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2024 Country Report – Sweden

Accompanying the document

Recommendation for a COUNCIL RECOMMENDATION

on the economic, social, employment, structural and budgetary policies of Sweden

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European Commission

Sweden

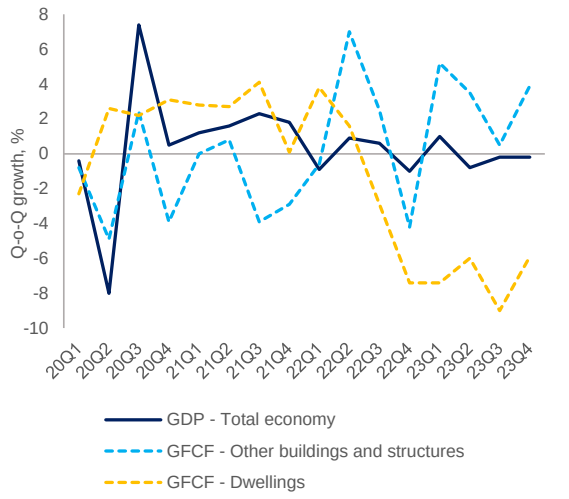
2024 Country Report



Strong fundamentals, but room for improvement

The tightening of financial conditions is set to keep economic activity subdued. ([1]) The Swedish economy shrank marginally by 0.2% in 2023, following real GDP growth of 2.7% in 2022. This weak performance was mainly due to a tightening in financial conditions. This impacted investments (particularly the construction of dwellings) and consumption due to a squeeze on household budgets from higher debt-servicing costs (see Graph 1.1). The economy is expected to bottom out in mid-2024 and return to moderate growth in 2025.

Graph 1.1: **Real GDP and gross fixed capital formation (GFCF) in construction**



Source: European Commission

External competitiveness is mirrored in the strong position of Swedish exporters. In 2023, the current account surplus widened to 7.6% of GDP as imports stalled with the stagnating economy, while exports grew. Swedish companies currently benefit from relatively high levels of productivity and profitability, and have also been helped by modest recent increases in labour costs. In addition, the Swedish krona weakened markedly in 2023, supporting price competitiveness, even though the currency has regained some ground since the third quarter of 2023.

Inflation is set to moderate. The impact from previous inflationary shocks is set to fade in 2024, while trade and production bottlenecks are also set to ease this year. Consumer price inflation, as measured by the HICP, is set to moderate to around 2% in both 2024 and 2025. Domestic wage pressures are projected to remain relatively contained over the medium term, with labour unions expected to moderate their demands for an increase in wages to help sustain employment and competitiveness. However, the risk of higher labour costs might re-emerge when the economic recovery takes hold, as employees might shift to better-paid jobs to make up for the loss in purchasing power they have experienced recently.

The labour market has held up relatively well in recent years but faces structural challenges. As can be seen in the Social Scoreboard, which monitors progress under the European Pillar of Social Rights, the employment rate in Sweden is one of the highest in the EU (see Annex 14). Even though unemployment is set to rise this year and next due to the weak economy, there continue to be labour shortages in several sectors due to significant mismatches and skills shortages that have persisted over several years. The skills shortages might give employers an incentive to 'hoard' labour even during potential periods of economic weakness, making employment more resilient to the

([1]) The cut-off date for the data used to prepare the 27 Country Reports was 15 May 2024.

Box 1:

Sweden's competitiveness in brief

Sweden needs to cultivate its competitive edge. Sweden performs well in the areas of innovation, human capital, renewable energy, digitalisation and trade integration. It is also taking further action to strengthen its performance in these areas. Sweden's labour productivity (as expressed in GDP per person employed) was the sixth highest in the EU in 2022 (see also Annex 12).

However, competitiveness challenges remain, four of which are set out in the bullet points below.

- **High real-estate valuations and private debt** reduce the resilience of the Swedish economy and hold back both productive investments and labour mobility.
- **Further efforts are needed to increase the use of renewable energy sources** to reach the EU 2030 targets.
- **Deteriorating educational outcomes, particularly for disadvantaged groups,** are negatively affecting future skills development and competitiveness.
- **Disadvantaged groups require more support to get the right skills for entering the labour market**, which would address labour shortages and improve labour productivity.

downturn, but also risking a slower adjustment to structural changes that occur in the economy.

Public finances remain strong, with sufficient fiscal space to address medium-term needs for public investment. Sweden's fiscal stance is expected to turn mildly expansionary in 2024, due to: (i) cyclical revenue weakness; (ii) a reduction in certain taxes, such as on energy; and (iii) expenditure measures to both address the economic impact of inflation on regional government finances and strengthen military defence. In 2025, the fiscal stance is expected to be contractionary under an assumption of unchanged policies. Sweden's public debt ratio is expected to stabilise at around 30% of GDP in 2024 and 2025.

Sweden is an established innovation leader, but higher productivity growth is needed to support its competitiveness. At 116% of the EU-27 aggregate in 2022, labour productivity (GDP per hour worked, in Purchasing Power Standard) in Sweden is well above the EU weighted average. Business sector R&D expenditure has been consistently high, and Swedish firms were leading in the EU in developing new products, processes, and services in 2021. The country also provides a conducive business environment for firms and entrepreneurs thanks to its very strong business efficiency and infrastructure. Nevertheless, productivity growth has been declining in recent years, with an OECD analysis ([2]) highlighting limited labour mobility due to shortages in affordable housing and the insufficient integration of low-skilled workers into the labour market.

Sweden continues to experience vulnerabilities related to high levels of private debt and steeply valued real estate. The European Commission undertook an in-depth review of the Swedish economy as part of the macroeconomic imbalance procedure (MIP) earlier in 2024. This in-depth review found that real-estate prices in Sweden have consistently risen faster than income and rents over the past decade, primarily due to declining interest rates, low taxes on housing and on debt-financing and a poorly functioning rental market. These price increases have been accompanied by a rise in private debt, which has increased the exposure of the Swedish economy to changes in monetary and financing conditions. The rapid increase in interest rates since the second quarter of 2022 affected property prices and directly impacted the debt-service burden of both

([2]) OECD (2023), Going for Growth

households and commercial real-estate companies ([3]).

Towards sustainable and inclusive prosperity – tapping Sweden's full potential

For Sweden to achieve its full potential, it will have to make ambitious reforms. Sweden has traditionally been a leader in green growth, digitalisation, and educational performance. It has managed to achieve all this while strengthening its sustainable competitiveness. Continued reform efforts in the following three policy areas could further improve Sweden's sustainable competitiveness and foster prosperity: (i) the housing market; (ii) inclusive education and an inclusive labour market; and (iii)climate policy.

