage points of GDP. Taken together, the reforms of the social security systems have thus made a significant contribution in slowing expenditure growth and enhancing fiscal sustainability.

Changes in labour force participation and qualification levels

Measures to prolong working lives enacted since 2007 are especially important in the context of this report because their effects are not limited to statutory pension insurance expenditure. As they influence overall economic growth and the revenue situation of other social security systems as well, they contribute to maintaining an appropriate level of benefits in the pension system. Choice-related changes of this kind can be deliberately supported by the policy framework, and one can observe that many countries have now increased the average statutory and effective retirement age.

In line with the international trend, the average retirement age might keep on rising over the entire projection period. Although this would mean bigger pension entitlements for workers who retire later, in addition to stronger GDP growth, the beneficial effects of a longer period paying into the system would dominate. Therefore, a further increase in the effective retirement age can be seen as being helpful in limiting ageing-driven expenditure growth in the long term.

As an additional measure, a more rapid rise in employment among women aged 25 to 45 likewise has positive effects. This would typically be accompanied by an increased need for publicly funded childcare and for institutional long-term care provision. An improvement in the qualification structure of the employed population adds to a net increase in labour productivity and wages.

Improvements in the areas of focus could reduce demographically driven expenditure ratios – relative to an already optimistic scenario – in the long term by an additional percentage point, with the favourable impact dominated by the effects of longer working lives.

V. Germany in an international comparison

What are the fiscal implications of demographic change in the international context and what are the consequences of the changes in the current budget situation? These are questions that are also subject to heated political debate and systematic analysis at European and international level. Obviously, the phenomenon of demographic change is not just a German but to varying degrees a global problem. The phenomenon is visible not only in the United States, where an accelerated rise in fertility – the baby boom – began right after World War II and consequently lasted longer than in Europe, but also in Japan and many other western industrialised economies. Not least, it applies in many Central and Eastern European countries, where demographic change has hit with a time lag but with enormous force.

During the coming decade, it will soon become evident whether the very country-specific systems of social provision work only in favourable economic circumstances, or whether they are resilient in the sense of meeting the challenges of demographic change against the headwind of a decreasing labour pool. It is only appropriate that analysis of such long-term trends is now a systematic element in the monitoring of European Union Member States' budget policies. The development of government expenditure over a long-term perspective is an integral part of

the Stability and Convergence Programmes that Member States are required to submit each year. In addition, ageing-driven fiscal risks are taken into account in setting the national medium-term budgetary objectives (MTOs) derived from the European Stability and Growth Pact (SGP). Potential long-term challenges to public finances are regularly assessed in the context of the European Semester and the budgetary objectives are adapted on that basis by the Council and the European Commission.

In the SGP framework, the MTOs come up for comprehensive review every three to four years, after new ageing projections are presented along with a fiscal sustainability analysis by the European Commission. The projections are approved by the Ecofin Council, whereas the European Commission compiles the Sustainability Report under its own responsibility. The basic modelling of age-related costs is provided by the Ageing Working Group (AWG) of the Economic Policy Committee in collaboration with the European Commission. The underlying model is generally guided by the principle of international comparability and coherence between trends among the Member States, with only partial allowance being made for national specifics. This is the reason why the EU figures may be at variance with the findings presented here (see Appendix).

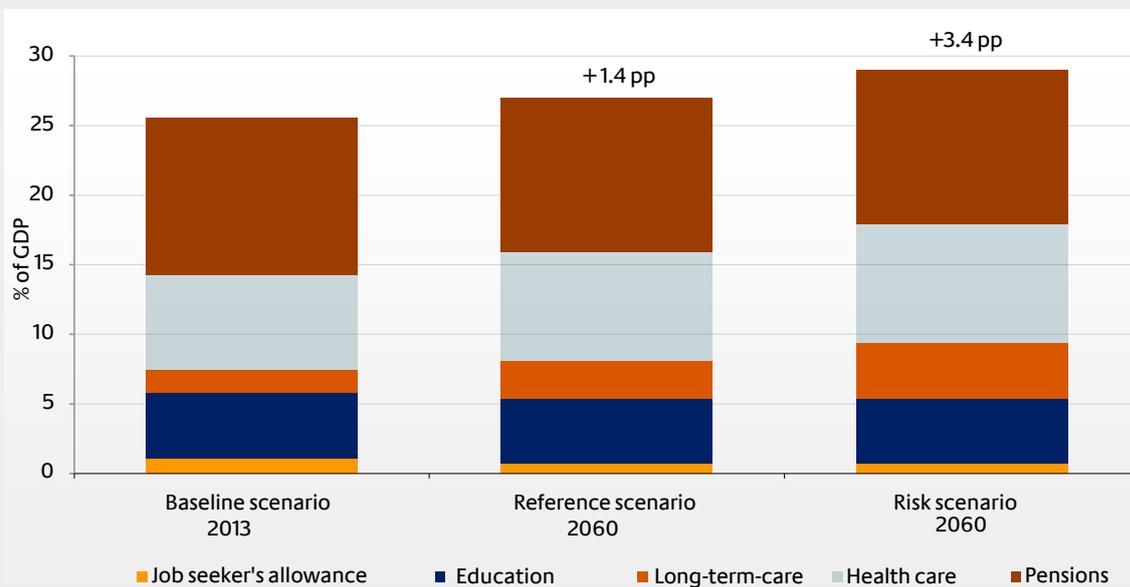
V.1 Age-related costs: the EU comparison

According to the most recent EU Ageing Report 2015, endorsed by ECOFIN in May 2015, demographic change will push up demographically sensitive government expenditure in most EU Member States to a significantly higher level than today. Age-related costs in the European Union will increase by 1.4 percentage points by 2060, or 3.4 percentage points in the respective risk scenario

(Fig. 15). That is of a scale roughly corresponding to the expenditure increase projected for Germany, supporting the findings of this national fiscal sustainability report, despite differences in detail.¹⁶

¹⁶ See the appendix for methodological differences between the calculations in the national Sustainability Report and those in the EU Ageing Report.

Figure 15: Trend in age-related costs in the EU (2013–2060)



Source: Economic Policy Committee/European Commission (2015).

The main reason for the improved trend in age-related costs in the EU compared with earlier projections has been the substantial pension reforms of the last few years. Many EU Member States have increased the retirement age and adopted sustainability factors into the mechanisms for determining pension adjustments (see Table 3).

The range of demographic pressures and also the implications for fiscal sustainability in the EU Member States are nonetheless very heterogeneous. Current EU projections show demographically driven public expenditure increasing by more than three percentage points in nearly one third of the Member States, while

Table 3: Pension system reforms – sustainability factors and increases in the statutory retirement age

Country	Automatic adjustment mechanism	Sustainability factor	Retirement age linked to life expectancy
Belgium			X
Austria		X	
Germany	X	X	
Finland		X	
Spain	X	X	
Italy		X	X
France		X	
Latvia		X	
Poland		X	
Portugal		X	X
Sweden	X	X	
Norway		X	
Cyprus			X
Denmark			X
Greece		X	X
Netherlands			X
Slovakia			X
UK		X	X
Japan		X	
Canada		X	X
Korea		X	
US		X	
Australia		X	X
Chile			
Switzerland		X	
New Zealand		X	

Source: After European Commission (2013); OECD (2013).

in another third the increase is substantially more moderate, at less than one percentage point (Table 4). One should note that the calculations for Germany place the country in the group facing large increases.

V.2 Sustainability risks in the EU

With the current budgetary situation in the majority of EU Member States being highly problematic, the short- and medium-term risks for the fiscal sustainability have accumulated. While only half of the need for adjustment across the EU-27 is attributable to population ageing, the other half can be attributed to the budgetary starting situation and the failure to take additional consolidation measures.¹⁷

Looking at Germany, the EU projections based on the European Commission's most recent Fiscal Sustainability Report imply sustainability gaps (S2) of the order of 1.7%, mainly due to

demographically related causes. In a pessimistic risk scenario, the European Commission identifies a more pronounced fiscal adjustment need of 4.0% of GDP. The consolidation requirement for general government finances is thus within the T+ and T- range presented in this report, confirming the plausibility of the analyses herein.

As regards the budgetary implications of the ageing society, Germany is classified – along with ten other Member States (Denmark, Estonia, Ireland, Spain, France, Croatia, Italy, Latvia, Hungary and Portugal) – as having low sustainability risk, although solely in the relatively 'favourable' base scenario. That positive assessment by the European Commission can be attributed primarily to the favourable budgetary starting situation, which is able to cushion the pressure to adjust. In the risk scenario, however, the fiscal challenges increase substantially all across the EU.

