

Fiscal Sustainability Report 2022

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Preface

According to the National Institute of Economic Research's (NIER) directive in Act (2007:759), the authority shall carry out long-term projections of public finances and assess the long-term sustainability of public finances. NIER publishes, in the light of the assignment, annually a report on the sustainability of public finances.

This is an English translation of the summary, introduction and the first chapter with the baseline scenario from the full report.

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Summary

Although the pandemic has placed a substantial burden on public finances in the short term, the NIER considers Sweden's public finances to be long-term sustainable. Current tax rules are sufficient to fund a growing need for welfare services as the population ages. We believe there is scope to cut taxes or increase expenditure and still meet the surplus target. Even if this is replaced with a balanced-budget target at the next review, Maastricht debt does not exceed the debt anchor. Our analysis is based on a number of assumptions, including that the population's health improves as life expectancy increases, and so more people choose to work to a later age. Public finances are also considered sustainable in the alternative scenarios presented. Our analysis does show, however, that the assumption of improved health is crucial to sustainability in the longer term. Compared with previous years' calculations, a more favourable demographic outlook and a better starting position contribute to stronger public finances than in this year's report.

The NIER's Fiscal Sustainability Report finds that, with an unchanged public sector commitment to welfare and current tax rules, no lasting imbalances arise between revenue and expenditure that are considered unsustainable. In our baseline scenario, net lending is positive at around 1 per cent of GDP, and Maastricht debt drops well below the current level of the debt anchor.

Public finances are also considered sustainable in the alternative scenarios presented in this year's report. For example, an unchanged commitment to welfare means that the share of workers employed in the public sector will need to rise, which could put upward pressure on public sector wages. Since relatively more women than men are employed in the public sector, this could also be driven by an ambition to reduce the gender pay gap. The report shows that continued growth in relative wages in the local government sector at the rate seen over the past 15 years or so would not mean that public finances become unsustainable, at least not in the period through to 2050.

This year's report also looks at the consequences for public finances of different targets for net lending. The report finds that it is possible to meet the current surplus target in the baseline scenario and have an unchanged commitment to welfare without raising taxes. With net lending in line with the surplus target, Maastricht debt is stable at just under 30 per cent of GDP. If instead the surplus target is replaced with a balancedbudget target at the next review, Maastricht debt climbs to almost 35 per cent of GDP and is thus in line with the debt anchor. With a balanced-budget target, however, the government's net financial position is somewhat weaker in 2050 that it is at present.

Although the NIER considers public finances as a whole to be sustainable, the report finds that there is a need for a redistribution of resources between central and local government so that the latter can meet the requirement of sound financial management. Demographic developments contribute primarily to higher spending on health and elderly care in the local government sector. Our analysis shows that the assumption of an unchanged commitment to welfare and an unchanged local government tax rate requires central government grants to local government to grow slightly more quickly than GDP to ensure sound financial management in the local government sector.

Public finances are stronger than in previous sustainability reports. Compared to last year's report, this is due partly to the starting point for the calculations and partly to a more favourable demographic outlook. However, the results are uncertain and are affected by the assumptions made in the scenarios.

Introduction

The Swedish government has tasked the National Institute of Economic Research (NIER) with producing long-term projections of public finances and assessing their long-term sustainability. As part of this, we publish an annual report which aims partly to show the stresses public finances will face as a result of demographic developments in the coming decades. The fundamental question is whether current tax levels are sufficient to fund an unchanged demographically determined need for welfare services (in the form of health care, education and elderly care), transfer payments and investment, despite the population living ever longer.

Sustainability is assessed with the aim of identifying potential imbalances at an early stage so that fiscal policy can be adjusted before problems arise. Should long-term imbalances arise between government revenue and expenditure, there is a risk that government debt will increase to the extent that it cannot be serviced. Making adjustments today to prevent future problems with imbalances can thus be justified by the concept of intergenerational equity.

There are various ways of defining sustainable public finances. Based on the calculations presented in the report, the NIER has reached an overall assessment of sustainability based on the government's net financial position (financial assets less financial liabilities) and consolidated gross debt, or Maastricht debt. By our definition, public finances are sustainable if the government's net financial position as a share of GDP does not trend down, *and* Maastricht debt as a share of GDP does not trend up, provided that the former is not considered excessively low and the latter not excessively high in the first place.

A period of gradual decline in the net position could lead to it eventually stabilising at a new lower level, for example as a result of demographic imbalances evening out over time. What level is sufficient to be considered sustainable is a matter of judgement. In a nutshell, we analyse fiscal sustainability on the basis of whether current tax levels are sufficient to fund an unchanged public sector commitment to welfare, and gross debt and the net position still stabilise at acceptable levels in the long term.

In our sustainability calculations, we assume that the public sector maintains its current level of commitment to welfare services, transfer payments and investment. Expenditure is therefore determined largely by demographic developments. Revenue is calculated on the basis of current tax rules with unchanged tax

The fiscal policy framework

Sweden's fiscal policy framework has four pillars. Since 2019, the surplus target has been defined as general government net lending of one-third of a percent of GDP on average over a business cycle. There is also a debt anchor for Maastricht debt, with a benchmark level of 35 per cent of GDP. If Maastricht debt strays more than 5 percentage points from this level, the government is required to submit an explanation to the Riksdag. The government must also propose to the Riksdag an expenditure ceiling for central government and the old-age pension system three years ahead. This decision clarifies what the limits will be for spending, which is intended to make it easier to meet the surplus target. Finally, there is a *balanced-budget requirement*, which means that municipalities and regions must plan their budgets in such a way that revenue does not exceed expenditure. This is the minimum acceptable standard of financial performance. Municipalities and regions must also exercise sound financial management.

rates, and is thus determined by general economic performance and the composition of the tax bases.

In our calculations, government net lending is a product of how revenue and expenditure move over time, given the principles underlying the projections. Net lending in turn impacts on debt, which affects net capital income and thus net lending the following year. Since the whole point of the projections is to identify imbalances, the underlying calculations do not make any adjustments to net lending to comply with the fiscal policy framework (see box "Sweden's fiscal policy framework"). The scenarios thus also show the spending cuts or tax increases that might be needed in order not to breach this framework.