Sweden's housing market inhibits resilience of the economy to shocks and weighs on productivity. Increases in real-estate prices above the rate of income growth have gone hand-in-hand with higher levels of private debt. High levels of debt, in particular in combination with short periods over which mortgages are fixed (Swedish households typically 'fix' their mortgage rates for less than 2 years, at the end of which they need to fix their rates again), leaves private actors vulnerable to changes in financing conditions. It also makes private investment and consumption more volatile. Moreover, the high allocation of financial resources to real estate risks diverting capital away from productive investments, which weighs on the country's economic performance in the longer run. In addition, labour mobility is stifled through the lock-in effects in the housing market, reflecting a poorly functioning rental market and house prices that still appear overvalued. There are several measures that Sweden could take to address these concerns including: (i) reducing the tax bias that currently favours debt-financed housing acquisition; (ii) increasing the level of recurrent property taxation; and (iii) reforming the rental market.

Improving educational performance and strengthening upskilling would increase the potential of Swedish workers. Although Sweden performs slightly better than the EU average, underperformance in basic skills has significantly increased since 2018, putting the country's existing advantage in this area at risk. Many students fail to qualify for upper secondary general and vocational education. Achieving better results would go a long way to achieving the full potential of Swedish young people, thereby alleviating the shortages of skilled workers that have persisted in several sectors like healthcare, education, or mechanical engineering. Furthermore, it would help ensure to supply more technicians needed across sectors.

Box 2:

UN Sustainable Development Goals (SDGs)

Sweden performs better than the EU average on most of the SDGs. However, it needs to step up efforts in several areas. Sweden performs well on most of the SDG indicators related to environmental sustainability (SDGs 2, 6, 7, 9, 13, 15). It is also making progress on SDGs related to fairness (SDGs 3, 4, 7, 8, 10), macroeconomic stability (SDGs 8 and 17) and productivity (SDGs 4, 8, 9). However, Sweden is declining on indicators related to poverty (SDG 1), gender equality (SDG 5), sustainable cities and communities (SDG 11) and peace, justice and strong institutions (SDG 16) (see Annex 1).

Out of the 17 indicators, Sweden remains below the EU average in 3 SDGs. These relate to reduced inequalities (SDG 10), responsible consumption and production (SDG 12) and life below water (SDG 14). Despite some progress on these targets, further efforts are needed to catch up with the EU average.

([3]) SWD(2024) 85 final, *In-depth review for Sweden*..

Reducing climate ambition increases the future costs of climate action. Sweden had an ambitious climate agenda that offered a clear path to climate neutrality. It also had a lead in green growth, but this year's changes to its climate policy increase uncertainty for consumers and investors. In particular, it is unclear how the Swedish transport sector will be able to play a key role in achieving climate targets. Policy challenges remain for Sweden to make greater use of renewable resources, increase electrification, and ensure sufficient grid capacity.

IMPLEMENTATION OF KEY REFORMS AND INVESTMENTS USING EU INSTRUMENTS

Funding from the Recovery and Resilience Facility (RRF) and cohesion policy funding is mutually reinforcing Sweden's efforts to boost its competitiveness and foster sustainable growth. In addition to the EUR 3.4 billion of RRF funding described in Annex 3, cohesion policy provides Sweden with EUR 1.7 billion for the 2021-2027 period. Total support from these two instruments represents around 0.94% of the country's 2023 GDP, compared with an EU average of 5.38% of GDP (see Annex 4).

Under its recovery and resilience plan (RRP), Sweden has launched important policy measures that are expected to improve its competitiveness. In particular, the RRP contains significant reforms in the areas of the green transition, the housing market, the labour market, education, healthcare and anti-money laundering. Sweden is also undertaking investments in the green and digital transition, education, elderly care and rental housing.

The implementation of Sweden's recovery and resilience plan is significantly delayed. Sweden has not submitted any payment requests so far.

Cohesion policy funding helps tackling Sweden's growth and competitiveness challenges and reducing the country's territorial and social disparities. Under the 2014-2020 cohesion programming period, support focused on research and development, skills development, and business support. For the current 2021-2027 programming period, support is aimed at the green and digital transition and contributing to the development of a new competitive, innovative and export-oriented growth model.

Fuelling the green transition

The Swedish RRP is focused on the green transition, with specific reforms and investments primarily targeting carbon-intensive sectors. The RRP focuses mainly on expanding renewable energy capacity, decarbonising industry (Industry Leap) and transport, and improving energy efficiency. Sweden's Climate Leap investment scheme is ongoing and should accelerate the green transformation of the economy. The scheme finances local and regional activities to reduce emissions of carbon dioxide and other greenhouse gases affecting the climate. The entry into force of laws ending both the reduction in energy tax on fuel and adjusted taxable benefit rates for company cars will also help drive the transformation.

Cohesion policy funding is also supporting the green transition. The Just Transition Fund (JTF) is complementing the RRP-funded measures (such as Sweden's Industry Leap), by focusing on helping heavy industries (such as steel, metal, and cement companies) in their transformation towards carbon neutrality. It is expected that investments under the JTF will contribute to a decrease of around 3 million tonnes of CO_2 eq./year in Sweden in 2029.

Connecting people and accelerating the digital transformation

Making effective use of various funding sources is helping to accelerate the digital transition, with a lasting impact on the Swedish economy. Under the RRP,

more than 94 000 buildings are reported to have already received support since 2021 for broadband expansion, and more buildings should be connected every year up until 2025. High-speed and reliable broadband connectivity, especially in less populated areas, support territorial cohesion. The RRP will accelerate the deployment of e-government solutions in Sweden by allocating substantial funds to develop a joint digital infrastructure for public administration, improving interoperability and data exchange. SMEs will also benefit from this improved digital infrastructure and connectivity. At the same time, the European Regional Development Fund (ERDF), will help more than 16 500 SMEs to boost their digitalisation. This is expected to promote innovation and thus increase competitiveness.

Building the foundations for a better housing market

Sweden's RRP is helping to partially address existing macroeconomic vulnerabilities in the housing market and private debt. The RRP focuses on the supply side of the housing issue. The stock of rental and student housing has increased with support from subsidies for new, energy-efficient dwellings. Legal changes entered into force in 2021 to shorten the time it takes to complete zoning plans. The RRP contains plans to ensure that more opportunities are given to stakeholders like property owners, developers or builders to create and partly develop detailed zoning plans. Specific amendments to the Planning and Building Act in 2022 have led to better standards in housing construction, which should accelerate permitting procedures for construction. Additional reforms are planned, one of the most significant being the introduction of a simplified and more efficient regulatory framework for building permits, which is expected to be gradually implemented from 2023 onwards.