The remaining EU Member States analysed in the report are classified with a view to long-term fiscal sustainability as having medium risk (except Slovenia, which is regarded as a high risk country).

¹⁷ See *European Commission (2016)*.

Table 4: Increase in age-related expenditure in EU Member States in comparison

Increase in age-related expenditure (% of GDP)		
3 percentage points or higher	Between 1 and 3 percentage points	Less than 1 percentage point
Belgium	Ireland	Bulgaria
Czech Republic	Lithuania	Denmark
Germany	Austria	Estonia
Luxembourg	Poland	Greece
Malta	Romania	Spain
Netherlands	Finland	France
Slovenia	United Kingdom	Croatia
Slovakia		Italy
		Cyprus
		Latvia
	EU-28/Eurozone	Hungary
		Portugal
		Sweden

Source: Economic Policy Committee/European Commission (2015).

VI. The role of policy in securing sustainable public finances

Policies geared to sustainable public finances must adhere to a perspective extending beyond electoral terms and medium-term plans. The underlying question is how today's policy decisions in conjunction with long-term population and growth trends will affect public budgets in the decades ahead.

Ongoing structural challenges resulting from greater life expectancy and lower birth rates continuously require for policy action. Factors also come into consideration that go beyond 'demographic' risk per se, such as non-demographic cost drivers in healthcare as well as developments related to the global economy and the single currency area. With regard to more recent challenges, much will depend on successfully integrating refugees who are willing and allowed to stay into the labour market and into society. Well-founded, sustainability enhancing structural reforms, therefore, remain vital to securing sound German state finances.

VI.1 Guiding principles

In view of the still high general government debt levels in conjunction with expected demographic change, policies targeting sustainable public finances should be based on four guiding principles:

- **Sustainable policies need a combination of fiscal consolidation and economic growth.** Fiscal policies geared to long-term sustainability are directed towards structural consolidation of public finances. This requires that over the long term, expenditure dynamics must be restricted to being covered by current

revenue. The revenue to be expected on a sustained basis depends to a large degree on economic and labour market trends. Public obligations, therefore, can only be assessed relative to the strength of the economy. At the same time, sustainable policies should support potential growth and particularly the labour supply in an ageing society as well as the productivity of the economy. Looking ahead, it is also necessary to master the challenge of digitisation by achieving progress across all levels of the education system – such as in initial and further training – and by augmenting the labour pool, e.g. by systematically attracting and training skilled workers from abroad.

- **Sustainable policies are a cross-departmental responsibility.** Sound state finances cannot be ensured by fiscal policy alone. On the contrary, public finances reflect decisions in many policy areas. All line ministries and levels of government have an obligation to assess public spending for necessity and efficiency. Key elements in improving the quality of public finances in that sense include carrying out thematic spending reviews and making public budgets and social security systems results-driven across the board. Beyond that, the demographic challenge demands a comprehensive and long-term approach integrating fiscal, economic, education, family and social policy.
- **Sustainable policies require timely action.** Policy decisions to secure sustainability involve high costs of delay. The sooner action is taken,

the lower the cost of adjustment and the greater the leverage exerted by the reforms.

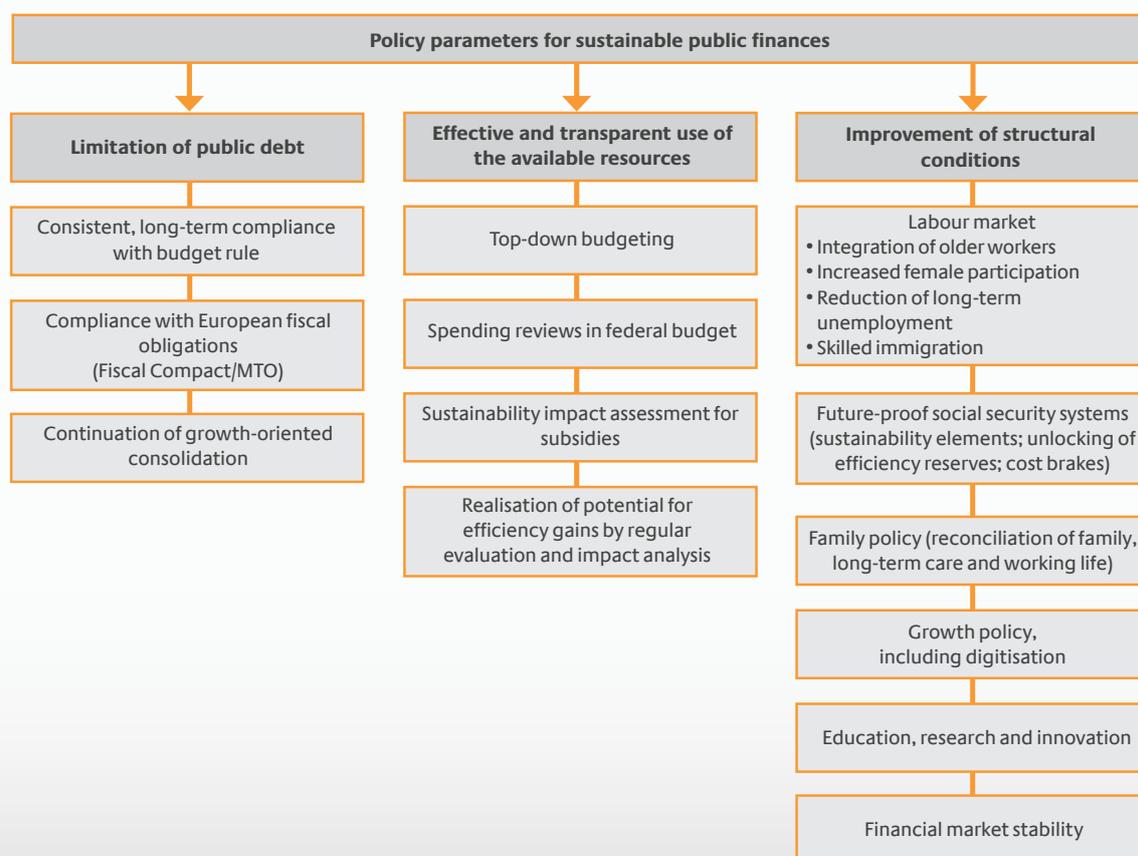
- **Sustainable policies allow for risks and enhance system resilience.** Projections on the sustainability of public finances are subject to considerable uncertainty. Instead of relying solely on optimistic scenarios, sustainable policies must be prepared for risks and shocks. This challenge has been made very clear by national and European developments in recent years. Aligning policies to risk scenarios creates necessary leeway for coping with unforeseen developments, while an overly optimistic perspective would pass on the consequences of unforeseen risks to future generations, imposing disproportionate burdens on them.

VI.2 Parameters for sustainability-enhancing policies

Basic parameters for an integrated approach to securing long-term fiscal sustainability can be outlined as comprising a sound initial fiscal base, sustainable social welfare systems, a secure supply of skilled labour, reconciliation of work and long-term care with family life, investment in education and research, up-to-date infrastructure, and stable long-term economic growth.

At the same time, key parameters for sustainability not only relate to good fiscal rules, but also to an outcome-oriented institutional strengthening of public finances and to an improvement of the structural framework in sectoral policy areas.

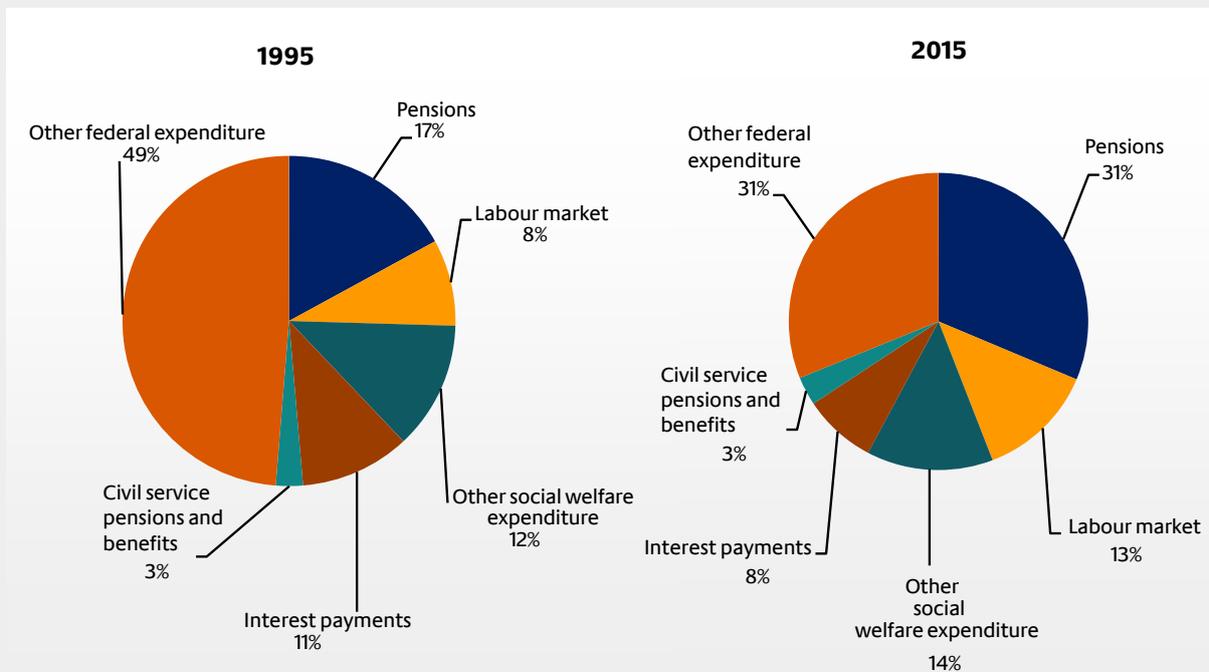
Figure 16: Policy parameters for sustainable public finances



