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SUMMARY

Assessment of Long-Term Fiscal Sustainability

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Purpose of this report

In application of the tasks conferred to it under the 12 July 2014 law on the coordination and governance of public finances (12 July 2014 law), the National Council of Public Finance (CNFP) presents in this document its assessment of the long-term sustainability of public finances in the face of a projected increase in age-related expenditures (e.g. pensions, health care, long-term care). The issues addressed in this report are structural by nature. Through the issues it raises, the report is directed to all political actors and the civil society in a broad sense.

Short, medium and long-term

In this report, the short-term refers to the current situation (2017-18), the medium-term refers to the situation up to 2030 and the long-term extends to 2060 and beyond. The definitions of medium and long-term are those used by the European Commission (EC). As its title indicates, the principal purpose of this report is to analyse the long-term sustainability of public finances; however, the short and medium-term aspects are addressed as well. As we shall see, the conclusions drawn on the sustainability of public finances depend on the timeframe under consideration.

What does long-term sustainability mean with regard to public finances?

The standard definition of long-term fiscal sustainability in the macroeconomic literature may be summarized as follows: <u>public finances are considered sustainable if the government is able to finance the public debt in addition to all of its future expenditures – including age-related expenditures – with future revenues over the long term without any changes in fiscal policy,</u> i.e., without having to resort to increasing taxes or reducing expenditures as a percentage of GDP. This report is based on that definition. More specifically, the report makes the assumption of constant legislation, i.e., the laws and regulations currently in place are expected to prevail throughout the entire forecast period. Accordingly, any mechanisms foreseen in the current legislation that have an impact in the future are taken into account. In particular, with regard to the public pension system, the impact of the 2012 reform, specifically the changes in pension formula parameters and the revision of the moderating adjustment coefficient in the event of a deficit in the scheme, have been taken into account in the analysis.

How is the long-term sustainability of public finances to be measured?

The report is based on several indicators that provide complementary information. In the first place, the report examines the evolution of gross public debt as a percentage of GDP at constant budgetary policy. In particular, a debt-to-GDP ratio that does not stabilise in the long run assuming unchanged fiscal policy is an indication that additional measures are required, meaning that the current policy is not sustainable over the long term.

Based on the premise that the government's intertemporal budget constraint should be satisfied, the report then analyses two standard sustainability indicators, which are also used by the EC.

- The S2 indicator is a measure of the fiscal effort required on a permanent basis to get public finances on a sustainable track in the long term, i.e., a situation where the debt-to-GDP ratio is stable in the long run. In other words, the S2 indicator shows the adjustment in the current budget balance (or more precisely, the structural primary balance, "SPB" [1]) required each year (from the initial year 2018 to infinity) to stabilise the debt-to-GDP ratio over an infinite horizon. The idea is to spread the required fiscal effort equally over all years and consequently over all generations, current and future.

- An equivalent method for evaluating the state of public finances over the long term is to calculate the discounted present value of the implicit public debt (as of 2018) assuming unchanged fiscal policy, i.e., in the absence of the additional fiscal efforts described in the previous point. This is the purpose of the Intertemporal Net Worth ("INW") indicator.

It is important to note that the S2 and INW indicators are two equivalent ways of summarizing the situation: S2 indicates the adjustment required to stabilise the debt-to-GDP ratio over the long term, while INW measures the discounted present value of public debt in the absence of these adjustments.