Sweden's fiscal policy framework enjoys broad political support. In reality, it places a restriction on public finances even in the short and medium term. The framework includes a surplus target and a debt anchor. As a member of the EU, Sweden must comply with the provisions of the Stability and Growth Pact. This means, among other things, that Maastricht debt must not exceed 60 per cent of GDP. In practice, the fiscal policy framework and the EU's rules are pivotal in ensuring that public finances do not become unsustainable. However, both sets of rules permit substantial deficits in individual years.

When we take account of the fiscal policy framework in our calculations, imbalances may arise, for example in the form of changes on the tax side that need to be made to maintain the public sector commitment to welfare on the expenditure side while complying with the fiscal policy framework. However, it is a political matter whether imbalances should be corrected through higher taxes, a reduced commitment to welfare or a reduction in other government expenditure.

The fiscal sustainability calculations in the report are based on very long-term assumptions and judgements, including about macroeconomic and demographic developments. These assumptions are associated with considerable uncertainty. To illustrate the impact that some of these assumptions have on the results, the report presents four alternative scenarios with one key assumption changed in each. The scenarios are calculated in the absence of cyclical variations. If the business cycle is asymmetrical, for example with the economy spending more time below rather than above full capacity, as has been the historical pattern, developments in reality may be less favourable than presented here.

Chapters 1 and 2 of the report present public finances in the baseline scenario and the alternative scenarios. Chapter 3 includes the surplus target in the calculations and also considers the effects of introducing a balanced-budget target instead from 2027. Chapter 4 looks in greater depth at debt and net financial position in the three subsectors: central government, local government and the old-age pension system. It shows how transfers between the different subsectors (in the form of central government grants and pension assets) impact on the analysis of sustainability at subsector level in the baseline scenario.

The report also includes a special analysis examining how tax revenue is affected by increased life expectancy. In a general equilibrium model modelling behavioural changes in individuals, we compare developments in two scenarios where individuals either work longer as life expectancy increases, or retire at a given age. This change in behaviour is an effect that cannot be included in the report's scenarios, and so the model analysis complements the picture of how an ageing population affects public finances.

Fiscal sustainability in the baseline scenario

The baseline scenario shows that current tax levels are sufficient to fund an unchanged demographically determined need for welfare services (in the form of health care, education and elderly care), transfer payments and investment, despite the population living ever longer. Although the pandemic has been a substantial burden on public finances in the short term, we consider public finances to be long-term sustainable. In the baseline scenario, net lending is positive at around 1 per cent of GDP, and Maastricht debt drops well below the current level of the debt anchor.

The baseline scenario presents a path for government revenue and expenditure based on a number of macroeconomic, demographic and fiscal assumptions and judgements. The assumptions in the baseline scenario reflect what are considered to be the most likely movements in key variables. Many of these assumptions are very uncertain. The main assumptions on which the calculations are based are presented below in the box "Key assumptions" and in more detail in the report.

Demographic developments

Demographic developments and the age composition of the population are very important for public finances. Health care, education and elderly care are funded with taxes. The need for welfare services is greatest among children and the elderly. If the age composition of the population changes, such that the share of people in the population with a greater need for welfare services increases, the need for funding will also increase.

The scenario is based on the demographic developments presented in Statistics Sweden's April 2021 population forecast.¹ The Swedish population grows at a steady but slower rate over the next 30 years compared to the past 15 years (see diagram 1). This population growth is a result of both a birth surplus and net immigration in various age ups. Immigration helps prop up the share of the population who are of working age.

There are currently relatively large cohorts aged between 45 and 60 and in their 70s who are already or will be classified as elderly at some point in the next 30 years (see diagram 2). When this happens, the total need for health and elderly care will

Diagram 1 The population of Sweden Millions and annual percentage change







Source: Statistics Sweden

¹ See Statistics Sweden (2021).

increase. In addition, average life expectancy is expected to continue to rise. Life expectancy at the age of 65 has increased fairly steadily in recent decades and is expected to rise at around the same rate over the next 30 years (see diagram 3). This also contributes to the increase in the share of the population aged 80 and over through to 2050 (see diagram 4).

RETIREMENT AGE TO RISE WITH LIFE EXPECTANCY AS PER HISTORICAL PATTERN

The age at which people exit the labour market has not kept up with the increase in life expectancy seen over the past 40 years. The average retirement age was more or less constant in the 1980s and 1990s despite a substantial increase in life expectancy, but has risen at around the same rate as life expectancy over the past 20 years (see diagram 3). If the retirement age does not keep up with life expectancy, this has a number of consequences. Besides the pension a person receives then being smaller, as it needs to be spread across more years, it becomes harder and harder for the working-age population to fund welfare services. This is illustrated by the rising demographic dependency ratio, which is the number of elderly and young in the population relative to the number of people aged 20-64 (see diagram 5). In other words, it shows how many people each person of working age needs to provide for besides themselves.2 The total demographic dependency ratio increases over the next 30 years, but somewhat more slowly than over the past 15 years as the large cohorts born in the 1940s have exited the labour force. The child dependency ratio has also increased in that period. The slower expected rise in the total demographic dependency ratio is a result of the child dependency ratio falling somewhat through to 2040, while the old-age dependency ratio increases fairly steadily.

Two key assumptions in the scenario are that the elderly gradually become healthier as life expectancy increases, and that they therefore remain in the labour force longer and end their working lives at a later age. It is important to stress that the latter assumption in particular is uncertain, because the choice of retirement age is highly individual and driven by many different factors that policy may struggle to influence.³ The assumption we make is that all over the age of 60 gradually extend their participation in the labour force to the same extent that average life expectancy increases, corresponding to a total of three years by Diagram 3 Life expectency and average retirement age from working life Year



Note. See Swedish Pensions Agency (2020) for a definition of the retirement age. Source: Statistics Sweden, Swedish Pensions Agency and NIER.

Diagram 4 Age structure of the population









Diagram 5 Demographic dependency

Note. The diagram shows the overall dependency ratio, which can be divided into a child dependency ratio (the number of people aged 0-19 relative to the population 24-64 years) and an old-age dependency ratio (the number of people aged 65 and over relative to the population 24-64 years).