The relevance of demographic change for sectoral policy areas at federal level is also reflected in the structure and evolution of the federal budget. In past years, the federal budget has largely been determined by social welfare expenditure and by debt service, limiting the fiscal scope in other areas of federal expenditure. ‘Discretionary’ federal public spending in a broad sense accounted for just 31% of expenditure in 2015, compared with nearly 50% as recently as 1995 (see Fig. 17).

Currently, statutory pension insurance expenditure makes up some 31% of spending in the 2015 budget year. The 14 percentage point increase since 1995 is the consequence of various legislative changes aimed at containing the increase in pension contributions. The years since then have seen the introduction of an additional federal subsidy (from value added tax), a supplement to the additional federal subsidy (from eco-taxes) and federal contributions to childcare provision.

Figure 17: Structure of the federal budget – 2015 and 1995 compared



Source: Federal Ministry of Finance (2015).

VI.2.1 Institutional options in national fiscal policy

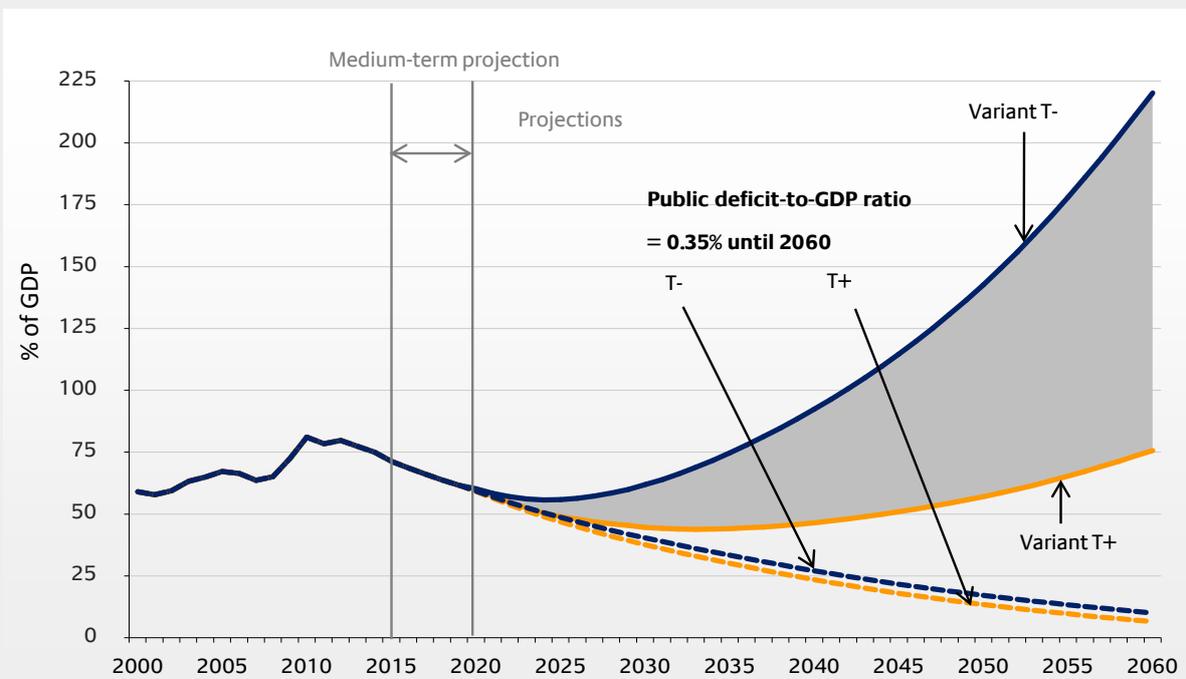
Social welfare provision requires adequate fiscal room for manoeuvre. With the introduction of the budget rule – a statutory limit on the government deficit – the principle of sustained balanced budgets and the concept of long-term fiscal sustainability was enshrined in the German Basic Law, with the Federation (from 2016) and the *Länder* (from 2020) generally required to maintain balanced budgets without new borrowing. Expenditure is thus not allowed to be funded out of new borrowing over the long term. This created an important initial institutional framework for a continuous reduction in sustainability gaps (see Fig. 18).

Compliance with the budget rule at federal and *Länder* level and respecting the MTO at general government level as laid down in the preventive arm of the SGP are required to ensure a sustained

reduction of government debt, thereby also contributing to intergenerational equity.

Closely linked to the budget reform is a federal early warning system, which was introduced to pick up on impending budget crises at an early stage, thereby enabling timely counter measures. A Stability Council established for this purpose, which started its work in 2010, is made up of the Federal Minister of Finance, the *Länder* Ministers of Finance, and the Federal Minister of Economics and Technology. The main function of the Stability Council is to regularly monitor the federal and *Länder* budgets in accordance with Article 109a of the German Basic Law. If the Stability Council determines that a budgetary crisis is impending at any level of government, it adopts a recovery programme for the authority concerned. The Stability Council also monitors compliance with the limit for the general government structural deficit under the European Fiscal Compact and the SGP (0.5% of GDP), and recommends suitable

Figure 18: Projection of the public debt-to-GDP ratio under the constitutional budget rule



Source: Based on Werding/Hener (2011).

consolidation measures to the Federation and *Länder* where appropriate. An independent advisory board provides supports with monitoring.

As the scenarios have clearly shown, taking account of qualitative risks (such as interest rate risk for government debt) is an essential element of a proactive fiscal policy, requiring a safety margin relative to the limits under the constitutional budget rule. Enhanced resilience against shocks makes precautionary budgetary policy better able to address current urgent challenges.

To better meet the requirements of the budget rule and the objective of sustainable state finances, the institutional budgeting set-up has been changed substantially. Since 2012, the federal budget has been prepared using a top-down approach, where benchmark budget figures are agreed to manage compliance with the budget rule. This gives greater responsibility to the respective government departments, within their own budget. However, under the ceiling of the agreed benchmark figures, this procedure encourages an efficient and economic use of resources. Top-down budgeting has proved effective as recent figures show: In 2015, a balanced federal budget was presented for the first time in the history of the Federal Republic of Germany. The 2015 budget also required no new borrowing after the two supplementary budgets during the course of the year. For 2016 the federal budget continues in the same manner, despite considerable efforts associated with the influx of refugees.

Supplementing the benchmark figures approach in budget preparation, the coalition agreement for the 18th electoral term provided for revenue and expenditure-side thematic budget analyses. These “spending reviews” make for an enhanced substantive focus in the government budget preparation process and more outcome-oriented budgeting. Spending reviews analyse specific expenditure or revenue areas for effectiveness in target attainment and for efficiency. The first reviews of this kind, on the promotion of combined transport and the promotion of vocational mobility for young people interested in vocational training

(MobiPro-EU), began in July 2015, carried out jointly by the responsible line ministries and the Federal Ministry of Finance, and are to be completed in the near future.

Since January 2015, subsidies have been evaluated regularly in accordance with the federal government’s subsidy policy guidelines and on the basis of regular evaluation cycles and sustainability impact assessments. The guidelines aim at enhancing the transparency, accountability and governance of the whole subsidy system, and represent a voluntary commitment by the federal government with regard to the measures under its responsibility. Sustainability as the broad guiding principle of federal government policy aims at achieving intergenerational equity, social cohesion, quality of life, as well as international responsibility. It therefore includes the aspect of fiscal sustainability. The most recent Subsidy Report of August 2015 reported for the first time on the implementation status of the modified guidelines and also presented features of such a sustainability impact assessment.