Strengthening education and skills

The RRF and cohesion policy funds are supporting measures to tackle education and skills gaps. Under the RRP, the legislation was amended to establish economic incentives for municipalities to offer training courses that combine vocational training in healthcare and social care with Swedish language training. In line with this amended legislation, the RRF has contributed to financing more than 68 000 new study places in regional adult vocational education in 2020-2022. The scheme was continued in 2023. Activities to scale up the number of study places at universities and other higher education institutions were in progress in 2023. The RRF-supported measures in this area are complemented by funding from the ERDF, European Social Fund Plus (ESF+) and the JTF, all three of which support skills development and the integration of people into the labour market. The measures are expected to further increase the already achieved 2030 national skills and employment targets (of 60% adults participating in training every year and 82% of the population aged 20 to 64 being in employment).

Box 3:

Combined action for more impactful EU funds

To boost economic growth and maximise the impact of EU funding, Sweden's RRP includes reforms that support investments under other EU instruments, creating significant synergies and complementarities between the various funds. For example, the Swedish RRP contains an ambitious reform of employment law with the objective of: (i) fostering lifelong learning; (ii) making it easier for people to switch jobs; and (iii) making it easier for people without experience to get a job. The reform is complemented by the ESF+, which will further help Sweden to reap the benefits of this reform under the RRP. The ESF+ provides support to integrate unemployed people into the labour market. Similarly, the ESF+ will also support lifelong learning for those already employed, allowing workers to adapt to the changing labour market.

Increasing the resilience of the healthcare sector

The RRP includes measures to increase the accessibility, capacity and resilience of Sweden's healthcare and long-term care systems. The RRF provides funding to municipalities for Sweden's 'Elderly Care Initiative', thanks to which more than 10 000 employees working in elderly care are given training to improve their skills. The investment started in 2020 and continued throughout 2023. Making the healthcare system more resilient is part of a broad plan to upgrade the Swedish healthcare system.

The REPower EU chapter

The RRP now also includes a REPowerEU chapter, the main objectives of which are: (i) to facilitate the green transition by speeding up the authorisation process for the construction of electricity grids; and (ii) to further scale up investments in energy-efficient housing. This will not only promote energy efficiency but also help to address persistent housing needs.

FURTHER PRIORITIES AHEAD

Sweden faces additional challenges related to the housing market, meeting climate targets and human capital. Tackling these challenges will help increase Sweden's long-term competitiveness and ensure the resilience of its economy. It will also help the country to make further progress in achieving the SDGs.

The policy assessment under the macroeconomic imbalance procedure suggests that policy progress by Sweden has been limited ([4]). Policy action in the past years was limited to tightening macroprudential regulation and some supply-side measures of limited scope and impact. The most significant challenge at this juncture is for Sweden to avoid a renewed surge in debt-financed housing acquisition, while simultaneously avoiding the risk of an uncontrolled unwinding of existing imbalances. Making it cheaper for mortgage borrowers to lengthen the period of time over which their interest rates are fixed could help to make interest-fixation periods longer and cushion the impact of interest-rate movements on household budgets.

It is important that the identified challenges are addressed at both the national and regional level to reduce regional disparities and improve administrative and investment capacity in a balanced way across the country.

([4]) SWD(2024) 85 final, *In-depth review for Sweden*.

A more resilient economy requires an ambitious agenda for housing reform

Sweden continues to face macroeconomic vulnerabilities related to real estate and high levels of private debt ([5]). The debt of non-financial corporations and households remains at near-historical highs relative to GDP. Household debt is particularly high relative to disposable income. House prices have corrected in the past 2 years, as interest rates rose significantly, but they still appear to be overvalued.

Limited steps have been taken to address the drivers of the identified macroeconomic vulnerabilities. Policy action to address these vulnerabilities was limited to raising the counter-cyclical capital buffer (announced already in 2022) and some supply-side measures (e.g. easing permitting procedures in 2022 and 2023) of which the impact cannot yet be judged. Maintaining predictable rules in the housing market is essential, but currently there are no changes planned for the tax system, which continues to favour home ownership through low levels of recurrent property taxation and generous tax deductibility of mortgage interest payments ([6]). The rental market has seen limited reform in recent years and average rents are still well below 'market' rents, as only newly built rental buildings can charge market rents.

([5]) European Commission, *In-depth review for Sweden, 2024,* Commission staff working document SWD(2024) 85 final.

([6]) See, for instance, European Commission, *In-depth review for Sweden, 2022,* Commission staff working document SWD(2022) 639 final.

High levels of private debt are linked to investments in the real-estate sector, which weigh on Swedish productivity. Around four fifths of all bank loans in Sweden are related to the real-estate sector, in the form of mortgages or loans to commercial real-estate companies, tenant-owner associations, and construction companies ([7]). Although the financial sector is sound with solid risk metrics, close monitoring of commercial real-estate companies seems advisable given the often highly leveraged balance sheets of these companies. High levels of capital allocation to residential and commercial real estate could well weigh on total productivity growth, both because: (i) the construction sector has seen relatively low productivity growth; and (ii) housing assets do not generate innovations through investments in the way that intellectual property or machinery investments do.

A more resilient economy requires an ambitious agenda for housing-market reform. High levels of indebtedness, favoured by the tax system, leave the private sector vulnerable to changes in financing conditions (as described in the Economic and Employment snapshot). Reducing the tax bias in Sweden, which currently favours debt-financed housing acquisition, is therefore important to incentivise investments in more productive assets. Moreover, the poorly functioning housing market – and in particular the poorly functioning rental market – risks reducing labour mobility across the country ([8]). There is a risk that more productive and talented people may not accept job offers at the most productive firms because of a lack of affordable housing in the area to which they might move. This is a particularly acute problem for the green industrial transition in the north of Sweden.

More ambition would help Sweden to reach its 2030 climate targets

Sweden risks missing key emissions goals by 2030. National climate targets, initially more ambitious than the EU ones, are at risk of being missed. In particular, due to policy changes, notably the lowering of blending requirements for biofuel in gasoline and diesel as of January 2024, Sweden is now projected to fall short of its 2030 targets for reductions in greenhouse-gas emissions in transport.

Emission reductions in road transport have long been identified as key if Sweden is to achieve its climate targets. Road transport accounts for three quarters of energy demand for oil and petroleum products, which are the main source of greenhouse-gas emissions in Sweden from fossil fuels. Therefore, reducing greenhouse-gas emissions in transport is crucial if Sweden is to achieve its overall emissions-reduction targets. Swedish climate policy recognised this key role of road transport when setting a national goal in 2017 of reducing greenhouse-gas emissions from transport by 70% between 2010 and 2030. The emissions reductions necessary to reach the 2030 target had initially been expected to follow mainly from: (i) step-by-step increases in minimum requirements for the blending of biofuels in diesel and gas (the so-called reduction obligation); (ii) increased electrification of the car fleet; (iii) increased energy taxes; and (iv) a bonus/malus system for cars, reflecting their environmental burden.