Source: Statistics Sweden.

 $^{^2}$ Given the rising retirement age, "working age" will gradually move away from the current definition.

³ See, for example, Johansson et al. (2018) and Laun (2021).

2050. This assumption matches how the average retirement age has moved in relation to the increase in life expectancy over the past 20 years. This change in labour market behaviour means, for example, that a 65-year-old in 2050 will on average behave as a 62-year-old does today in terms of labour force participation and employment. We also assume that health improves, such that two of the extra three years of expected life in 2050 are healthy years. It is thus assumed that the average retirement age rises more quickly than the number of healthy years through to 2050, in line with the pattern over the past 20 years.⁴

The increase in labour force participation and improvement in health among the elderly mean that movements in the demographic dependency ratio do not fully reflect the relationship between those who work and those who need to be provided for. This can be seen instead from the economic dependency ratio (see diagram 6). This is the number of people in the population who are not in work (the unemployed and those outside the labour force) in relation to the number of people who are. Because the retirement age is assumed to rise, this ratio falls somewhat in the 2020s and is below 1 at times, meaning that there are then more people in the economy who are in work that not in work. It is important to stress that this scenario does not include any cyclical variations, which would otherwise lead to substantial short-term fluctuations in the economic dependency ratio, especially in an economic downturn when employment falls.

The improvement in health and labour market behaviour among the elderly has a considerable effect on the sustainability of public finances. We therefore present an alternative scenario in Chapter 2 of the report where health is assumed to be unchanged from today, and labour market behaviour is constant over time.

Primary expenditure

Primary government expenditure consists of consumption, investment and transfer payments. One key assumption in the projections of expenditure in the baseline scenario is that the public sector commitment to welfare is maintained. By this, we mean that personnel density in the provision of welfare services is kept constant, local government investment increases at the same rate as local government consumption, central government investment rises with GDP, and transfers to households





Note. The ratio between the non-working population and the number of employed.

Diagram 7 Average cost of different welfare services per age group in 2019 Thousands SEK per person



Note. The diagram shows the average cost of individual government consumption per person for five-year age cohorts. Source: Statistics Sweden and NIER.

⁴ After 2050, we assume a slower rise in the retirement age, meaning that twothirds of the increase in life expectancy in the long term (through to 2100) is spent in the labour force and one-third as a pensioner.

(excluding income pensions) give an unchanged replacement rate in relation to average wages in the economy.⁵

An unchanged public sector commitment to welfare means that spending will vary over time and with the graphic need (see diagram 7). These variations will be affected by changes that occur in the age composition of the population. When relatively large cohorts reach an advanced age, health and elderly care need to be scaled up. Similarly, the education system must adapt to different-sized cohorts. The total cost of child benefit, for example, will also vary with the size of birth cohorts. Underlying an unchanged commitment to welfare is the concept of intergenerational equity, as it means that future generations benefit from welfare services of the same standard as today (see below). In a nutshell, demographic changes create a need for government spending to vary over time. It is these variations that public finances must be able to accommodate if they are to be considered sustainable.

INCREASED SPENDING ON HEALTH AND ELDERLY CARE

Government consumption has jumped as a share of GDP during the Covid-19 pandemic (see diagram 8). In the near term, as the pandemic subsides and the economy recovers, expenditure returns to more normal levels. After that, demographic developments mean that government consumption expenditure increases as a share of GDP. It is primarily spending on elderly care and on general and specialised medical care that grows (see diagram 9), which has to do with the rising old-age dependency ratio (see diagram 5). This occurs despite our assumption that better health among the elderly puts a slight damper on costs.6 The upswing in elderly care is strongest through to around 2040, at which point the large generation born in the 1940s is between 90 and 100 years old. The child dependency ratio is set to fall, however, and the demographic pressure on nursery and compulsory education decreases overall in the 2020s and 2030s before edging up again. In upper secondary education, there is a slight increase through to about 2030, but the demographic pressure then eases slightly here as well.

The greater need for health and elderly care means that local government consumption grows as a share of GDP, as this









 $^{^5}$ Income pensions from the general pension system follow wages but are also adjusted so that net wealth in the old-age pension system stabilises.

⁶ Individuals in each five-year cohort from the age of 70 are assumed to become healthier by shifting gradually, through to 2100, to the next youngest five-year cohort's need for welfare services.

sector is responsible for providing many individual welfare services (see diagram 10). Central government consumption, which consists primarily of collective services, rises largely in line with GDP and so does not contribute appreciably to overall government consumption growing as a share of GDP.

In the baseline scenario, hourly wages in the government sector rise at the same rate as in other parts of the economy, which means that relative wages are constant between the government sector and the business sector. This assumption has theoretical support in Baumol's cost disease, whereby productivity growth in certain parts of the economy feeds into wages in other parts of the economy via an income effect.

Another assumption in the baseline scenario is that costs for intermediates increase at the same rate as total wage costs.⁷ Wages and intermediates thus make up constant shares of the total cost of production in current prices, corresponding to constant shares of welfare budgets. Because prices, especially for goods included in intermediate consumption, rise more slowly than hourly wages, this means that consumption in constant prices (the volume of consumption) grows more quickly than the number of hours worked, by around 0.3 percentage points per year. As the volume of intermediates per hour worked (and so per user) grows over time, this can be seen as an increase in the standard of welfare services.

Historical data lend support to the assumption of constant budget shares. Another argument for this approach is that it may be hard for the government *not* to pay for this increase in quality, as in many cases it will be built into the goods available at any given time in the future.⁸ From this angle, the increase in standards can be seen as part of Baumol's cost disease, which dictates that economic growth per capita does not in itself provide scope to increase the public sector commitment to welfare.

As the assumption of constant relative wages and constant budget shares affects the size of government expenditure in the baseline scenario, Chapter 2 of the report presents two alternative scenarios: one where wages in the public sector rise faster than those in the business sector, Diagram 10 Consumtion expenditures in sub sectors Per cent of GDP



Source: Statistics Sweden and NIER.

⁷ Intermediate consumption accounts for around a third of the cost of government production and consists of goods and services used in the production process. These goods and services can either be transformed or consumed in the production process. In the national accounts, this item also includes rent. The consumption of fixed assets is reported instead as depreciation.