Finally, a mandatory ‘demography check’ of all planned primary and secondary legislation was introduced at the beginning of 2014 to ensure that demographic trends are generally taken into account in policy decisions.

VI.2.2 Guiding framework at the European level

Ensuring the sustainability of public finances is not solely a national responsibility but also a European one. In the European Union as a whole, and the euro zone in particular, Member States are required to pursue sustainable fiscal policies and economic policies designed to boost competitiveness. Because of the fiscal and economic policy interdependencies, the European economic and monetary area is unable to function without all Member States working in the same direction in this way. In the context of fiscal policy under the European Semester, the MTO within the preventive arm of the SGP is a notable instrument in securing the long-term sustainability of state finances.

The European Union has tightened up the original rules of the SGP. In the preventive arm of the SGP, the MTO has been given more binding force and tied to sanctions. In the corrective arm, a debt criterion has been added and given equal status to the deficit target. In future, the European Commission is able to launch an excessive deficit procedure not only if a Member State's budget deficit has exceeded 3% of GDP, but also if general government gross debt exceeds a reference value of 60% of GDP and the difference is not being reduced by at least one-twentieth per year. This is to ensure that countries with excessively high public debt ratios systematically reduce them to a maximum of 60%. In addition, sanctions for euro zone countries are imposed sooner, more comprehensively and quasi-automatically if a Member State fails to comply (principle of "reverse majority").

VI.3 Options for structural reforms

As the sustainability analysis has indicated, the far-reaching structural reforms implemented by the federal government in the labour market and in the social security systems in recent years have helped strengthen public finances. Rather than resting on what has been achieved, it is important for the reform efforts to continue.

VI.3.1 Growth, employment and productivity

Fiscal sustainability is always also related to the long-term trend in the strength of the economy, as there are important feedback linkages between forward-looking budgetary management and sustained economic growth. On the one hand, 'good' fiscal policy is key to maintaining favourable growth and employment conditions. On the other, sustained economic growth parallel to rising employment creates the ideal conditions for sound public finances. Per capita economic potential output is very important in determining the future standard of living for the population. The income trend in Germany relative to that in other countries can also have a major influence on migration flows and other adjustment processes. It is therefore important to continue improving the

growth and employment conditions in Germany. Sustainable public finances also contribute to boosting confidence: Doubts about the soundness of state finances can foster a wait-and-see mindset among both business and consumers and so act as a brake on economic growth. It is therefore in the vital interests of any economy to build confidence in the long-term soundness of public finances by pursuing a prudent and preemptive fiscal policy course. This has been convincingly confirmed for Germany compared with the rest of Europe as a result of the debt crisis.

Stronger productivity growth can also help secure fiscal sustainability as it means there is more space for redistribution in a situation of a shrinking labour pool.

The main factor for a strengthening of domestic growth impetus is an investment-friendly environment. This is aided by measures such as strengthening public infrastructure, further cutting of red tape, tax simplification initiatives and an overhaul of the Act Against Restraints of Competition (*Gesetz gegen Wettbewerbsbeschränkungen*). Initiatives for competition-driven expansion of infrastructure in the energy and telecommunications sector (the Energy Strategy and the Broadband Strategy) also create a sound basis for private investment.

In this connection, the current coalition agreement provides for priority measures in this electoral term featuring an additional €23 billion for education and research, relief for the *Länder* and local authorities, public transport infrastructure and development cooperation. Expenditure for key future investment has also been increased by €10 billion (for the years 2016 to 2018). The focus here is on public infrastructure spending. The scope for investment is further enhanced by the substantial additional relief for local authorities, including €3.5 billion via the Federation's local authority investment fund.

In order to stabilise the potential for growth, it is essential to offset the expected future harm to long-term growth prospects brought about by

the decline in the working age population. To this end, in 2011, the federal government compiled a strategy featuring targets and measures to secure the supply of skilled labour, which is regularly reviewed and supplemented. A partnership for skilled workers was launched with unions and employers to promote efforts to secure the supply of skilled labour and provide attractive working conditions. Beyond that, better use must be made of the existing labour pool – by prolonging working lives, by increasing participation in the labour market, particularly among women and older individuals, and by further reducing structural unemployment. The specific actions to be taken can be grouped into three areas:

- **Better integration of older workers into the labour market.** Labour force participation among older workers has already risen dynamically in the last few years, notably due to the move away from early retirement. According to Eurostat, the employment rate among 55 to 64 year-olds was 65.6% in 2014, comfortably above the national EU-2020 target of 60%. However, further action is needed, including education and training, along with healthcare improvements and the provision of age-friendly workplaces. A change in attitudes among employers is also necessary so that older, experienced workers can more fully realise their potential in the labour market. A working group of the coalition parties on flexible transition into retirement presented its final report on 10 November 2015, presenting options for a more flexible transition from working to retirement. The aim of the proposals is to give people the flexibility and self-determination to manage their transition into retirement in accordance with their individual life plans. They include new and more flexible arrangements for additional earnings and partial retirement.
- **Better integration of women into the labour market.** In 2012, some 6.1 million women of working age did not take part in paid employment in Germany, despite the fact that a large proportion have medium to high levels

of training and about a fifth are interested in taking up work or are potentially available to the labour market. According to academics and the Federal Employment Agency, women constitute the largest and most readily mobilised pool of skilled labour in the domestic market. The individual distribution of paid work and unpaid family and care work between women and men has also become more diverse.

Nonetheless, gender-specific burden sharing patterns and pay differentials still persist. Women are the main breadwinners in only about 23 percent of all multi-person households in Germany. The Federation and *Länder* therefore follow a comprehensive approach to dismantling gender-specific obstacles to employment. This approach targets an increase in labour force participation among women and equality between women and men in working life.

Focus areas include improving the reconciliation of family, long-term care and working life, easier re-entry after family-related periods out of employment, increasing working hours in existing part-time jobs, more women in management, and closing the gender pay gap. Success in reconciling family, long-term care and working life also enhances the economic stability of families and secures women an independent livelihood.

Reforms implemented to this end include the arrangements on parental leave and parental benefit. With the new Parental Benefit Plus, the Federation supports part-time work among young parents and thus their early return to employment. The Federation also gives greater support to the *Länder* and to local authorities with the running costs of childcare facilities. Substantial improvements with regard to the reconciliation of family, long-term care and working life were the subject of legislation that came into force from 1 January 2015, including the introduction of an income replacement benefit for employees taking time off to care for a close relative, a legal entitlement to care leave, and support in the form of interest-free loans.

- **Better integration of labour market-detached groups.** The federal government's objective of a 20 percent cut in long-term unemployment by 2020 could go a long way towards making better use of the labour pool and preventing poverty and social exclusion. In this area, the federal government follows a principle of integration through employment. The introduction of basic income support for job seekers and the related organisational reform laid important groundwork in this regard. The options for individual and tailored support of job seekers have been continuously enhanced since then. The organisational reform also made job centres more results-oriented. Unions, employers, the *Länder* and the Federal Employment Agency revised the training pact under the alliance for initial and further training for 2015–2018. The federal government also specifically supports the training of people with immigrant backgrounds (under the initial and further training pact). Finally, the Federation and *Länder* have developed strategic approaches to achieve lasting integration on a living wage for long-term benefit claimants.

VI.3.2 Targeted immigration policy

The healthy German labour market currently offers good opportunities for the integration of additional workers. Many companies have difficulty in quickly filling vacancies, as shown by increased vacancy durations. A shortage of skilled labour, in parallel with a high unemployment rates among people without training, points to severe mismatch problems which could create good opportunities for immigration to supply the German labour market.

Managed “qualified” migration can help counter the decline in the labour pool and its negative impacts on growth. High net immigration has its strongest positive effect on the sustainability of public finances if (within realistic limits) taking place on a sustained basis. This is substantiated by the modelling of the sustainability gaps, which have the potential to be narrowed if immigration of skilled labour can be kept up over time.

Empirically, migration trends influence the labour pool and the age structure of the population, Germany being one of the most popular destinations for emigrants after the United States. According to the federal government's Migration Report, net immigration came to 550,483 individuals in 2014. This is the highest migration surplus since 1992. Immigration from EU Member States has continuously increased in recent years, bringing about many benefits both for Germany and for the people arriving: Immigration of skilled, motivated workers and trainees from other European countries contributes substantially in securing prosperity and the skilled labour pool in Germany. EU citizens moving to Germany benefit from the opportunities there, including on the German training and labour market.