However, policy choices to counter high energy prices have led to fewer reductions in emissions. Against the background of large increases in energy prices in 2023, the reduction obligation was amended in January 2024, substantially reducing the obligation to blend biofuel into diesel and petrol. On top of the changes in the reduction obligation, 2024 also saw: a reduction in fuel taxes; the extension of fuel-tax exemptions; and the scrapping of the bonus system for the purchase of electric cars. These policy changes imply significantly higher liquid-fuel consumption and thus greater

([7]) European Commission, *In-depth review for Sweden, 2023,* Commission staff working document SWD(2023) 644 final

([8]) OECD Going for Growth: 529a9160-en.pdf (oecd-ilibrary.org)

greenhouse-gas emissions from transport than previously projected.

Sweden's climate targets for the reduction of greenhouse-gas emissions in 2030 are now unlikely to be reached. Estimating the precise gap between Sweden's likely 2030 emissions based on current policy and its 2030 EU targets for emissions following these policy changes is difficult in the absence of updated comprehensive scenarios for greenhouse-gas emissions that reflect recent policy measures. The currently available government climate action plan focuses on a longer horizon until 2045, but this action plan does not contain quantitative scenarios on emissions trajectories for the period to 2030 ([9]). Several studies from a range of government and independent bodies, including the Climate Policy Council, the Swedish Environmental Protection Agency, the National Institute for Economic Research, the Fiscal Policy Council, and the Swedish National Road and Transport Research Institute have all presented assessments, distributional effects, and alternative trajectories for emissions that contain estimated impacts from the recent changes in policy, notably for road transport ([10]). While these scenarios all have different assumptions and focuses, they do seem to confirm that current policies are likely to result in a significant shortfall compared to the EU's 2030 greenhouse-gas emission targets ([11]).

([9]) Regeringens skrivelse 2023/24:59. Regeringsens klimathandlingsplan – hela vägen till netto noll.

([10]) Climate Policy Council, Yearly report 21 March 2024. Swedish Environmental Portection Agency (Naturvårdsverket), Naturvårdsverkets underlag till regeringens klimatredovisning 2024. National Institute for Economic Research (NIESR), Miljö, ekonomi och politik 2023: fördelningseffeter av miljö och klimatpolitik, december 2023. NIESR, reduktionsplikten och dieselpriset, NIESR Specialstudier November 2023. Swedish Fiscal Policy Council (Finanspolitiska Rådet), Finanspolitiska rådets rapport 2024 chapter 6. Swedish National Road and Transport Research Institute (VTI), Fördelningseffekter av bilstyrmedel för att nå klimatmålet 2030 En analys av inkomst- och geografisk dimension, VTI rapport 1192.

([11]) According to a preliminary assessment by the Climate Policy Council of December 2023, the shortfall in carbon dioxide emission savings might be around 5 to 9 million tonnes (around 10 to 20% of current total Swedish emissions), see: https://via.tt.se/pressmeddelande/3403796/handlingsplanen-otillracklig-ytterligare-styrmedel-behovs-for-att-na-klimatmalen?publisherId=3236239&lang=sv.

Increased electrification of industry and transport will require sufficient electricity supply, ideally from renewable sources. Even though Sweden has the highest share of renewables in its energy consumption in the EU, it is also among the Member States with the highest energy consumption per capita. The ongoing electrification of industries in the south of Sweden, combined with innovative, green industrial developments and decarbonisation in the north of Sweden, (such as in the iron and steel industry) require even greater electricity production. In addition, more electricity will also be required for the further electrification of road transport.

Sweden still has untapped potential for renewable energy. Sweden aims to develop 13 GW of wind capacity and about 5 GW of solar power capacity between 2021 and 2030 (see Annex 7 on Energy). A combination of factors is holding back the originally planned expansion of renewable energy production. Of these factors, permitting barriers (where the authorities do not allow projects to go ahead) have been particularly detrimental to the expansion of both offshore and onshore wind power. These barriers to development of renewable energy are partly the result of inefficient permitting procedures and veto rights held by local government and defence authorities.

Expanding grid capacity will help mitigate energy-supply shortages. Structural constraints in power generation and grid capacity, especially in the south of Sweden, lead to increased costs for households and businesses. There is still excess electricity supply in the north of the country. The extent to which this excess could alleviate supply shortages in the south is limited, as the transmission system lacks capacity. Furthermore, with the expected expansion of energy-intensive innovative industries in the north, the excess supply of electricity in this northern region can be expected to decrease in the future. Nevertheless, investment in

expanding and upgrading energy-transmission networks would make it possible to alleviate the current shortage of electricity and enable a better distribution of electricity across regions. The Swedish REPowerEU chapter in the RRP includes a reform aiming at speeding up the authorisation process for upgrades to the electricity grid. In addition, action needs to be taken to speed up the acquisition of skills by Swedish workers. This would help Sweden to meet the broad challenges in the field of education discussed below.

Improving labour market integration by tackling education and skills gaps

Labour shortages risk undermining Sweden's ability to further improve its sustainable competitiveness and highlight the need for Sweden to upgrade workers' skills and improve educational outcomes. While the share of early leavers from education and training is below the EU average, wide gaps remain between different groups in educational attainment and skills levels. These gaps are most pronounced for young people born outside the EU, who are less likely to have completed upper secondary school and less likely to be in employment, education or training than those born in Sweden (see Annex 14). This not only makes it difficult for people in this group to find employment, but also harms Swedish competitiveness more broadly. Education and skills gaps compound labour shortages which remain acute, especially in the industry and services sectors. These labour shortages pose a major challenge for the development and the green industrial transition of the country's northernmost regions (see Annex 17).

Lower levels of educational attainment and skills reduce employability and can also increase the risk of poverty. In 2022, the share of people at risk of poverty or social exclusion (AROPE) increased to the highest figure ever recorded for Sweden since 2015. Moreover, the AROPE gap between those born in the country and those born outside of the EU is above the EU average. Improving the levels of educational attainment and skills could help address poverty rates in the medium term and would also help Sweden to reach its national 2030 poverty-reduction target.

Deteriorating basic skills and teacher shortages are putting the Swedish school system under pressure. The basic skills of Swedish students have deteriorated since 2018, with the largest deterioration being in mathematics, where the share of underperformers has increased by 8.4 pps to 27%. While this is below the EU average, it is still well above the EU target of keeping the number of underperformers to no more than 15% of students ([12]). Furthermore, the persistent shortage of qualified teachers risks further impacting the quality of the education system and the performance of students. The extent of teacher shortages varies considerably across the country, from region to region, from municipality to municipality and between types of school (see Annex 15).

Disadvantaged socioeconomic and migrant backgrounds negatively impact students' educational results. The underperformance rate has increased further since 2018 for students from disadvantaged socioeconomic backgrounds, and the gap between native-born students and those with a migrant background is very high. The Swedish school system tends to be segregated along two lines: socioeconomic background and migrant background. These two categories also reflect the neighbourhoods where the students live ([13]). The mastering of Swedish is also an important determinant of student performance.