 $^{^{\}rm 8}$ One example is mobile telephones, whose functions and performance improve over time.

and one where intermediate consumption decreases gradually as a share of expenditure.

INVESTMENT AND TRANSFERS MOVE LARGELY WITH GDP

Government investment moves largely in line with GDP in the baseline scenario (see diagram 11). This includes major investment projects such as improvements in defence and rail infrastructure. Investment in the local government sector has been high in recent years and falls somewhat through to 2027. It then moves with the demographic need and trends up slightly as a share of GDP.

INCOME PENSIONS INCREASE AS A SHARE OF GDP FROM 2031

Transfer payments from the government sector drop quickly in the near term and then decrease slowly until just past 2030 (see diagram 12). Transfers to firms in particular shot up in 2020 and 2021 as a result of the extensive support paid out during the pandemic. As pandemic-related support is phased out, total transfers drop back again, and future levels depend chiefly on movements in income pensions.9 In the baseline scenario, income pensions increase as a share of GDP from 2032 onwards so that the assets in the buffer fund stabilise as a share of GDP. The assets in the old-age pension system's buffer fund would otherwise strengthen to the point where the balance ratio (the ratio between the pension system's assets and liabilities) rises well above 1, and pension payments would fall as a share of GDP. There are currently no rules in place on how to handle a situation where assets in the old-age pension system greatly exceed liabilities. For the surplus to be distributed as assumed in the baseline scenario, some kind of "accelerator" needs to be incorporated into the rules on income pensions in addition to the existing "brake". As the assumption of increased pensions impacts on government expenditure and thus on the tax bases and the tax-to-GDP ratio, Chapter 2 of the report presents a scenario without such an accelerator, where assets accumulate in the old-age pension system and are not paid out in the form of higher income pensions.





Source: Statistics Sweden and NIER.





Source: Statistics Sweden, Swedish Pensions Agency and NIER.

⁹ Excluding premium pensions and occupational pensions.

Primary revenue

The spending presented above is funded through taxes and duties, and these also make up the bulk of primary revenue. The starting point for our calculations is the tax rules set out in the central government budget for 2022, together with the tax changes announced for 2023 and 2024 that affect preliminary revenue for those years. Municipalities and regions have decided on their tax rates for 2022, and the average overall local government tax rate is 32.24 per cent. Since it is sustainability in the light of current rules that we are analysing, we assume no changes in the rules on taxes and duties. The tax rules decided on in the central government budget (with adjustments for changes announced for 2023 and 2024 as mentioned above) and the local government tax rate are assumed to be unchanged in the calculations.

Given this assumption of unchanged tax rules, tax revenue depends on how the economy performs, and more specifically on how the different tax bases move. The tax-to-GDP ratio therefore depends on how the tax bases move in relation to output. If tax bases that are taxed relatively heavily grow as a share of GDP, economic developments will be favourable in terms of tax revenue. This could, for example, happen if a larger share of the population is in work, or if consumption, which is taxed more heavily than other final uses of goods and services (such as investment), increases as a share of GDP. The tax-to-GDP ratio will then rise despite unchanged tax rules.

In the near term, the tax-to-GDP ratio falls as a result of the tax reductions decided on (see diagram 13). Household consumption has grown more slowly than GDP during the pandemic. The saving rate is high, however, and so household consumption is expected to grow more quickly than GDP as the pandemic subsides. Since household consumption is taxed more heavily than other final uses in the economy, the tax-to-GDP ratio rises when household consumption grows as a share of GDP (see diagram 14). Household consumption lags slightly behind GDP after 2030, but this is offset by taxable transfer payments increasing slightly more quickly from 2030 onwards. It is primarily taxable pensions that grow, which is a consequence of the surplus in the buffer fund in the income pension system being assumed to generate higher pension payments. Towards the mid-2040s, the rate of growth in pensions slows, and the tax-to-GDP ratio is largely flat through to 2050.

Taxes and duties as a percentage of GDP 49,0 49,0 48,0 48,0 47,0 47,0 46,0 46,0 45,0 45,0 44,0 44,0 43.0 43.0 42.0 42.0 41.0 41.0 2050 2000 2010 2020 2030 2040

Source: Statistics Sweden and NIER.





Note. Transfers and pensions refers to taxable transfers (sickness benefit, parental allowance, and unemployment benefit) and taxable pensions (income, premium and occupational pension).

Diagram 13 Tax-to-GDP ratio

Assessment of sustainability through to 2050

With an unchanged commitment to welfare and unchanged tax rules, demographic developments will determine deviations between expenditure and revenue in the projections. Demographics will therefore affect net lending, impacting in turn on the government's net financial position and debt.

Primary revenue increases as a share of GDP from 2022 as the tax-to-GDP ratio rises (see diagram 15). Together with a decline in primary expenditure as a share of GDP through to 2030, this translates into positive primary net lending from 2025 and for the following 20 years (see diagram 16). This surplus stems initially from government investment and transfers to households decreasing as a share of GDP, while tax revenue grows as households consume more goods and services. The primary surplus strengthens the government's net financial position, leading in turn to higher capital income (see diagram 17). This stronger capital income contributes to permanently higher net lending after the 2030s, despite the assumed "accelerator" in the pension system after 2030 and primary net lending gradually beginning to line (see diagram 16).

Primary net lending deteriorates and turns from surplus to deficit during the 2040s as government consumption expenditure increases with more and more elderly in the population, despite them being healthier than the same age groups today. However, the earlier primary surpluses, together with a strong net financial position to start with, will have strengthened the government's financial assets and permitted repayments on government debt, contributing to growing net capital income in the longer term (see diagram 17). Net capital income is projected to grow from around 1 per cent to almost 2 per cent of GDP over the next 30 years. This helps prop up net lending at around 1.5 per cent of GDP from 2030 to 2050.