Germany additionally granted unlimited free movement of workers from Croatia with effect from 1 July 2015. Citizens of all EU Member States thus now enjoy unrestricted access to the German labour market, with some 60% of net immigration coming from EU countries in 2014. The rapid integration of these new workers into the labour market presents a major opportunity both for German business and industry and for the immigrating EU citizens themselves.

Occupations and sectors with skills shortages that cannot be met by activating domestic labour rely on foreign workers. In addition to the immigration of skilled labour from the EU, the German labour market has been opened up over the last three years for the immigration of skilled workers from non-EU states, and the immigration process has been stripped of much red tape. Key measures included the introduction of the EU Blue Card and job seeker visas in August 2012 and the opening of the borders in July 2013 for immigration in training occupations in which there is a shortage. The EU Blue Card and attractive residence conditions become a model for successful immigration of highly qualified workers. Notable benefits include less restrictive requirements and rapid processing.

Other measures launched by the federal government are aimed at enhancing Germany's attractiveness for skilled foreign workers and

supporting their integration into the German labour market. These include the “Make it in Germany” and “Recognition in Germany” web portals and the “Living and Working in Germany” hotline.

Foreign graduates of German universities are especially attractive for the German labour market. They mostly have good proficiency in German and are well integrated into German society. They can stay for up to 18 months after graduation to find a job in Germany and have prospects of permanent residence if they secure adequate employment. In the winter semester 2014/15, some 236,000 foreign students were studying in Germany who had obtained their university entrance qualifications abroad or at a German ‘Studienkolleg’ offering preparatory courses for international students.

Germany thus has one of the most modern and open immigration systems for skilled workers in the world – as is confirmed by the Organisation for Economic Co-operation and Development (OECD) and the Expert Council of German Foundations on Integration and Migration. This positive fact needs to be made even better known at home and abroad, and government and industry need to develop attractive packages.

VI.3.3 Integration of refugees

The current high numbers of refugees will significantly change the structure of immigration compared with recent years. Unlike in the past, people are no longer coming to Germany specifically to take up employment, but primarily to seek protection. In the context of demographic ageing and the associated fiscal problems, migration and integration policy decisions in Germany must be directed at leveraging the economic potential of the refugees who permanently remain in Germany and enabling their participation in the labour market. This is also in the interests of the refugees themselves.

Labour market integration should be made a high priority as this can impact fiscal sustainability in the longer term positively. Over time, the integration of recognised refugees into the German labour market could serve as a compensating factor for

demographically driven, worsening skills shortages, though only if comparable qualification levels can be achieved. Integrating refugees would then also constitute an investment in the future in terms of meeting the demographic challenges. Without such integration, however, recognised refugees are likely to make little difference to the demographically related decrease in the labour pool, most of all with regard to skilled workers.

Whether the (medium to long-term) increase in the labour supply due to the inflow of refugees will be able to eliminate current labour market disequilibria is very difficult to assess because of a lack of information about the degree to which the refugees are qualified for the German labour market, and as the language barrier is an additional limiting factor. Economically, the question is how to put the skills and qualifications of recognised asylum seekers to best use.

Given the age structure of the refugees (56% of asylum applicants in 2015 were under 25), the education and training potential is likely to be there. Besides the need for more language and integration courses, there will also be an increased need for school places and occupational training.

The Act to Expedite Asylum Procedures (*Asylverfahrensbeschleunigungsgesetz*) introduced numerous measures to ease the labour market integration of refugees and asylum seekers, such as granting asylum seekers with good prospects of permanent residence access to integration courses and active labour market policy measures.

Alongside the education and training efforts, another key factor is labour demand, as the scenarios show. At all events, the question of how refugees contribute in terms of fiscal sustainability requires a longer-term perspective.

VI.3.4 Education and innovation policies

Education and innovation policies deliver important impetus for the long-term performance of the German economy. Education creates opportunities for everyone to take part in economic, social and

cultural life and provides the basis for long-term employment capable of securing a livelihood.

An additional €9 billion is available for priority education and research expenditure in the current electoral term. Of this, €6 billion is earmarked for education. From 2015, the Federation took over the funding of education assistance (BAföG) in its entirety. This saves the *Länder* some €1.17 billion a year on a permanent basis. In return, the *Länder* are committed to investing the resources in education, and primarily in higher education. In the education policy sector, BAföG assistance was stepped up from winter semester 2016/2017, continuation of the Higher Education Pact was secured and further investment was made in early childhood education. An additional €3 billion is available for R&D, used to fund non-university research institutions under the Pact for Research and Innovation and higher education institutions under the Excellence Initiative. In this way, the Federation, working together with the *Länder* and industry, has contributed significantly towards meeting the EU 2020 Strategy sub-target of 3% of GDP for R&D by 2020.

The funding for research and development is primarily used for innovation and growth-supporting activities under the heading of the High-Tech Strategy. The overarching goal of this strategy is to turn knowledge and ideas into innovation as rapidly and as successfully as possible. To this end, research areas are addressed that are of special relevance to society and growth, such as Industry 4.0. The new High-Tech Strategy also combines the forces of all parties involved in the innovation process in order to boost the transfer of innovations into practical applications. Successful instruments for promoting innovation such as the Leading-Edge Cluster Competition make for dynamic exchange between the scientific community, industry and society.

VI.3.5 Reform options in the social security systems

To share the burden of demographic change between young and old in the interests of intergenerational equity, maximum contribution limits and a minimum level of provision have been laid down in law for the statutory pension insurance system. The Act Improving Pension Benefits (*RV-Leistungsverbesserungsgesetz*) additionally delivered on social policy pledges made in the coalition agreement. The statutory pension insurance system is currently in good shape, but it is essential that contribution payers are not overburdened in the long term.

The increasing percentage of older people in the total population results in increased and changing needs for healthcare and long-term care. The federal government addressed this challenge in the most recent healthcare reforms. Sustainable financing of healthcare provision is a key concern. The general statutory health insurance contribution rate was reduced from 15.5% to 14.6% in the 2014 financing reform. At the same time, health insurance funds were given the option to levy fund-specific, income-linked additional contributions on their members. This gives the health insurance funds greater autonomy in contribution setting and creates significant price signals to boost competition between funds in terms of efficiency and quality. The underlying financing arrangements have been kept employment-friendly by fixing the employer share of the general contribution rate at 7.3%. The federal subsidy will increase again from €11.5 billion (2015) to €14 billion in 2016 and €14.5 billion a year from 2017.

Boosting competition in the statutory health insurance system creates incentives for health insurance funds and healthcare providers to secure high-quality healthcare with efficient use

of funds. The establishment of the Institute for Quality Assurance and Transparency in Healthcare improved the conditions for rigorous quality focus in provision and enhanced quality competition among providers. The Act to Improve Statutory Healthcare (*GKV-Versorgungsstärkungsgesetz*) enhances innovative and cross-sectoral forms of healthcare provision. Health insurance funds are given greater scope to enter into incentive-compatible contracts in free competition. In outpatient and practice-based healthcare, waiting times for a doctor's appointment are to be significantly reduced for statutory health insurance members.

The Hospital Structure Act (*Krankenhausstrukturgesetz*), which entered into force on 1 January 2016, provides for improvements in the efficiency of hospital provision, from nationwide general provision through to advanced medicine. Quality will play a key part in capacity planning and remuneration.

Long-term care insurance is an important element of the social security system. The federal government's objective is for individuals in need of care to continue receiving appropriate, quality-assured service at an affordable price. Long-term care insurance and the framework for care provision are therefore being improved, notably under the Acts to Enhance Long-term Care (*Pflegestärkungsgesetze*), with the aim of maintaining dignified and needs-based care and support. The First Act to Enhance Long-term Care (*Pflegestärkungsgesetz I*) in force since 1 January 2015 included improvements in provision for people in need of care and their families. Patient-staffing ratios in institutional care establishments were also increased.

Changes under the Second Act to Enhance Long-term Care (*Pflegestärkungsgesetz II*) include the introduction of a new definition of need of care and a new assessment procedure from 1 January 2017 to give people in need of care with physical or mental impairments equal access to long-term care insurance provision. Along with the improvements on the provision side, the rising numbers of individuals needing care due to demographic trends make it necessary for the funding of statutory long-term care insurance to be placed on a sustainable

footing. For this reason, the contribution rate for statutory long-term care insurance is being increased in two steps by a total of 0.5 percentage points. Intergenerational equity in the funding of statutory long-term care insurance is enhanced by the establishment of a long-term care provident fund. For approximately 20 years starting in 2015, an amount constituting 0.1 percentage points of the statutory long-term care insurance contributions is appropriated each year to the long-term care provident fund in order to mitigate the increases in the contribution rate in subsequent years when the baby boomers reach the age when they are likely to need long-term care.