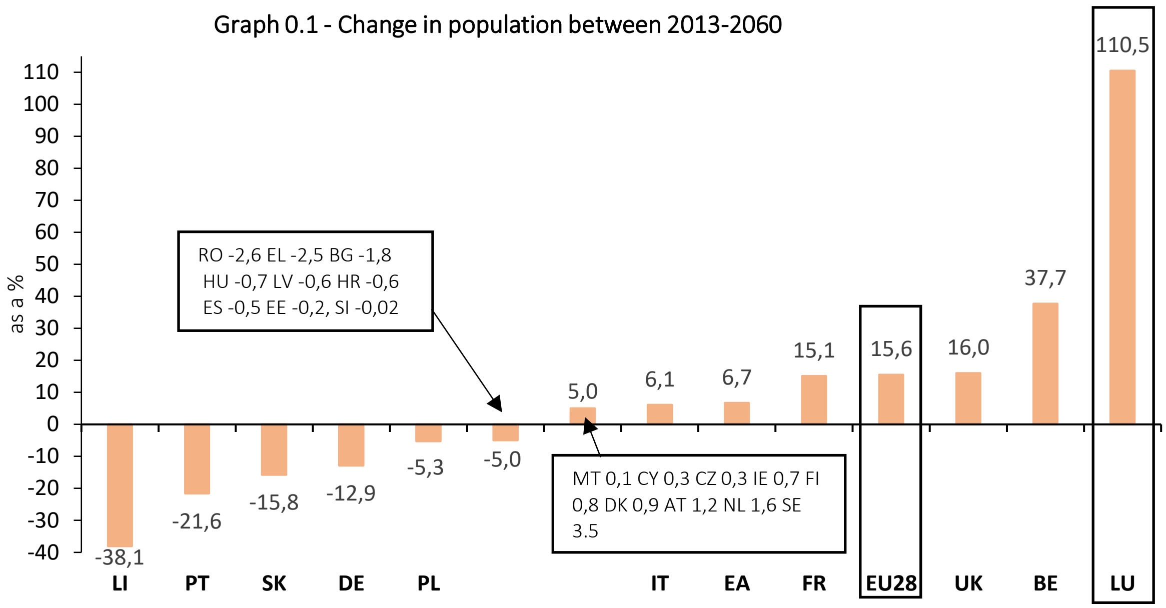
After an analysis of the S2 and INW indicators, the report moves to an analysis of the medium-term budgetary objective ("MTO"). The minimum MTO calculated by the EC is set at a level intended to provide financing for one third of the future increase in age-related expenditures (pensions, health care, long-term care, education expenditures and unemployment benefits). The minimum MTO is also based on the assumption of a convergence of the debt-to-GDP ratio to a level of 60% by 2060. These two elements constitute the key differences between the MTO on the one hand and the S2 and INW indicators on the other.

Assumptions used in the central scenario

The central scenario used in this report is based on the demographic, economic and financial assumptions currently used by the public authorities. Using these assumptions results in long-term forecasts that will not materialize "precisely" as envisioned. Both upward and downward revisions could occur. An example with particular relevance for the analysis in this report is the demographic forecast currently used by the authorities and adopted in the central scenario of this report. This demographic forecast is based on a significant growth of the population and projects 1.14 million inhabitants by 2060. Demographic growth of this magnitude would be very significant in international comparison. This is illustrated in the chart below which shows population assumptions for 2060 used by the EC for the various member states. As shown, while the average population growth forecasts between 2013 and 2060 is 15.6% for the entire EU, Luxembourg's growth rate appears at 110.5%, meaning that the population would more than double over that period.

[1] **Definition of Structural Primary Balance ("SPB"):** Nominal balance of the general government, i.e., the difference between public revenues and expenditures, corrected for the impact of the economic cycle and any exceptional measures, as well as public expenditures for interest payments on public debt.

Graph 0.1 - Change in population between 2013-2060



<u>Source:</u> European Commission, AR 2015.

It should be noted that the latest EUROSTAT demographic projection for Luxembourg, published in February 2017 and titled EUROPOP 2015, assumes a population of 992,924 inhabitants in 2060. As population growth in this new demographic projection is less strong, age-related expenditures should consequently be revised upward compared to current assumptions. In order to analyse the sensitivity of the result to the assumptions made, the report examines several alternative scenarios that modify the assumptions used in the central scenario. In particular, it includes an alternative scenario that assumes lower employment growth, in line with the new EUROSTAT demographic projections.

Short-term findings (2017-18, central scenario)

It is useful to examine the government's current financial situation before dealing with the subject of medium and long-term sustainability. Public debt, estimated at 22.3% of GDP in 2018, remains beneath the threshold of 30% set by the current government, and is well below the European threshold of 60%. In addition, the general government holds significant financial assets. The pension reserves in the *Fonds de compensation* alone represent assets equivalent to 32.9% of GDP. In any event, the value of public assets currently exceeds the amount of public debt.