This favourable path for public finances is partly a result of the assumptions made about the government balance sheet and movements in the value of non-interest-bearing assets. In our scenario, government assets decrease as a share of GDP under the assumption that central government does not nationalise any more enterprises or inject further equity into existing or new state-owned enterprises. The primary surplus is thus used primarily mainly to reduce government debt, especially central government debt. Given the low level of interest rates, GDP growth exceeds the average rate of interest on this debt, which means that the interest rate-growth differential is negative. A negative

Diagram 15 Primary expenditure and revenue



Diagram 16 Net and primary net lending Per cent of GDP





Diagram 17 Government net capital income Per cent of GDP



Source: Statistics Sweden and NIER.

interest rate-growth differential means that debt as a share of GDP can come down even in the absence of primary surpluses.

A negative interest rate-growth differential also means that financial assets shrink as a share of GDP. It is assumed that the yield on financial assets largely follows the average rate of interest on government debt. This yield is also lower than GDP growth. Assets therefore decrease as a share of GDP as a result of the economy growing.

Since Sweden has net financial wealth, the overall effect of the interest rate-growth differential on the net financial position is negative (see diagram 18). Given our assumptions for stateowned enterprises, however, the asset side of the government balance sheet shrinks. This reduces the negative effect of the negative interest rate-growth differential. The interest rategrowth differential also trends gradually to zero heading towards 2050.

All in all, the contributions from the interest rate-growth differential and asset values are positive for the net financial position (see diagram 18). These contributions are more important over time than the primary surpluses, which eventually also turn into deficits. Thanks primarily to the contribution from value changes, the net financial position increases as a share of GDP by between 0.5 and 1.0 per cent per year, despite primary net lending going into decline in the longer term.

The net financial position increases from just under 30 per cent of GDP today to almost 50 per cent of GDP in 2050 (see diagram 19). Meanwhile, Maastricht debt reduces by nearly 25 percentage points over the same period from 40 to 15 per cent of GDP. The reason why Maastricht debt falls further than net wealth increases is that it is affected by the Riksbank repaying its loan from the National Debt Office to shore up its foreign exchange reserves in the period 2021-2023.¹⁰ These repayments of SEK 250 billion, or more than 4 per cent of GDP, mean less debt but not more financial wealth. After 2023, when the repayments are complete, Maastricht debt continues to decline due to positive net lending. Maastricht debt drops below the lower bound for the debt anchor of 30 per cent of GDP as early as 2023. In 2050, it is as low as 15 per cent of GDP. In our calculations, Maastricht debt stabilises after 2042 because central Diagram 18 Contribution to change in net financial position

Contribution and annual percentage change of net financial position as a share of GDP



Source: Statistics Sweden and NIER.

Diagram 19 Net financial position and Maastricht debt Per cent of GDP



¹⁰ In the national accounts, the Riksbank is not included in the government sector but in the business sector. The loan the Riksbank took out from the National Debt Office to finance its foreign exchange reserves has resulted in both a liability and a receivable for the government sector. Its net financial position has therefore been unchanged, but Maastricht debt has increased.

government no longer has any debt, and then consists entirely of local government debt.¹¹

This very favourable path for the net financial position and Maastricht debt shows that government finances as a whole are sustainable given the assumptions made in the baseline scenario. One key contributing factor is the good starting position for public finances: the net financial position is already strong, and debt is low.

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¹¹ It is likely that Maastricht debt will remain larger than this, as even a country with very strong public finances may wish to issue government bonds and other debt instruments so that capital markets function properly.

Key assumptions: the real economy

- The trend rate without cyclical variations is our starting point.
- GDP growth is given by movements in the factors of supply: labour force and productivity.
- Labour force expansion is a product of Statistics Sweden's population forecast and an assumption of increased labour force participation.
- Productivity rises by an average of 1.3 per cent per year in the economy as a whole from the end of the 2020s.
- Household consumption per capita increases by just over 1.5 per cent per year in volume terms in the base-line scenario.
- The import content of the final uses of goods and services is constant in current prices.

Prices and wages in the long term

- The consumer price index with a fixed interest rate (CPIF) and the consumption deflator increase by 2 per cent per year.
- The import deflator rises by 1.4 per cent per year.
- Other prices in the final uses of goods and services rise more quickly or slowly than the CPIF depending on differences in productivity growth and import content in the industries that produce the goods and services used.
- Wages grow at a rate consistent with the inflation target given productivity growth and the import deflator.
- Wages rise at the same rate in all sectors and industries.

Interest rates and returns

- Through to 2031, interest rates and returns are based on the NIER's medium-term scenario.
- After that, market interest rates, implicit rates on interest-bearing assets and liabilities, and returns on non-interest-bearing assets move towards equilibrium in 2050.
- The equilibrium rate is determined by expectations for the future short-term interest rate, based on the expected future return on 30-year US Treasuries, and calculated using the Nelson-Siegel and Svensson models.
- The scenario assumes that there is no exchange rate effect and so no difference between the Swedish short-term interest rate and a global short-term equilibrium rate.

Fiscal assumptions

- The public sector maintains its commitment to welfare as applies in the 2022 fiscal year.
- This means that transfer payments to households (excluding pensions) move in line with wages.
- The number of hours worked in government production reflects the demographic need, such that personnel density is unchanged.
- The cost shares for intermediates, depreciation and wages in government production are constant.
- Movements in total wages therefore determine how costs for the other components of consumption move.
- The cost shares for social benefits in kind and own manufacture in government consumption are also constant.
- Differences in the way prices for goods and services move relative to wages mean that there is an increase in standards in intermediate consumption.
- Local government investment follows local government consumption in current prices.
- Central government investment moves with GDP in current prices.
- Tax rules are unchanged.

Sector-specific assumptions

- The old-age pension system follows current rules other than the introduction of an "accelerator" from 2031.
- The local government sector meets the requirement of sound financial management.
- Central government grants to local government rise at the same rate as local government consumption in current prices.