Many students in a disadvantaged position fail to qualify for upper secondary education, which reduces their

([12]) Based on the 2022 OECD Programme for International Student Assessment (PISA) survey.

([13]) https://www.regeringen.se/contentassets/fcf0e59defe04870a39239f5bda331f4/en-mer-likvardig-skola--minskad-skolsegregation-och-forbattrad-resurstilldelning-sou-202028/

Box 4:

The mid-term review of cohesion policy funding for Sweden

The mid-term review of cohesion policy funds is an opportunity to assess cohesion policy programmes and to tackle emerging needs and challenges in EU Member States and their regions. Member States are reviewing each programme taking into account, among other things, the challenges identified in the European Semester, including in the 2024 country-specific recommendations. This review forms the basis for a proposal by each Member State for the definitive allocation of 15% of the EU funding included in each programme.

Sweden has made progress in the implementation of cohesion policy programmes and the European Pillar of Social Rights, but challenges remain as outlined in this report (see, for instance, Annexes 14 and 17). Most importantly, there are still disparities in GDP growth, productivity and innovation between the Swedish regions. Therefore, faster implementation of existing plans is needed in both: (i) innovation contributing to the further greening of society with the ambition of reaching a climate-neutral economy, while continuing to address socioeconomic regional disparities and disparities between urban and non-urban areas; and (ii) upskilling and reskilling, with particular attention to vulnerable groups, in particular those with a migrant background.

Sweden also stands to benefit from the opportunities provided by the Strategic Technologies for Europe Platform initiative (STEP) ([16]) to boost investments in technologies supporting the green transition. STEP could support the development and production of clean and resource-efficient technologies by ensuring the availability of critical inputs and addressing shortages in skills. These are particularly important for SMEs in lagging regions.

chances to enter further education. In 2022, 15% of all students finishing lower secondary school had grades that were too low or incomplete, excluding them from qualifying for upper secondary school. For those that get a 'fail grade' in half of all compulsory school subjects or in any of the core school subjects of Swedish, English and mathematics, so-called introductory programmes aim at allowing them to later enrol into upper secondary school, including vocational, training. However, the success rate of these programmes is relatively low ([14]). As most jobs in Sweden require an upper secondary or higher qualification, this increases the risk of not finding a job, with negative consequences for integration. Students in a disadvantaged position are also underrepresented in independent schools, whose pupils have on average better chances of qualifying for further studies. Analyses suggest that, to some extent, independent schools tend to give disproportionally higher grades than municipal ones ([15]). That, in turn, allows their students to enter further education more easily, regardless of their objective educational attainment.

Upskilling and reskilling Swedish workers could increase their chances of finding a job. Sweden has been making good progress on upskilling and reskilling workers in energy-intensive industries and transforming sectors, with a visible increase in participation in learning activities in recent years. Furthermore, Sweden currently has one of the highest upskilling rates in preparing workers for the green transition in the EU (see Annex 8). Strengthening this momentum and ensuring that more people are able to find jobs in the green economy will make it easier for people to find work and change jobs.

([14]) National Agency for Education (2019), Introduktionsprogram, eleverna och deras sysselsättning efteråt, Skolverket, Stockholm, https://www.skolverket.se/getFile?file=4855.

([15]) https://www.skolverket.se/download/18.72b8d67c18e11125c6368/1709738385056/pdf12579.pdf; https://www.skolverket.se/getFile?file=11810

([16]) Regulation (EU) 2024/795

KEY FINDINGS

Sweden's recovery and resilience plan includes measures to address a series of structural challenges, in synergy with other EU funds, by:

- **Accelerating the green transition** through: (i) investment in the decarbonisation of emission-intensive industries to increase their competitiveness; and (ii) incentivising regional and local initiatives to help reduce greenhouse-gas emissions;

- **Advancing the digital transition** by making broadband connectivity more accessible and setting up a shared digital infrastructure for public administration;

- **Improving the resilience of the healthcare sector** by removing existing constraints to improve the accessibility, capacity and resilience of the systems for healthcare and long-term care.

The implementation of Sweden's recovery and resilience plan is facing significant delays which require decisive actions to ensure a successful implementation of all the measures of Sweden's recovery and resilience plan by August 2026.

Beyond the reforms and investments in the RRP and cohesion programmes, Sweden would benefit from:

- **Addressing macroeconomic vulnerabilities related to the housing market and household debt**, fostered by tax incentives and a suboptimal functioning of the rental market, both of which are exacerbated by a mismatch between housing supply and demand;

- **Reducing skills gaps**, in particular for people born outside the EU and people with disabilities, through focused policy measures;

- **Improving educational attainment levels and employment prospects,** particularly by: (i) improving the educational performance of students from disadvantaged socioeconomic or migrant backgrounds; (ii) increasing the number of such students that qualify for upper secondary school; and (iii) addressing the persistent shortage of qualified teachers;

- **Further decarbonising the economy** by: (i) removing capacity constraints in the electricity grid through further investments to accommodate the increasing deployment of renewable energy; and (ii) streamlining and accelerating permitting procedures for renewables, thereby contributing to further electrification;

- **Reducing greenhouse-gas emissions in transport** by introducing targeted policy measures to help achieve Sweden's 2030 emission reduction targets.