Medium-term findings (up to 2030, central scenario)

In order to analyse the sustainability of public finances up to 2030, the report uses the medium-term sustainability indicator of the EC, known as S1. The indicator represents the lasting minimum adjustment to the budget balance, or more precisely to the structural primary balance ("SPB"), stated as a percentage of GDP, that is necessary to achieve cumulatively over five years between 2019 and 2023 in order to bring the debt-to-GDP ratio to 60% in 2030.

It should be stated that the difference between the two indicators, S1 and S2, may be explained by the time period used (2030 for S1 and infinity for S2), and by the objective to be achieved regarding specific debt-to-GDP level of 60% for S1, contrasting with the S2 indicator's objective of stabilising the debt-to-GDP ratio over the long term.

The CNFP's calculations show that indicator S1 is at -3.6 percentage points of GDP for the period 2019-2023. In other words, if the objective is not to exceed a debt-to-GDP level of 60% in 2030, the SPB may move from a forecasted surplus of +0.4% of GDP in the benchmark year of 2018 to a deficit of -3.2% of GDP in 2023. In this rather narrow time frame, the country is confronted with a low risk to the sustainability of public finances in 2030 according to EC criteria.

Having noted that the 60% debt-to-GDP ratio for the medium-term is probably less appropriate for Luxembourg, whose economy is subject to volatility and whose current debt-to-GDP ratio stands only at around 22% of GDP, the CNFP also calculated S1 indicator values for more ambitious public debt objectives at the 2030 horizon. In particular, if the objective is not to exceed the threshold of 30% of GDP, the S1 indicator moves from -3.6% to -0.5% percentage points of GDP. According to EC criteria, this still presents a low risk level, but the figure is close to a medium risk level.

In conclusion, in the central scenario, Luxembourg currently faces a low risk to the sustainability of public finances in the medium term.

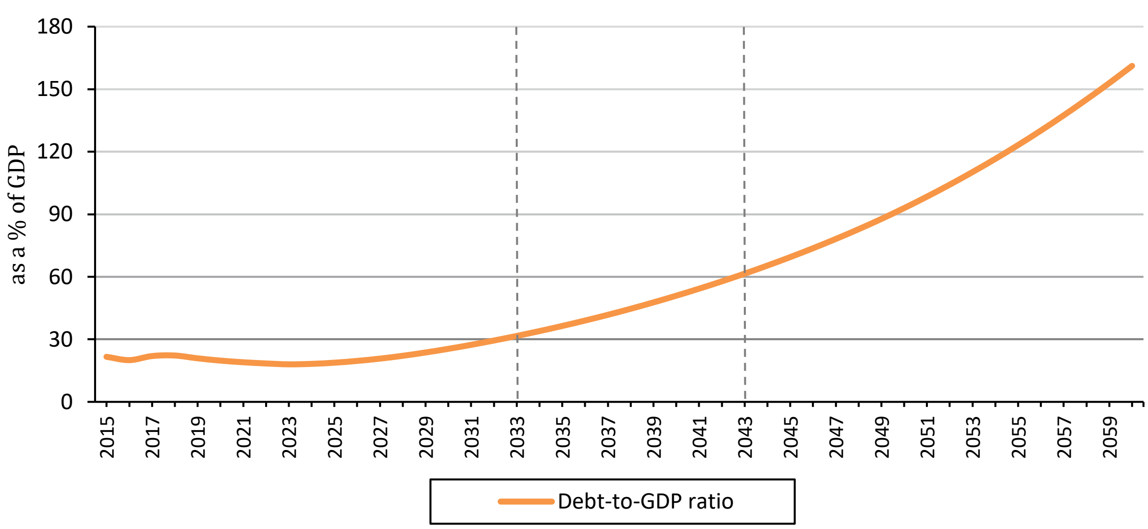
Long-term findings (up to 2060 and beyond, central scenario)

Challenges arise in the long term, primarily due to future age-related expenditures. According to updated forecasts of the *Inspection générale de la sécurité sociale ("IGSS")*, these expenditures will rise from 19.2% of GDP in 2018 to 25.9% of GDP in 2060, increasing by one third or 6.7 percentage points. The long-term challenges may be assessed in several ways.