VI.3.6 The contribution of family policy

Family-related benefits that support livelihood-securing employment for mothers and fathers can also be designed to boost growth and employment in Germany and, via refinancing effects, can have a positive impact on public finances.¹⁸ Bringing benefits for married couples and families into line with the goal of employment capable of securing individual livelihoods can also already mitigate demographic effects in the short term. With this in mind, the federal government's family policy adheres to its central objective of better reconciliation of family and working life, the focus being on equal division of family responsibilities between parents and on reconciling work and family life. Mothers and fathers need time for their children while having the chance of livelihood-securing employment. In addition, more and more people in employment have to look after parents who are in need of help and support.

Successful reconciliation of work and family life also encourages young couples to opt in favour of having children. International comparisons show that high labour force participation among women goes hand in hand with high birth rates.

¹⁸ The work incentive effects of family-related benefits are discussed in the final report of an overall evaluation of such benefits (*Endbericht Gesamtevaluation der ehe- und familienbezogenen Maßnahmen und Leistungen in Deutschland*), in particular at marginal 929 onwards.

Fertility decisions are also influenced by various determinants relating to social norms and to the legal and policy framework, placing continued emphasis on predictable policies and on equal participation of women and men in working and family life. The Federation supports the *Länder* in funding the expansion of childcare places for children under three through a special fund for the financing of childcare. Under a long-term commitment, an annual €845 million in federal funding has been provided towards operating costs since 2015. A further €550 million was added to the special fund for the financing of childcare during the current electoral term. The federal contribution towards operating costs has also been increased by another €100 million for 2017 and 2018, to €945 million a year. In addition, the financial resources released due to the discontinuation of

the home childcare allowance (*Betreuungsgeld*) have been made available to the *Länder* and local authorities up to 2018 to fund improvements in child daycare.

Work-life balance cannot be improved by the government alone; further effort is needed by other stakeholders such as employers. Partly as a result of the skills shortage debate, many employers have recognised that family-friendly working conditions are an important competitive factor in policy towards employees, and offer their workforces a wide range of flexible working time and location arrangements. In cooperation with industry associations and unions, the federal government supports employers in implementing family-friendly policies through the “Success Factor Family” enterprise programme.

VII. Conclusions and outlook: Making public finances and social welfare systems resilient to demographic change

Demographic change will clearly have a major impact on the development of public finances and social security systems in the near future. Social security systems are expected to see substantial demographically driven increases in expenditure, while a shrinking of the labour pool will significantly weaken Germany's growth potential. Revenues that correlate with economic growth are likewise expected to grow less strongly, limiting the scope for redistribution.

Without timely counteraction, the demographic process will lead to widening public deficits and unsustainable growth in debt, thus limiting the state's ability to act. Timely identification and action significantly reduces the need for adjustment, leaves the state greater flexibility in the face of future challenges and facilitates the formation of public expectations.

Against this backdrop, the Sustainability Report highlights the risks for the long-term development of public finances in Germany. The projections in the Sustainability Report are based on relevant benchmark figures from the federal government's medium-term projections for overall economic development and the resulting medium-term financial plans. No consideration is given to any additional expenditure over the financial planning horizon as a result of the current influx of refugees. Given the prevailing uncertainties about how the situation will develop, figures on such expenditure are not yet reliable enough to serve as a basis for long-term projections.

The aggregate expenditure ratio for demographically driven expenditure included in the analysis – eliminating payments between the various subsidiary budgets – amounts to 25.8% of GDP in 2014, corresponding to about 60% of all public expenditure. The ratio is not expected to show any significant change over the medium-term horizon. By 2060, however, the expenditure ratio is projected to increase by between 3.3 and 6.9 percentage points of GDP relative to 2014.

One indicator of the long-term sustainability of public finances is the budget consolidation currently needed for expected revenues to cover all future expenditures and all government debt accumulated in past years (the sustainability gap). On the basis of this indicator, providing for the demographically driven increase in expenditure at a single stroke would require the public deficit to be reduced today by 1.2% or 3.8% of GDP.

Changes in the demographic trend could help narrow the sustainability gap. Immigration has its strongest positive effect when – subject to favourable employment trends and the rapid integration of new arrivals into the labour market – it takes the form of sustained high net immigration. The foreseeable ageing of German society can be ameliorated in the long term or even reversed if birth rates increase again on a lasting basis. After the long period of successively smaller generations, the effect of a higher birth rate would become evident too gradually, however, to make a significant fiscal contribution to narrowing the sustainability gap by 2060.

A further increase in female labour force participation can have beneficial effects even if it results in higher public expenditure for childcare and for institutional rather than non-institutional long-term care for older relatives. A further lengthening of working lives would also have positive impacts. Technical progress in medicine and recent measures to enhance prevention can also help to extend working lives by enabling people stay healthy longer.

Reforms that take into account the implications of demographic trends for the capacity of the state to act can help reduce the sustainability gap. These notably include the statutory pension insurance reforms of 2004 and 2007 (addition of a sustainability factor to the pension adjustment formula and increase in the retirement age) and reforms of civil service pensions and benefits since 2009 (initially at federal level and in the meantime in many of the *Länder*). The same applies to the 2007 and 2009 reforms to enhance competition in healthcare and the 2014 healthcare finance reform.

The successful steps for budgetary consolidation and compliance with the budget rule deserve special emphasis. On the other hand, recent changes in the law relating to statutory pension insurance and statutory long-term care insurance have an adverse impact on the development of expenditure in those systems.

The demographic risk for public finances has been deferred significantly compared with the Third Sustainability Report, which was finalised in 2011. A central factor in this positive trend is the improved initial budgetary situation, which is attributable to the favourable performance of the overall economy by international standards and to the successful fiscal policies of recent years, after the surmounting of the financial and economic crisis of 2009/10. The balanced budgets of 2014 and 2015 – the first since 1969 to do without new borrowing – contributed significantly towards closing the sustainability gap.

In summary, demographic change results in substantial sustainability risks for public finances that continue to call for resolute action. Progress in narrowing the sustainability gaps in recent years shows that sustained budgetary consolidation and timely reforms of social security systems are worthwhile in terms of limiting the risks for future generations. The immigration of skilled labour that has already taken place is a significant factor in this more favourable outlook. To what extent the current wave of immigration in the form of people arriving as refugees will have an impact on the long-term sustainability of public finances is an open question for the time being. Current developments nonetheless give a striking demonstration of the importance of ensuring that fiscal policy is ready to meet present and future challenges.

Appendix:

Comparison of the Fiscal Sustainability Report with the EU Ageing Report 2015

The ECOFIN Council adopted the Ageing Report 2015 (referred to in the following as the 'Ageing Report') on 12 May 2015.¹⁹ Similar to this fiscal sustainability report (referred to in the following as the 'Sustainability Report'), the Ageing Report presents projections of public expenditure influenced by demographic trends for all EU-28 Member States up to the year 2060.

Comparison with the assumptions and projections underlying the Ageing Report brings out differences in coordinated EU-wide reporting and makes it possible to check the plausibility of the findings. The comparison focuses on the AWG reference scenario, which is the baseline in the EU projections, and on the two base variants in the Sustainability Report.

Comparison of demographic and macroeconomic assumptions

Demographics

The calculations in the Ageing Report are based on population projections by Eurostat (EUROPOP 2013). These use a convergence approach, in which specific countries (and country groups) are classified as forerunners in terms of fertility, mortality and migration, with other countries converging to the forerunners in the long term.

- For example, the fertility rate for France is taken as being desirable for all EU Member States. The resulting implicit increase in the total fertility rate for Germany (to 1.63 children per woman) is quite ambitious in a no-policy-change scenario and corresponds to the national T+ scenario.

- Similarly, net immigration is assumed to normalise exceptionally rapidly from its current high levels – including for net immigration from countries outside of the EU.
- Another problem is that the current surge in immigration is massively underestimated even in the nowcasting – the short-run forecast – with EUROPOP estimating net migration at 260,000 individuals in 2013 compared with an actual figure of 437,000.
- The strong convergence assumed by Eurostat for net migration results in substantial differences relative to the Federal Statistical Office figures (for the 2013 to 2020 period).