ANNEXES

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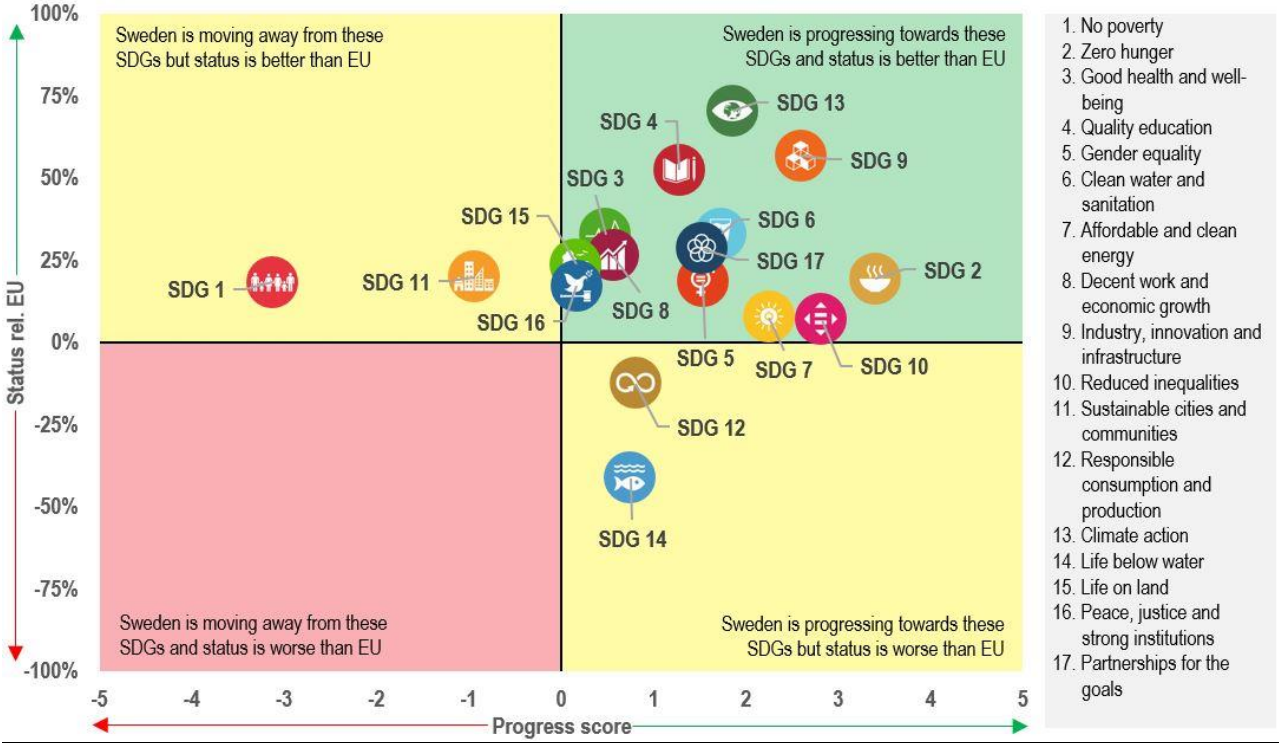
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ANNEX 1: SUSTAINABLE DEVELOPMENT GOALS

This Annex assesses Sweden's progress on the Sustainable Development Goals (SDGs) along the four dimensions of competitive sustainability. The 17 SDGs and their related indicators provide a policy framework under the UN's 2030 Agenda for Sustainable Development. The aim is to end all forms of poverty, fight inequalities and tackle climate change and the environmental crisis, while ensuring that no one is left behind. The EU and its Member States are committed to this historic global framework agreement and to playing an active role in maximising progress on the SDGs. The graph below is based on the EU SDG indicator set developed to monitor progress on the SDGs in an EU context.

Sweden performs well on most of the SDG indicators related to *environmental sustainability* (SDGs 2, 6, 7, 9, 13, 15), but is moving away from SDG 11 and needs to catch up with the EU average on others (SDGs 12 and 14). Sweden performs very well on SDG 13 (Climate action), with net greenhouse gas emissions falling from 1.0 tonnes per capita in 2017 to 0.6 tonnes in 2022, well below the EU average (7.3 tonnes in 2022). The share of renewable energy in gross final energy consumption (SDG 7) increased from 53.4% in 2017 to 66% in 2022, significantly above the EU average (23% in 2022). As concerns SDG 9 (Industry, innovation and infrastructure), Sweden scores above the EU average on all indicators. Gross domestic expenditure on R&D further increased from 3.36% of GDP in 2017 to 3.40% of GDP in 2022. The circular material use rate (SDG 12) further decreased, from 6.7% in 2017 to 6.1% in 2022, markedly below the EU average (11.5% in 2022). On SDG 14 (Life below water), Sweden is performing well below the EU average on certain indicators. Furthermore, Sweden is moving away from the targets for SDG 11 (Sustainable cities and communities), with the recycling rate of municipal waste decreasing from 46.8% in 2017 to 39.7% in 2022. Measures in the Swedish recovery and resilience plan (RRP) support

Graph A1.1: **Progress towards the SDGs in Sweden**



For detailed datasets on the various SDGs, see the annual Eurostat report 'Sustainable development in the European Union'; for details on extensive country-specific data on the short-term progress of Member States: Key findings – Sustainable development indicators - Eurostat (europa.eu). A high status does not mean that a country is close to reaching a specific SDG, but signals that it is doing better than the EU on average. The progress score is an absolute measure based on the indicator trends over the past 5 years. The calculation does not take into account any target values as most EU policy targets are only valid for the aggregate EU level. Depending on data availability for each goal, not all 17 SDGs are shown for each country.

Source: Eurostat, latest update of 25 April 2024. Data refer mainly to the period 2017-2022 or 2018-2023. Data on SDGs may vary across the report and its annexes due to different cut-off dates.

the acceleration of the green transition of carbon-intensive sectors such as transport and industry.

Sweden performs well on most SDG indicators related to *fairness* (SDGs 3, 4, 7, 8, 10) but is moving away from the SDGs on others (SDGs 1 and 5). Sweden has one of the highest employment rates in the EU (SDG 8; 82.6% in 2023; EU average: 75.3%) and continues to perform above the EU average on most indicators for SDG 3 (Good health and well-being). On SDG 10 (Reduced inequalities), the gap between EU and non-EU citizens in terms of employment rates has decreased (from 32% in 2018 to 19.9% in 2023) but remains wide compared to the EU average (13.2% in 2023). The share of early leavers from education and training (SDG 4) decreased from 7.5% in 2018 to 7.4% in 2023 and remains below the EU average (9.5% in 2023). On SDGs 1 (No poverty) and 5 (Gender equality), several indicators have been on a negative trajectory. However, on most indicators Sweden still overall performs better than the EU average. The Swedish RRP includes measures to increase the number of study places in universities and other higher education institutions, as well as in higher vocational education and training at upper secondary level.

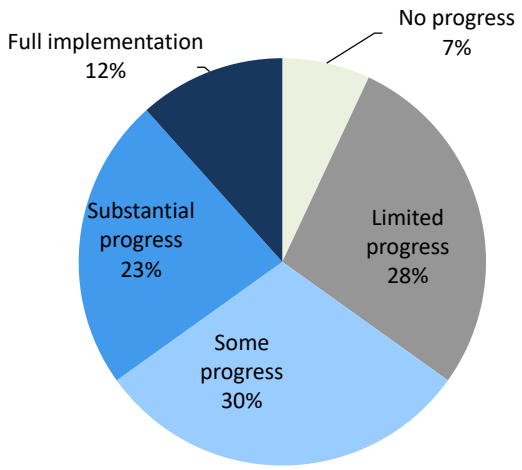
Sweden performs well on SDG indicators related to *productivity* (SDGs 4, 8, 9). Sweden's share of gross domestic expenditure on R&D (SDG 9) remains high, increasing between 2017 and 2022 (from 3.36% to 3.40% of GDP), and well above the EU average (2.24% of GDP in 2022). Furthermore, the share of young people (aged 15 to 29) neither in employment nor in education and training (SDG 8) decreased from 6.5% in 2018 to 5.7% in 2023, well below the EU average of 11.2% in 2023. On SDG 4 (Quality education), Sweden performs well on adult participation in learning (38.8%; EU average: 12.7% in 2023), has a high tertiary attainment rate (54.1% vs the EU average of 43.1% in 2023) and a high share of adults with at least basic digital skills (66.4% in 2023). To strengthen digital skills and increase human capital, the RRP supports measures to increase the number of study places in higher vocational education and ensure resources for universities and other higher education institutions. The RRP also provides funding for investment in broadband expansion.