Change in the debt-to-GDP ratio

The report first studies the change in the debt-to-GDP ratio assuming constant fiscal policy. In the central scenario, the debt-to-GDP ratio would exceed the 30% threshold starting in 2033. The 60% threshold, a criterion that the Member States of the EC must adhere to, would be exceeded starting in 2043. Subsequently, the debt-to-GDP ratio would increase significantly, reaching 161% by 2060. Based on the criterion of changes to the debt-to-GDP ratio and under the assumption of an unchanged fiscal policy, Luxembourg is accordingly facing a clear risk regarding the long-term sustainability of its public finances.

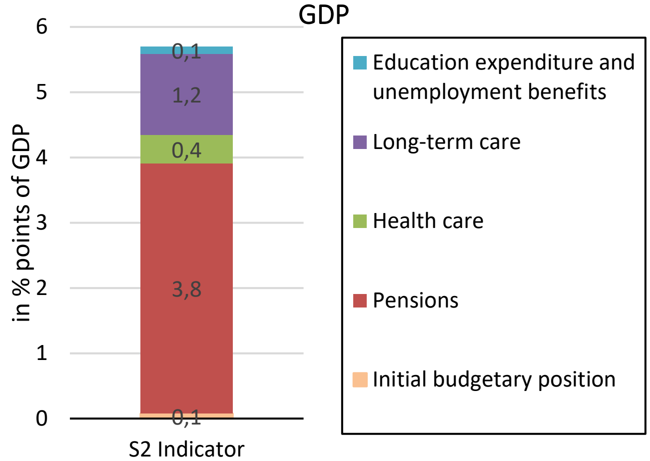
Graph 0.2 – Central scenario – Change in the debt-to-GDP ratio



S2 and INW indicators

The S2 long-term sustainability indicator determines the fiscal effort (more precisely the permanent adjustment to the current SPB) required to stabilise the debt-to-GDP ratio in the long term. According to CNFP calculations, the S2 indicator is at +5.7 percentage points of GDP. According to EC criteria, Luxembourg thus faces a medium risk to long-term sustainability of public finances, though the value is close to the 6% threshold beyond which the risk would be considered high.

Graph 0.3 – Central scenario - the S2 Indicator and its components, in % points of GDP



According to graph 0.3, the required adjustment to the SPB is almost entirely due to future age-related expenditures (they contribute +5.6 % points to S2, of which 3.8% represents pension expenditures, 1.2% represents long-term care expenditures and 0.4% health care expenditures). In contrast, the initial fiscal position has a negligible impact of 0.1%.

As the structural primary balance for the benchmark year of 2018 amounts to 0.4% of GDP, total SPB needed to stabilise the debt-to-GDP ratio in the long term would amount to 6.1% of GDP. This is calculated by adding the SPB for the benchmark year of 2018, 0.4% of GDP, to the S2 indicator, which is 5.7 % points of GDP.