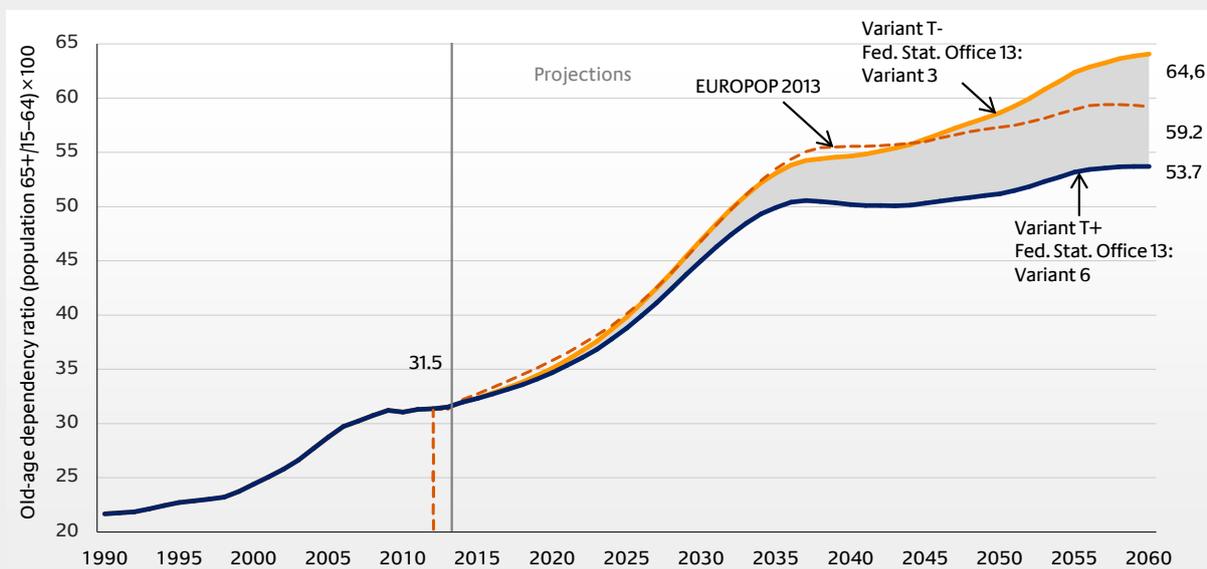
In consequence, the projections for the resident population are strongly at variance with those in the Sustainability Report. EuroPOP projects a decrease to a final figure of 70.8 million in 2060 (T–: 69.2 million; T+: 76.9 million). Even more significant for the analysis is the projected change in the old-age dependency ratio. In the main scenario in EUROPOP2013, this corresponds to variant T– over the entire period to 2035 (Fig. A1).

Labour market

Future labour force participation rates and the labour supply are determined in the Ageing Report using cohort-specific projections of current participation rates (cohort simulation model) based on similar starting data of the Federal Statistical Office. Nonetheless, the aggregate participation rates both at the current and the far end of the projection period are below the comparative figures in the Sustainability Report. For 2060, the Ageing Report projects a female participation rate for the 20–64 age group of 81.3% (Sustainability Report: T–: 87.2%; T+: 88.0%) and a male participation rate of 87.4% (T–: 89.8%; T+: 90.0%). The relative trend also differs, with a 6.7% increase for women from 2013 to 2060 (T–: 8.7%; T+: 8.1%)

¹⁹ Prepared by the Economic Policy Committee and the European Commission, *European Commission and Economic Policy Committee (2015)*.

Figure A1: Old-age dependency ratio (1990-2060) in Fiscal Sustainability Report base variants and EUROPOP 2013 in comparison



Source: Federal Statistical Office (2015); Eurostat (2014).

and a 0.6% increase for men of the same age (T-: 1.2%; T+: 1.4%).

One reason for the divergence is that the EU approach does not apply any corrections to the microcensus figures for labour force participation rates and the working population (40.6 million in 2013 in the Ageing Report versus 44.4 million in the Sustainability Report). There are also differences in the relative trend in participation rates and the labour supply. Finally, under the cohort simulation approach in the Ageing Report, participation rates are projected using average gender and age-specific entry and exit ages observed over the last ten years, with the result that different employment patterns between age cohorts are projected at a certain time lag. In the Sustainability Report, on the other hand, participation rates are projected using the averages over the last three years, meaning that recent trends show through more strongly in the projections. Large changes in participation rates for younger women (for example, in connection with childcare availability) and older workers (as an effect of the harmonisation of retirement ages under the statutory pension system since 2000)

alter the trend in labour force participation among women. Beyond that, the Ageing Report also assumes a not very plausible reduction in the already low participation rates in certain age segments (including the 15–19 age group). It is additionally assumed that the unemployment rate will continue falling in the medium term (to 4.7% by 2020) and will only settle down at a constant trend level of 5.4% (NAWRU anchor) from 2025.²⁰ In the Sustainability Report, the unemployment rate falls to 3.7% in 2019, before rising back up to 5.5% by 2030 in T- or falling further to 3.0% in T+. The working population is projected in the Ageing Report to decrease from 38.4 million today to 28.3 million in 2060, which is below the profile in the Sustainability Report projections. The relative decrease of approximately 26% corresponds to that in base variant T- (-25%), although not with the same trend over time.

²⁰ The Ageing Report does not show the differing level in registered unemployment, which is traditionally higher in Germany than the unemployment rate measured in accordance with international standards.

Macroeconomic trends

Both the Ageing Report and the Sustainability Report use a growth model on the basis of a neoclassical production function and essentially the same underlying data (the European Commission's AMECO database), although with substantial differences in implementation (see Table A1). For the medium term period from 2014 to 2023, the Ageing Report uses figures from the newly developed T+10 method, which is intended to ensure a seamless transition to structural long-term projections. The Sustainability Report uses figures from the federal government's current medium-term projections. This leads in the Sustainability Report to breaks in the trends for labour force participation rates and labour productivity in the years 2019/20.

A material factor in the long-term scenarios is assumed growth in total factor productivity. This is estimated at 1% p.a. in both the Ageing Report 2015 and the Sustainability Report, although the latter includes a symmetrical spread totalling 0.25 percentage points. Differences between the average qualification of all – and most of all older – workers and that of age cohorts entering the labour market are accounted for in the Sustainability Report by an efficiency index for the labour force. The Ageing Report also models investment differently. Whereas the national report assumes an explicit dynamic equation for capital stock at a constant depreciation rate and constant

gross investment ratio, (net) investment in the Ageing Report follows a capital rule under which the growth rate of the capital stock always tracks the growth rate in available labour plus the rate of labour-augmenting technical progress (steady state approach), generating equilibrium trends in all EU Member States. For Germany, that approach implies that the gross investment ratio would reach implausibly high levels and even increase substantially over the projection period, despite the impact of demographic ageing.

As a result, the growth scenarios display similarities with base variant T-. Stronger labour productivity growth in variant T- compared with the Ageing Report relates to the increase in the average qualification level of the working population.

The final factor relating to the macroeconomic context consists of the assumptions on (real) interest rates, where in both the Ageing Report and the Sustainability Report it is assumed that interest rates will return to an average of 3.0% p.a. after an adjustment period. While the sustainability indicators used in each case are not very sensitive to interest rate changes, they do react to a very long period of low interest rates as shown in this report. The assumptions concerning inflation are likewise very similar. The inflation rate is assumed to stay constant at 2.0% p.a. from 2018 in the Ageing Report, compared with 1.9% p.a. from 2017 in the Sustainability Report.

Table A1: Economic growth projection: Fiscal Sustainability Report vs. Ageing Report 2015

% of GDP	2013-20	2021-30	2031-40	2041-50	2051-60	2013-60
	Labour productivity growth rate					
AR 2015	1.3	1.6	1.5	1.5	1.5	1.5
Variant T -	1.3	1.9	1.8	1.6	1.6	1.7
Variant T +	1.2	1.9	2.0	1.8	1.9	1.8
	GDP growth rate					
AR 2015	1.2	0.9	0.8	1.0	0.9	1.0
Variant T -	1.6	1.1	0.9	0.9	0.7	1.0
Variant T +	1.6	1.8	1.5	1.6	1.5	1.6

Source: European Commission/Economic Policy Committee (2014); Werding (2016).

Trends in public expenditure

The Ageing Report shows public expenditures adding up to 23.9% of GDP in 2013 according to the corresponding projections, while the Sustainability Report arrives at similar values using comparable aggregation, despite variations in the components. The expenditure trends over time are also similar. Nonetheless, aggregate expenditure in base variant T- increases by 2060 by a greater amount overall (+7.95 percentage points) and in base variant T+ by a smaller amount (+3.5 percentage points) than in the current Ageing Report (+5.05 percentage points). This is plausible given the chosen approach featuring a spread across the two base variants (see table A2 for details).