Sweden performs well on most SDG indicators related to *macroeconomic stability* (SDGs 8 and 17) and is improving on others (SDG 16). Sweden performs well on SDG 8, having increased its share of GDP allocated for investment from 25.2% in 2018 to 26.7% in 2023 (EU average: 22.7% in 2023). Furthermore, the general government gross debt (SDG 17) decreased from 39.6% of GDP in 2018 to 31.2% in 2023, significantly lower than the EU average of 81.7% of GDP in 2023. On SDG 16 (Peace, justice and strong institutions), Sweden performs above the EU average for most indicators, but certain indicators related to peace and personal security are on a negative trajectory. On the other hand, the share of the population who perceive the independence of the justice system to be very or fairly good is high at 75% in 2023 (EU average: 53% in 2023). The RRP aims to help preserve the sustainability of the Swedish economic model, and therefore contributes to macroeconomic stability through reforms tackling demographic challenges.

As the SDGs form an overarching framework, any links to relevant SDGs are either explained or depicted with icons in the other Annexes.

The Commission has assessed the 2019-2023 country-specific recommendations (CSRs) ([17]) addressed to Sweden as part of the European Semester. These recommendations concern a wide range of policy areas that are related to 14 of the 17 Sustainable Development Goals (SDGs) (see Annexes 1 and 3). The assessment considers the policy action taken by Sweden to date ([18]) and the commitments in its recovery and resilience plan (RRP) ([19]). At this stage of RRP implementation, 65% of the CSRs focusing on structural issues from 2019-2023 have recorded at least 'some progress', while 35% recorded 'limited progress' or 'no progress' (see Graph A2.1). As the RRP is implemented further, considerable progress in addressing structural CSRs is expected in the coming years.

Graph A2.1: **Sweden's progress on the 2019-2023 CSRs (2024 European Semester)**



Source: European Commission.

([17]) 2023 CSRs: EUR-Lex - 32023H0901(27) - EN - EUR-Lex (europa.eu)

2022 CSRs: EUR-Lex - 32022H0901(27) - EN - EUR-Lex (europa.eu)

2021 CSRs: EUR-Lex - 32021H0729(28) - EN - EUR-Lex (europa.eu)

2020 CSRs: EUR-Lex - 32020H0826(27) - EN - EUR-Lex (europa.eu)
2019 CSRs: EUR-Lex - 32019H0905(27) - EN - EUR-Lex (europa.eu)

([18]) Including policy action reported in the national reform programme and in Recovery and Resilience Facility (RRF) reporting (published twice a year, reporting on progress in implementing milestones and targets on the basis of the payment requests assessment).

([19]) Member States were asked to effectively address in their RRPs all or a significant subset of the relevant country-specific recommendations issued by the Council. The CSR assessment presented here considers the degree of implementation of the measures included in the RRP and of those carried out outside of the RRP at the time of assessment. Measures laid down in the Annex of the adopted Council Implementing Decision on approving the assessment of the RRP, which have not yet been adopted or implemented but considered credibly announced, in line with the CSR assessment methodology, warrant 'limited progress'. Once implemented, these measures can lead to 'some/substantial progress or full implementation', depending on their relevance.

Table A2.1: **Summary table on 2019-2023 CSRs**

Sweden	Assessment in May 2024*	RRP coverage of CSRs until 2026	Relevant SDGs
2019 CSR 1	**Limited progress**		
Address risks related to high household debt by gradually reducing the tax deductibility of mortgage interest payments or increasing recurrent property taxes.	No progress		SDG 8
Stimulate investment in residential construction where shortages are most pressing, in particular by removing structural obstacles to construction.	Limited progress	Relevant RRP measures planned as of 2020, 2021, 2022 and 2023	SDG 8
Improve the efficiency of the housing market, including by introducing more flexibility in rental prices and revising the design of the capital gains tax.	Limited progress	Relevant RRP measures planned as of 2020, 2021, 2022 and 2023	SDG 8
2019 CSR 2	**Some progress**		
Focus investment related economic policy on education and skills	Some progress	Relevant RRP measures planned as of 2021, 2022, 2023 and 2024	SDG 4, 10, 11
, maintaining investment in sustainable transport to upgrade the different transport modes, in particular railways	Substantial progress	Relevant RRP measures planned as of 2021, 2022, 2023 and 2024	SDG 10, 11
, and research and innovation, taking into account regional disparities.	Some progress	Relevant RRP measures planned as of 2021, 2022, 2023 and 2024	SDG 9, 10, 11
2019 CSR 3	**Substantial Progress**		
Ensure effective supervision and the enforcement of the anti-money laundering framework.	Substantial Progress	Relevant RRP measures planned as of 2020, 2021, 2022 and 2023	SDG 8, 16
2020 CSR 1	**Substantial progress**		
In line with the general escape clause, take all necessary measures to effectively address the pandemic, sustain the economy and support the ensuing recovery. When economic conditions allow, pursue fiscal policies aimed at achieving prudent medium-term fiscal positions and ensuring debt sustainability, while enhancing investment.	Not relevant anymore	Not applicable	SDG 8, 16
Ensure the resilience of the health system, including through adequate supplies of critical medical products, infrastructure and workforce.	Substantial progress	Relevant RRP measures planned as of 2021, 2022, 2023 and 2024	SDG 3
2020 CSR 2	**Some progress**		
Foster innovation	Substantial Progress	Relevant RRP measures planned as of 2025	SDG 9
and support education and skills development.	Some progress	Relevant RRP measures planned as of 2021, 2022, 2023 and 2024	SDG 4
Front-load mature public investment projects and	Limited progress	Relevant RRP measures planned as of 2021, 2022, 2023, 2024 and 2025	SDG 8, 16
promote private investment to foster the economic recovery.	Some progress		SDG 8, 9
Focus investment on the green and digital transition, in particular on clean and efficient production and use of energy,	Some Progress	Relevant RRP measures planned as of 2021, 2022, 2023, 2024 and 2025	SDG 7, 9, 13
high-tech and innovative sectors,	Substantial Progress		SDG 9
5G networks	Full implementation		SDG 9
and sustainable transport.	Substantial Progress	Relevant RRP measures planned as of 2021, 2022, 2023, 2024 and 2025	SDG 11
2020 CSR 3	**Substantial progress**		
Improve the effectiveness of anti-money laundering supervision and effectively enforce the anti-money laundering framework.	Substantial progress	Relevant RRP measures planned as of 2020 and 2023	SDG 8, 16