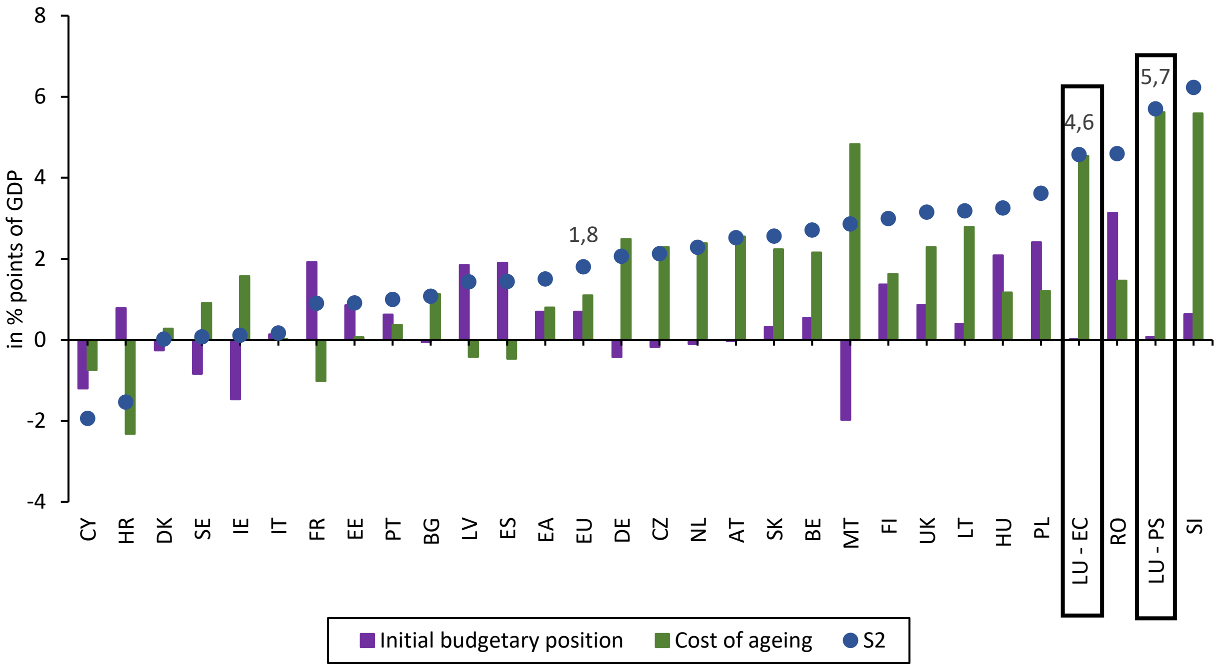
The CNFP notes that the S2 indicator provides no guide on how budgetary adjustments, i.e. adjustments to the SPB, should take place. In principle, the required adjustment can be done through various channels: via structural reforms aimed at reducing age-related expenditures, via a reduction of public expenditure other than related to the ageing of the population and/or via an increase in public revenues. In the latter case, revenues may be raised either by higher direct and/or indirect taxation or by increasing social contributions.

While the S2 indicator quantifies the SPB adjustment required to satisfy the intertemporal budget constraint over the infinite horizon, the INW indicator reflects the discounted value of net assets/liabilities of the general government in the case of an unchanged fiscal policy. In other words, the INW indicator can be interpreted as a measure of government's net financial wealth by assuming unchanged policies and including projected future liabilities due to ageing. Accordingly, the INW indicator for the general government is negative if current policies do not produce sufficient revenues to finance increases in projected public expenditures, due for instance to the fact that the ageing of the population results in significant increases in public expenditure in the future. Under such circumstances, the general government has net liabilities and the intertemporal budget constraint is not satisfied. According to CNFP calculations, the intertemporal net worth of Luxembourg amounts to -880% of GDP in the central scenario.

European comparison

Compared to the other European countries, Luxembourg's S2 indicator is among the highest: 4.6, according to EC calculations, and 5.7 in the central CNFP scenario, which is based on more recent figures[2]. Only two other countries, Rumania and Slovenia, face a risk as high as Luxembourg to the long-term sustainability of their public finances.

Graph 0.4 – European comparison of S2 indicators



Sources: European Commission, CNFP calculations

[2] The central scenario uses updated IGSS pension projections.

In terms of "Intertemporal Net Worth" ("INW"), Luxembourg is the Member State with the highest risk within the EU; this is true whether one looks at the EC (-763% of GDP) or the updated CNFP (-880% of GDP) calculations.