Tables

Table 1 Labour market, productivity, GDP and inflation in the baseline scenarioAverage percentage change

	2010s	2020s	2030s	2040s	2050s	2060s	2070s	2080s	2090s
Population	1,0	0,5	0,4	0,4	0,4	0,3	0,4	0,3	0,3
Labour force	1,2	0,5	0,4	0,4	0,2	0,3	0,3	0,3	0,3
Employment	1,3	0,5	0,4	0,4	0,2	0,3	0,3	0,3	0,4
Hours worked ¹	1,4	0,6	0,4	0,4	0,2	0,3	0,3	0,3	0,4
Productivity ¹	1,1	1,1	1,3	1,3	1,3	1,3	1,3	1,3	1,3
GDP, constant price ¹	2,6	1,7	1,7	1,7	1,5	1,6	1,6	1,5	1,6
Household consumption ¹	2,3	2,0	2,0	2,0	1,9	1,9	1,9	1,9	1,9
Public consumption ¹	1,3	0,8	0,8	0,8	0,8	0,6	0,7	0,6	0,6
Investments ^{1,2}	4,7	2,4	2,0	2,1	1,7	2,3	1,9	2,1	2,2
Export ¹	4,4	2,8	2,7	2,5	2,2	2,5	2,5	2,4	2,7
Import ¹	4,7	3,1	2,8	2,6	2,4	2,6	2,5	2,5	2,7
GDP per capita, constant price ¹	1,5	1,2	1,3	1,3	1,1	1,3	1,2	1,2	1,3
GDP, current price	4,2	3,8	4,0	4,0	3,9	4,0	4,0	3,9	4,0
Hourly wage ³	2,6	3,1	3,6	3,7	3,7	3,7	3,7	3,7	3,7
СРІ	1,1	2,3	2,1	2,0	2,0	2,0	2,0	2,0	2,0
5-year government bond yield ⁴	0,8	1,1	2,9	3,6	4,0	4,0	4,0	4,0	4,0

 $^{\rm 1}$ Calendar adjusted values. $^{\rm 2}$ Including inventory investments. $^{\rm 3}$ According to national accounts. $^{\rm 4}$ Percentage on average.

Sources: Macrobond, the Riksbank, Statistics Sweden and NIER.

Table 2 Age composition of the population

Number of individuals in different age ranges as a percentage of the total population

Age (year)	2022	2030	2040	2050	2060	2080	2100
0-5	6,7	6,2	6,4	6,5	6,3	6,4	6,2
6-19	16,5	15,9	14,9	15,1	15,3	14,9	14,9
20-54	44,5	43,9	44,3	42,1	42,0	40,8	40,4
55-64	11,9	12,1	11,1	12,5	11,0	11,3	11,1
65-74	10,3	10,3	10,8	10,0	11,4	10,8	10,2
75-84	7,6	8,1	8,2	8,8	8,4	8,7	9,4
85-99	2,5	3,5	4,3	4,9	5,6	7,0	7,6
100-	0,0	0,0	0,0	0,1	0,1	0,1	0,1

Table 3 Public finances in the baseline scenario

Per cent of GDP

	2022	2030	2040	2050	2060	2070	2080	2090	2100
Primary income	46,4	46,7	46,9	46,9	47,2	47,1	47,1	47,1	47,0
Taxes and fees	42,0	42,5	42,6	42,6	42,8	42,7	42,7	42,7	42,6
Primary expenditure	47,3	46,3	46,7	47,2	47,9	47,8	48,2	48,1	47,8
Consumption	25,6	25,8	26,0	26,2	26,9	26,8	27,2	27,1	26,9
Income pensions	6,0	5,6	5,9	6,2	6,2	6,2	6,2	6,2	6,2
Social transfers (excl. income pensions)	6,2	5,7	5,5	5,6	5,6	5,6	5,6	5,6	5,6
Investments	4,9	4,8	4,8	4,9	4,9	4,9	4,9	4,9	4,9
Primary net lending	-0,9	0,4	0,2	-0,3	-0,7	-0,7	-1,1	-0,9	-0,8
Capital income, net	1,0	0,9	1,3	1,7	1,8	1,8	1,7	1,5	1,4
Net lending	0,1	1,3	1,5	1,5	1,1	1,1	0,6	0,5	0,6
Net financial position	26,2	33,3	41,5	47,0	48,5	47,9	44,9	39,8	36,7
Maastricht debt	32,4	23,1	16,4	15,0	15,5	15,5	15,8	15,7	16,4

Sources: Statistics Sweden and NIER.

Table 4 Public finances in the baseline scenario: Surplus target

Per cent of GDP

	2022	2030	2040	2050	2060	2070	2080	2090	2100
Primary income	46,4	45,8	46,1	46,5	47,2	47,1	47,6	47,4	47,2
Taxes and fees	42,0	41,6	41,8	42,2	42,8	42,7	43,2	43,0	42,8
Primary expenditure	47,3	46,3	46,7	47,2	47,9	47,8	48,2	48,1	47,8
Consumption	25,6	25,8	26,0	26,2	26,9	26,8	27,2	27,1	26,9
Income pensions	6,0	5,6	5,9	6,2	6,2	6,2	6,2	6,2	6,2
Social transfers (excl. income pensions)	6,2	5,7	5,5	5,6	5,6	5,6	5,6	5,6	5,6
Investments	4,9	4,8	4,8	4,9	4,9	4,9	4,9	4,9	4,9
Primary net lending	-0,9	-0,5	-0,6	-0,7	-0,7	-0,7	-0,7	-0,6	-0,6
Capital income, net	1,0	0,8	0,9	1,1	1,1	1,0	1,0	1,0	0,9
Net lending	0,1	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3
Net financial position	26,2	28,5	29,0	29,1	28,9	28,1	27,3	26,6	25,7
Maastricht debt	32,4	27,8	28,9	28,4	27,9	27,7	27,6	27,4	27,4

Table 5 Public finances in the baseline scenario: Balancedbudget target

Per cent of GDP

	2022	2030	2040	2050	2060	2070	2080	2090	2100
Primary income	46,4	45,5	45,8	46,3	47,1	47,0	47,5	47,4	47,2
Taxes and fees	42,0	41,3	41,6	42,0	42,7	42,6	43,1	43,0	42,8
Primary expenditure	47,3	46,3	46,7	47,2	47,9	47,8	48,2	48,1	47,8
Consumption	25,6	25,8	26,0	26,2	26,9	26,8	27,2	27,1	26,9
Income pensions	6,0	5,6	5,9	6,2	6,2	6,2	6,2	6,2	6,2
Social transfers (excl. income pensions)	6,2	5,7	5,5	5,6	5,6	5,6	5,6	5,6	5,6
Investments	4,9	4,8	4,8	4,9	4,9	4,9	4,9	4,9	4,9
Primary net lending	-0,9	-0,8	-0,8	-0,9	-0,8	-0,8	-0,7	-0,7	-0,6
Capital income, net	1,0	0,8	0,8	0,9	0,8	0,8	0,7	0,7	0,6
Net lending	0,1	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Net financial position	26,2	27,3	25,4	23,9	22,5	21,0	19,7	18,7	17,6
Maastricht debt	32,4	29,1	32,5	33,6	34,3	34,8	35,2	35,3	35,5

Sources: Statistics Sweden and NIER.