Pensions

Data on statutory pension insurance and civil service pensions and benefits are combined in the Ageing Report to take account of the different pension systems in the Member States. Public pension projections are not fully comparable even for 2013 due to definition differences and material trend differences emerge mainly in the statutory pension system.²¹ The Ageing Report shows significantly larger increases than the Sustainability Report up to 2030 and significantly smaller increases subsequently. As a result, pension expenditure as a percentage of GDP only increases by about two percentage points of GDP between 2013 and 2060 in the Ageing Report, compared with 3.6 percentage points in variant T- and still some 2.5 percentage points in variant T+.²² This discrepancy is explained by differences in demographic assumptions (migration, fertility

and mortality) and in the assumptions on labour force participation, and by the repercussions for the trend in average pensions.

Healthcare

The expenditure projections in the Ageing Report 2015 are based on the System of Health Accounts (SHA), an international standard for the collation of (public and non-public) health expenditure. Per capita expenditure is projected in the Ageing Report in accordance with current gender-specific age profiles. For demographic trends, it is assumed that the profiles remain constant over time and healthcare expenditure can be extrapolated using annual per capita GDP growth rates. In line with the base variants in the Sustainability Report, no account is given to other potential influences on healthcare expenditure trends. The reference scenario in the Ageing Report assumes that healthcare expenditure is subject to a combination of countervailing effects (similar to the alternative variants in the Sustainability Report). On the one hand, 'decreasing morbidity' is assumed, resulting in per capita healthcare expenditure being spread out over time. On the other, it is assumed that medical progress will drive up healthcare costs (via the income elasticity of healthcare expenditure), with the net outcome that the favourable impacts slightly predominate from 2030 onwards. The influence of demographic trends on healthcare expenditure is brought out more clearly in the Sustainability Report than in the Ageing Report. The differences are more or less symmetrical over time. Due to study design considerations, the projected increase in health expenditure is larger in the Sustainability Report over the entire projection period than in the Ageing Report.

Long-term care

Similarities and differences in the projected trends for public long-term care expenditure can be explained by differences in expenditure definition and in the design of the variants. In the Ageing Report 2015 the definition of public expenditure on long-term care is complementary to that for healthcare. The projections in the Sustainability

²¹ Applying a proportionate correction factor to the pension expenditure in the Ageing Report would produce total pension expenditure of 13.0% of GDP for 2060. To the extent that the difference for 2013 relates to miners' pension insurance, a proportionate correction factor would be inappropriate as miners' pension insurance decreases substantially in importance over the projection period.

²² The different rates of increase from 2030 to 2060 are 1 percentage point, 2.6 percentage points and 2.0 percentage points respectively.

Report, on the other hand, largely replicate public long-term care expenditure in the various sectors of the social security system (statutory long-term care insurance, healthcare and long-term care insurance for civil servants and their families, and provision under Book XII of the Social Code). The pronounced upward trend in such expenditure projected due to demographic ageing over time is nonetheless comparable. The base case scenario for long-term care shows the closest similarity to the Sustainability Report projections. While the base case scenario assumes that the profiles for need of care retain a constant shape over time, the AWG reference scenario assumes that age-specific risks of needing care decrease with rising life expectancy. The Sustainability Report additionally takes into account that greater female labour force participation leads to an increasing proportion of people needing institutional rather than non-institutional care.

A shared feature of the projections is that public long-term care expenditure per case is extrapolated using the annual labour productivity and wage growth rate. This approach is justified in the Ageing Report by noting that “LTC [i.e., long-term care] is highly labour-intensive and productivity gains can be expected to be particularly slow in this sector.” In light of this, the Ageing Report further points out that public long-term care expenditure in Germany as a percentage of GDP remain more-or-less constant²³ if long-term care provision is extrapolated using the inflation rate.

Unemployment benefits

Unemployment benefits are traditionally classified in the Ageing Report as not ‘strictly age-related’,

but are projected nevertheless. In contrast to the Sustainability Report, the Ageing Report takes into account fewer unemployment benefits and makes different assumptions regarding unemployment. Despite this, relevant expenditure falls as a percentage of GDP in both reports up to 2020, whereas from 2020 to 2030 the GDP ratios diverge due to differences in the unemployment rate.

Education

As education statistics are largely standardised internationally, the Ageing Report and the Sustainability Report use the same starting data for public expenditure on education (including childcare). The projections differ mainly as a result of demographic assumptions, notably on birth rate trends and hence on future demand for education places and childcare provision. The trend in education expenditure in the Ageing Report consequently corresponds to variant T+, which assumes higher fertility rates.

In conclusion, it becomes evident that policy choices regarding the coherence of population trends, which can be identified in the Ageing Report, are problematic with a view to identifying sustainability gaps and highlighting fiscal risks.

Macroeconomic assumptions deviate between the basic assumption of convergence and purely national modelling. There are also problems with regard to achieving a seamless transition from short-term forecasts to long-term projections.

When it comes to projecting sectoral expenditure, taking account of national specifics has significant advantages over projections geared to international comparability in the EU context.

Nonetheless, in the final analysis, the basic demographic patterns show through in similar ways as age-related costs and sustainability risks in the EU Ageing Report and in this Sustainability Report.

²³ Public long-term care expenditure is projected in this case to increase between 2013 and 2060 from 1.4% to 1.5% of gross domestic product, *European Commission/Economic Policy Committee (2015)*, p. 154.

Table A2: Comparison of expenditure trends between the Fiscal Sustainability Report and the Ageing Report

	2013	2013-20	2021-30	2031-40	2041-50	2051-60	2060
Old-age pensionsung							
<i>AR 2015</i>	10.0	0.3	1.2	0.6	0.2	0.3	12.7
Statutory pensions	8.4	0.1	0.9	0.6	0.2	0.2	10.4
Civil service pensions	1.6	0.2	0.3	0.1	0.0	0.1	2.3
<i>Variant T-</i>	10.2	0.4	1.0	1.1	0.9	1.0	14.7
Statutory pensions	8.6	0.2	0.7	1.0	0.8	0.7	12.2
Civil service pensions	1.6	0.2	0.3	0.2	0.1	0.3	2.7
<i>Variant T+</i>	10.2	0.2	0.5	0.9	0.6	0.6	13.0
Statutory pensions	8.6	0.1	0.4	0.9	0.6	0.5	11.1
Civil service pensions	1.6	0.1	0.2	0.1	-0.1	0.1	2.0
Healthcare							
AR reference	7.6	0.3	0.2	0.2	0.1	-0.2	8.2
AR demographic	7.6	0.3	0.2	0.3	0.1	-0.1	8.4
<i>Variant T-^a</i>	7.5	0.5	0.3	0.4	0.1	0.0	8.8
<i>Variant T+^a</i>	7.5	0.5	0.2	0.2	-0.1	-0.1	7.5
Long-term care							
<i>AR reference</i>	1.4	0.3	0.3	0.3	0.5	0.1	2.9
<i>AR base case</i>	1.4	0.3	0.3	0.4	0.5	0.1	3.0
<i>Variant T-</i>	0.9	0.2	0.3	0.4	0.5	0.3	2.6
<i>Variant T+</i>	0.9	0.2	0.2	0.3	0.3	0.1	2.0
Unemployment							
<i>AR 2015</i>	0.8	-0.1	0.1	0.0	0.0	0.0	0.8
<i>Variant T-</i>	0.8	-0.1	0.3	0.0	0.0	0.0	0.9
<i>Variant T+</i>	0.8	-0.1	-0.2	0.0	0.0	0.0	0.5
Education							
<i>AR 2015</i>	4.1	-0.3	0.2	0.2	0.0	0.2	4.4
<i>Variant T-</i>	4.1	-0.1	0.1	0.0	-0.1	0.1	4.2
<i>Variant T+</i>	4.1	0.0	0.2	0.1	-0.1	0.1	4.4
Aggregate expenditure							
<i>AR 2015</i>	23.9	0.5	2.1	1.3	0.9	0.3	29.0
<i>Variant T-^a</i>	23.9	1.0	2.2	1.9	1.4	1.5	31.8
<i>Variant T+^a</i>	23.9	0.7	0.8	1.5	0.7	0.6	27.5
<i>Variant T-</i>	25.8	0.6	2.3	1.7	1.1	1.3	32.7
<i>Variant T+</i>	25.8	0.3	0.5	1.4	0.5	0.6	29.1

^a) Expenditure ratios and trends using similar definitions to the Ageing Report 2015, % of GDP.

Sources: European Commission/Economic Policy Committee (2015); Werding (2016).

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