Table 0. 1 – European Comparison of INW indicators

	S2 (in % points of GDP)	INW (% of GDP)
LU-PS (2017)	5.7	-880
LU-EC	4.3	-763
IE	0.5	-626
SI	6.5	-489
BE	3.1	-372
MT	4	-356
UK	3	-352
CZ	2.9	-268
RO	3.7	-256
LT	3.4	-237
NL	3.1	-234
PL	3.8	-219
ES	1.9	-214
FI	3.2	-177
EU	1.8	-167
AT	2.4	-159
HU	2.7	-155
SK	2.4	-143
EA	1.5	-126
DE	2	-97
BG	1.4	-77
SE	1	-76
LV	0.8	-53
DK	0.9	-45
FR	0.7	-35
PT	1.3	-34
IT	0.5	-11
EE	0.2	33
CY	-0.7	141
HR	-1.5	149

Sources: European Commission, "Debt sustainability monitor 2016", 2017; CNFP calculations.

In summary, the analysis shows that according to the S2 indicator, Luxembourg faces a medium risk, bordering the threshold to high risk. In comparison with the other EU Member States, this risk is one of the highest. In addition, from the perspective of the INW indicator, Luxembourg is in the most unfavourable position amongst the 28 EU members.

Minimum MTO and reconciliation with previous results

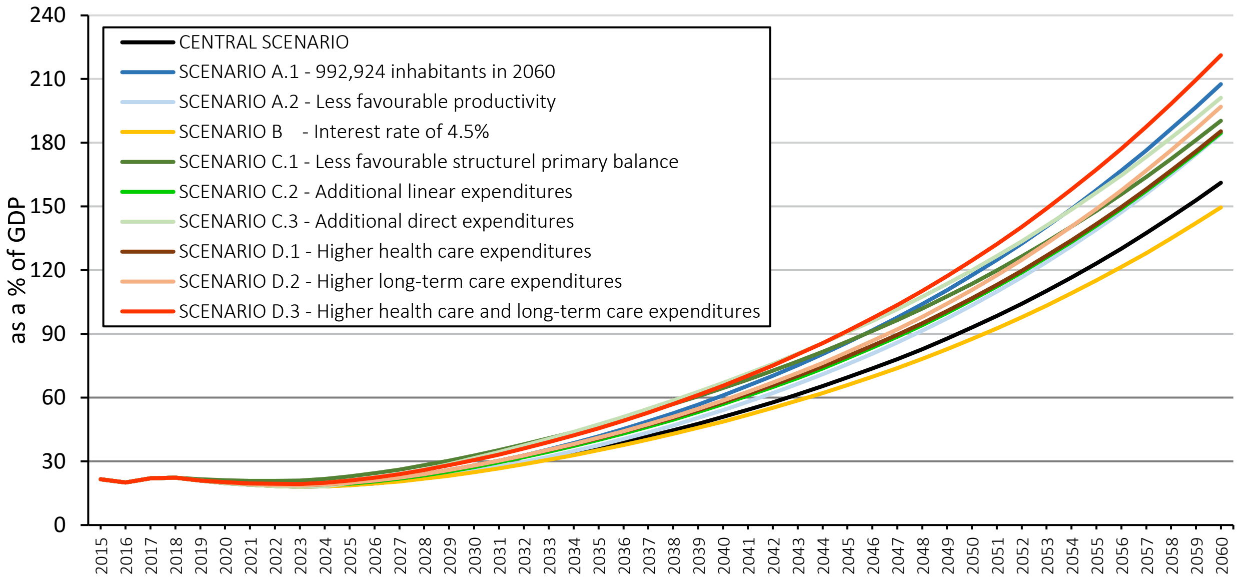
The concept of "Medium-Term Budgetary Objective" is the cornerstone of the provisions to which the national budget policy must adhere. The minimum MTO calculated for each Member State by the EC is based on the assumption of a budget balance that seeks to stabilise public debt at 60% of GDP, as well as on the financing of one third of future increases in age-related expenditures. In application of the principles established at the European level, we end up with a minimum MTO of -0.5% of GDP for Luxembourg. This corresponds to the MTO adopted by the government for the period 2017 to 2019. However, if the objective is to maintain the debt-to-GDP ratio beneath 30% in the long term, the minimum MTO should be set at +0.25% of GDP in the central scenario.