Table 6 Public finances in the alternative scenario: Unchanged health and average retirement age

Per cent of GDP

	2022	2030	2040	2050	2060	2070	2080	2090	2100
Primary income	46,4	46,8	47,0	47,1	47,3	47,3	47,5	47,5	47,5
Taxes and fees	42,0	42,5	42,6	42,6	42,8	42,7	42,8	42,8	42,8
Primary expenditure	47,3	46,6	47,5	48,7	49,9	50,3	51,5	51,8	52,3
Consumption	25,6	26,0	26,6	27,5	28,6	28,9	29,9	30,2	30,6
Income pensions	6,0	5,7	6,0	6,2	6,2	6,2	6,2	6,2	6,2
Social transfers (excl. income pensions)	6,2	5,8	5,6	5,7	5,7	5,8	5,8	5,8	5,8
Investments	4,9	4,8	4,9	5,0	5,1	5,1	5,2	5,3	5,3
Primary net lending	-0,9	0,2	-0,5	-1,7	-2,6	-3,0	-4,1	-4,3	-4,7
Capital income, net	1,0	0,9	1,1	1,1	0,5	-0,3	-1,5	-2,9	-4,5
Net lending	0,1	1,0	0,6	-0,5	-2,1	-3,3	-5,6	-7,2	-9,2
Net financial position	26,2	32,4	35,5	30,7	14,5	-7,6	-38,9	-76,7	-116,8
Maastricht debt	32,4	23,6	21,2	25,9	41,7	62,9	93,8	130,8	170,3

Table 7 Public finances in the alternative scenario:Decreasing budget share for consumption

Per cent of GDP

	2022	2030	2040	2050	2060	2070	2080	2090	2100
Primary income	46,4	46,8	46,9	47,0	47,1	47,0	47,0	46,9	46,7
Taxes and fees	42,0	42,5	42,7	42,7	42,9	42,8	42,8	42,7	42,5
Primary expenditure	47,3	45,8	45,4	45,2	45,1	44,4	44,2	43,6	42,9
Consumption	25,6	25,4	24,8	24,3	24,3	23,6	23,5	22,9	22,4
Income pensions	6,0	5,6	5,9	6,2	6,2	6,2	6,2	6,1	6,1
Social transfers (excl. income pensions)	6,2	5,7	5,5	5,6	5,6	5,6	5,6	5,6	5,6
Investments	4,9	4,8	4,7	4,7	4,7	4,6	4,6	4,6	4,5
Primary net lending	-0,9	0,9	1,6	1,8	2,0	2,6	2,8	3,3	3,8
Capital income, net	1,0	0,9	1,6	2,8	3,8	4,9	6,2	7,6	9,2
Net lending	0,1	1,8	3,1	4,6	5,8	7,6	9,0	10,9	13,0
Net financial position	26,2	35,0	52,1	74,8	101,7	132,1	166,1	202,8	243,5
Maastricht debt	32,4	21,2	14,2	14,2	14,4	14,2	14,3	14,1	13,9

Sources: Statistics Sweden and NIER.

Table 8 Public finances in the alternative scenario: No"accelerator" in the pension system

Per cent of GDP

	2022	2030	2040	2050	2060	2070	2080	2090	2100
Primary income	46,4	46,7	46,7	46,6	46,9	46,7	46,7	46,6	46,5
Taxes and fees	42,0	42,5	42,4	42,3	42,5	42,4	42,3	42,2	42,1
Primary expenditure	47,3	46,3	46,1	46,2	47,1	46,8	47,3	47,0	46,8
Consumption	25,6	25,8	26,0	26,2	26,9	26,8	27,2	27,1	26,9
Income pensions	6,0	5,6	5,4	5,2	5,4	5,2	5,3	5,1	5,2
Social transfers (excl. income pensions)	6,2	5,7	5,5	5,6	5,6	5,6	5,6	5,6	5,6
Investments	4,9	4,8	4,8	4,9	4,9	4,9	4,9	4,9	4,9
Primary net lending	-0,9	0,4	0,7	0,4	-0,2	-0,1	-0,6	-0,4	-0,3
Capital income, net	1,0	0,9	1,3	2,0	2,5	2,8	3,1	3,4	3,8
Net lending	0,1	1,3	2,0	2,5	2,2	2,6	2,5	3,0	3,5
Net financial position	26,2	33,3	43,7	56,0	66,6	74,9	83,7	92,2	104,5
Maastricht debt	32,4	23,1	17,3	15,0	15,5	17,8	24,0	32,6	39,6

Table 9 Public finances in the alternative scenario: Higher relative wage in the municipal sector

Per cent of GDP

	2022	2030	2040	2050	2060	2070	2080	2090	2100
Primary income	46,4	46,7	46,9	47,0	47,2	47,2	47,2	47,2	47,1
Taxes and fees	42,0	42,4	42,6	42,6	42,8	42,7	42,8	42,8	42,7
Primary expenditure	47,3	46,5	47,1	48,0	48,7	48,6	49,1	48,9	48,6
Consumption	25,6	26,0	26,4	27,0	27,6	27,5	27,9	27,8	27,6
Income pensions	6,0	5,6	5,9	6,2	6,2	6,2	6,2	6,2	6,2
Social transfers (excl. income pensions)	6,2	5,7	5,5	5,6	5,6	5,6	5,6	5,6	5,6
Investments	4,9	4,8	4,9	4,9	5,0	5,0	5,0	5,0	5,0
Primary net lending	-0,9	0,2	-0,2	-1,0	-1,5	-1,4	-1,8	-1,7	-1,5
Capital income, net	1,0	0,9	1,1	1,4	1,1	0,8	0,4	-0,1	-0,5
Net lending	0,1	1,1	0,9	0,3	-0,4	-0,6	-1,4	-1,7	-1,9
Net financial position	26,2	32,5	37,5	36,9	30,6	22,4	11,8	-0,9	-11,0
Maastricht debt	32,4	24,0	20,7	20,9	26,6	33,8	43,6	55,3	64,4

Table 10 Government finances in the baseline scenario

Per cent of GDP

	2022	2030	2040	2050	2060	2070	2080	2090	2100
Primary income	24,5	24,7	24,5	24,4	24,4	24,4	24,4	24,4	24,3
Primary expenditure	24,8	24,1	23,8	24,1	24,6	24,6	25,0	24,9	24,6
Government subsidies	4,8	4,6	4,4	4,6	5,0	5,0	5,3	5,2	5,0
Primary net lending	-0,3	0,7	0,7	0,3	-0,2	-0,2	-0,6	-0,5	-0,3
Capital income, net	0,2	0,1	0,3	0,8	0,8	0,8	0,7	0,6	0,4
Net lending	-0,1	0,7	1,0	1,0	0,7	0,6	0,2	0,1	0,1
Net financial position	-3,2	6,7	14,6	21,0	23,3	23,1	20,4	15,5	12,5

Sources: Statistics Sweden and NIER.

Table 11 Municipal sector finances in the baseline scenario

Per cent of GDP

	2022	2030	2040	2050	2060	2070	2080	2090	2100
Primary income	22,9	22,7	23,0	23,3	23,9	23,9	24,2	24,1	23,9
Government subsidies	4,8	4,6	4,4	4,6	5,0	5,0	5,3	5,2	5,0
Primary expenditure	23,0	23,0	23,1	23,3	23,9	23,8	24,2	24,0	23,9
Primary net lending	-0,1	-0,3	-0,1	0,0	0,0	0,1	0,1	0,1	0,1
Capital income, net	0,1	0,0	-0,2	-0,3	-0,3	-0,4	-0,4	-0,4	-0,4
Net lending	-0,1	-0,3	-0,3	-0,3	-0,3	-0,3	-0,3	-0,3	-0,3
Net financial position	-1,8	-3,3	-4,7	-5,7	-6,4	-6,9	-7,2	-7,4	-7,5
Net lending Net financial position	-0,1 -1,8	-0,3 -3,3	-0,3 -4,7	-0,3 -5,7	-0,3 -6,4	-0,3 -6,9	-0,3 -7,2	-0,3 -7,4	-0,3 -7,5

Sources: Statistics Sweden and NIER.

Table 12 Old-age pension system finances in the baseline scenario

Per cent of GDP

	2022	2030	2040	2050	2060	2070	2080	2090	2100
Primary income	5,8	5,8	5,8	5,8	5,8	5,8	5,8	5,8	5,8
Primary expenditure	6,2	5,7	6,1	6,3	6,4	6,3	6,4	6,3	6,3
Primary net lending	-0,4	0,1	-0,3	-0,6	-0,6	-0,6	-0,6	-0,6	-0,6
Capital income, net	0,6	0,8	1,1	1,3	1,3	1,3	1,3	1,3	1,3
Net lending	0,2	0,9	0,8	0,7	0,7	0,7	0,7	0,7	0,7
Net financial position	31,3	29,9	31,6	31,7	31,7	31,7	31,7	31,7	31,7

Table 13 Government finances in the baseline scenario:Government subsidies grow in line with GDP

Per cent of GDP

	2022	2030	2040	2050	2060	2070	2080	2090	2100
Primary income	24,5	24,7	24,5	24,4	24,4	24,4	24,3	24,3	24,2
Primary expenditure	24,8	24,0	23,9	24,0	24,1	24,1	24,2	24,2	24,1
Government subsidies	4,8	4,5	4,5	4,5	4,5	4,5	4,5	4,5	4,5
Primary net lending	-0,3	0,8	0,7	0,4	0,3	0,3	0,2	0,1	0,1
Capital income, net	0,2	0,1	0,3	0,8	1,0	1,2	1,3	1,4	1,5
Net lending	-0,1	0,9	1,0	1,2	1,3	1,4	1,5	1,6	1,6
Net financial position	-3,2	6,8	15,4	21,8	27,6	32,3	35,6	38,2	39,9

Sources: Statistics Sweden and NIER.

Table 14 Municipal sector finances in the baseline scenario: Government subsidies grow in line with GDP

Per cent of GDP

	2022	2030	2040	2050	2060	2070	2080	2090	2100
Primary income	22,9	22,7	23,0	23,3	23,9	23,9	24,2	24,1	23,9
Government subsidies	4,8	4,5	4,5	4,5	4,5	4,5	4,5	4,5	4,5
Primary expenditure	23,0	23,0	23,1	23,3	23,9	23,8	24,2	24,0	23,9
Primary net lending	-0,1	-0,3	-0,1	0,0	0,0	0,1	0,1	0,1	0,1
Capital income, net	0,1	0,0	-0,2	-0,3	-0,3	-0,4	-0,4	-0,4	-0,4
Net lending	-0,1	-0,3	-0,3	-0,3	-0,3	-0,3	-0,3	-0,3	-0,3
Net financial position	-1,8	-3,3	-4,7	-5,7	-6,4	-6,9	-7,2	-7,4	-7,5

Sources: Statistics Sweden and NIER.

Table 15 Old-age pension system finances in the scenario without "accelerator"

Per cent of GDP

	2022	2030	2040	2050	2060	2070	2080	2090	2100
Primary income	5,8	5,8	5,8	5,8	5,8	5,8	5,8	5,8	5,8
Primary expenditure	6,2	5,7	5,5	5,3	5,6	5,4	5,4	5,3	5,3
Primary net lending	-0,4	0,1	0,3	0,5	0,2	0,4	0,4	0,5	0,5
Capital income, net	0,6	0,8	1,2	1,7	2,2	2,6	3,2	3,9	4,7
Net lending	0,2	0,9	1,5	2,2	2,4	3,0	3,6	4,4	5,1
Net financial position	31,3	29,9	34,7	44,1	56,5	68,6	84,3	102,5	122,8