Despite the medium level of risk that borders on high risk as identified by the S2 indicator, the minimum MTO is accordingly set at a relatively moderate level. This is explained particularly by the fact that the minimum MTO seeks to ensure the financing of only one third of future increases in age-related expenditures while the S2 and INW indicators aim at financing all of these expenditures. By adapting the minimum MTO calculation formula to provide financing for the entire increases in future age-related expenditures, the minimum MTO would be at +2.5% of GDP (in the case of an objective of maintaining public debt beneath 60% of GDP in the long term), or even at +4.00% of GDP(in the case of an objective of maintaining public debt beneath 30% of GDP in the long term).

Alternative scenarios

In order to analyse the sensitivity of the result to the assumptions made, the CNFP report examines nine alternative scenarios. These scenarios are generally based on less favourable assumptions than the central scenario. In interpreting these results, it is important to note that scenarios that are more favourable could also occur.

Graph 0.5- – Scenarios – Change in the debt-to-GDP ratio



While the central scenario showed a debt-to-GDP ratio of 161% of GDP in 2060, the alternative scenarios produce ratios between 150% and 221% of GDP.

The impact on the S2 indicator is summarised in the table below.

Table 0.2 – Scenarios – Long-term sustainability indicator

	S2 – long-term (in % points of GDP)
Central scenario	5,7
Scenario A.1 – 992,9245 inhabitants in 2060	6,8
Scenario A.2 – Less favourable productivity	5,7
Scenario B – Nominal interest rate of 4.5%	6,1
Scenario C.1 – Less favourable structural primary balance	6,3
Scenario C.2 – Additional linear expenditures	6,5
Scenario C.3 – Additional direct expenditures	6,7
Scenario D.1 – Higher health care expenditures	6,5
Scenario D.2 – Higher long-term care expenditures	7,2
Scenario D.3 – Higher health care and long-term care expenditures	8,1

While Luxembourg is exposed to a medium risk – bordering on a high risk – to the long-term sustainability of public finances in the central scenario, the country is facing a high risk in eight out of nine alternative scenarios. Indeed, the S2 long-term sustainability indicator is above the critical threshold of 6% of GDP, ranging between 6.1 and 8.1 % points of GDP, in all alternative scenarios except for scenario A.2.

Nonetheless, even in the most unfavourable scenario, the minimum required MTO is only at -0.25% of GDP. Adapting the MTO calculation formula for an objective of maintaining public debt beneath 30% of GDP – instead of the 60% assumed by the EC – the minimum MTO would be between +0.25% and +1.00% of GDP depending on the alternative scenario used, a far more ambitious level than the -0.5% set by the EC. Adapting the minimum MTO calculation formula to provide financing for the entire future increase in the costs of ageing, the MTO would be between +2.75% and +5.00% of GDP depending on the scenario used (in the case of an objective of maintaining public debt beneath 60% of GDP in the long term), or even between +4.00 and +6.50% of GDP (in the case of an objective of maintaining public debt beneath 30% of GDP in the long term).

Conclusion

In conclusion, the assessment highlights the magnitude of long-term challenges for the public finances of our country. In interpreting results, one must not lose sight of the fact that the forecasts are based on significantly stronger demographic growth than in all other European countries. Even under this assumption of strong growth, the S2 and INW indicators clearly show that major adjustments to the social security system will be necessary *in fine*. If we delay these adjustments, their costs are shifted (and all the higher) to future generations. While the challenges are of a long term nature, intergenerational fairness considerations therefore require that measures be implemented in the short and medium term.

For this reason, in accordance with its missions, the CNFP recommends that the MTO to be set under EC regulation 1466/97 in April 2019 for the years 2020 to 2022 be fixed within a range of +0.25 to +1.00% of GDP, with the precise level to be set closer to the date on the basis of economic and budgetary developments in 2017 and 2018. Such a level should be adequate for adhering to the 30% ceiling of the debt-to-GDP, while providing financing for one third of the future increase in the costs of ageing. As two-thirds of these costs would remain to be financed, political choices will obviously be necessary beyond the setting of the MTO.