(Continued on the next page)

Table (continued)

2021 CSR 1	**Not relevant anymore**		
In 2022, maintain a supportive fiscal stance, including the impulse provided by the Recovery and Resilience Facility, and preserve nationally financed investment.	Not relevant anymore	Not applicable	SDG 8, 16
When economic conditions allow, pursue a fiscal policy aimed at achieving prudent medium-term fiscal positions and ensuring fiscal sustainability in the medium term.	Not relevant anymore	Not applicable	SDG 8, 16
At the same time, enhance investment to boost growth potential. Pay particular attention to the composition of public finances, on both the revenue and expenditure sides of the budget, and to the quality of budgetary measures in order to ensure a sustainable and inclusive recovery. Prioritise sustainable and growth-enhancing investment, in particular investment supporting the green and digital transition.	Not relevant anymore	Not applicable	SDG 8, 16
Give priority to fiscal structural reforms that will help provide financing for public policy priorities and contribute to the long-term sustainability of public finances, including, where relevant, by strengthening the coverage, adequacy and sustainability of health and social protection systems for all.	Not relevant anymore	Not applicable	SDG 8, 16
2022 CSR 1	**Some Progress**		
In 2023, ensure that the growth of nationally financed primary current expenditure is in line with an overall neutral policy stance, taking into account continued temporary and targeted support to households and firms most vulnerable to energy price hikes and to people fleeing Ukraine. Stand ready to adjust current spending to the evolving situation.	Substantial Progress	Not applicable	SDG 8, 16
Expand public investment for the green and digital transitions, and for energy security taking into account the REPowerEU initiative, including by making use of the Recovery and Resilience Facility and other Union funds.	Substantial Progress	Not applicable	SDG 8, 16
For the period beyond 2023, pursue a fiscal policy aimed at achieving prudent medium-term fiscal positions.	Full Implementation	Not applicable	SDG 8, 16
Reduce risks related to high household debt and housing market imbalances by reducing the tax deductibility of mortgage interest payments or by increasing recurrent property taxes.	No Progress		SDG 8, 10, 12
Stimulate investment in residential construction to ease the most urgent shortages, in particular by removing structural obstacles to construction and by ensuring the supply of buildable land.	Limited Progress	Relevant RRP measures planned as of 2020, 2021, 2022 and 2023	SDG 8, 9
Improve the efficiency of the housing market, including by introducing reforms to the rental market.	Limited Progress		SDG 8
2022 CSR 2			
Proceed with the implementation of its recovery and resilience plan, in line with the milestones and targets included in the Council Implementing Decision of 4 May 2022.	RRP implementation is monitored by assessing RRP payment requests and analysing reports published twice a year on the achievement of the milestones and targets. These are to be reflected in the country reports.		
Swiftly finalise the negotiations with the Commission of the 2021-2027 cohesion policy programming documents with a view to starting their implementation.	Progress on the cohesion policy programming documents is monitored under the EU cohesion policy.		
2022 CSR 3	**Limited Progress**		
Reduce the impact that pupils' socio-economic and migrant backgrounds have on their educational outcomes by providing equal access opportunities to schools and by addressing the shortages of qualified teachers.	Limited Progress	Relevant RRP measures planned as of 2021, 2022, 2023 and 2024	SDG 4, 8, 10
Develop skills of disadvantaged groups, including people from migrant backgrounds, by adapting resources and methods to their needs to help their integration into the labour market.	Some Progress	Relevant RRP measures planned as of 2021, 2022, 2023 and 2024	SDG 4, 8, 10
2022 CSR 4	**Some Progress**		
Reduce overall reliance on fossil fuels	Limited Progress		SDG 7, 9, 13
by accelerating the deployment of renewables and boosting complementary investment in network infrastructure, strengthening internal grids within the country to ensure sufficient network capacity,	Some Progress	Relevant RRP measures planned as of 2021, 2022, 2023, 2024 and 2025	SDG 7, 9, 13
improving energy efficiency,	Some Progress	Relevant RRP measures planned as of 2021, 2022, 2023 and 2025	SDG 7
and further streamlining permitting procedures in relation to renewable energy projects.	Some Progress	Relevant measures planned as of 2025	SDG 7, 9, 13

(Continued on the next page)

Table (continued)

2023 CSR 1	**Some Progress**		
Wind down the emergency energy support measures in force, as soon as possible in 2023 and 2024. Should renewed energy price increases necessitate new or continued support measures, ensure that these are targeted at protecting vulnerable households and firms, fiscally affordable, and preserve incentives for energy savings.	Substantial Progress		SDG 8, 16
While maintaining a sound fiscal position in 2024,	Full Implementation		SDG 8, 16
preserve nationally financed public investment and ensure the effective absorption of RRF grants and other EU funds, in particular to foster the green and digital transitions.	Full Implementation		SDG 8, 16
For the period beyond 2024, continue to pursue investment and reforms conducive to higher sustainable growth and preserve a prudent medium-term fiscal position.	Full Implementation		SDG 8, 16
Reduce risks related to high household debt and housing market imbalances by reducing the tax deductibility of mortgage interest payments and/or increasing recurrent property taxes, while establishing adequate tools for better policy assessment and targeting.	No Progress		SDG 8, 10, 12
Stimulate investment in residential construction to ease the most urgent shortages, in particular by removing structural obstacles to construction and by ensuring the supply of buildable land.	Limited Progress	Relevant RRP measures planned as of 2020, 2021, 2022 and 2023	SDG 8, 10, 12
Improve the efficiency of the housing market, including by introducing reforms to the rental market	Limited Progress		SDG 8, 10, 12
2023 CSR 2			
Proceed with the steady implementation of its recovery and resilience plan and swiftly finalise the REPowerEU chapter with a view to rapidly starting its implementation. Proceed with the speedy implementation of cohesion policy programmes, in close complementarity and synergy with the recovery and resilience plan.	RRP implementation is monitored through the assessment of RRP payment requests and analysis of the bi-annual reporting on the achievement of the milestones and targets, to be reflected in the country reports. Progress with the cohesion policy is monitored in the context of the Cohesion Policy of the European Union.		
2023 CSR 3	**Limited Progress**		
Improve educational outcomes for pupils with disadvantaged socio-economic and migrant backgrounds by ensuring equal access opportunities in the schooling system and addressing the shortages of qualified teachers.	Limited Progress	Relevant RRP measures planned as of 2021, 2022, 2023 and 2024	SDG 4, 10
Develop the skills of disadvantaged groups, particularly people with migrant backgrounds, by adapting resources and methods to their needs, with a view to helping them integrate into the labour market.	Some Progress	Relevant RRP measures planned as of 2021, 2022, 2023 and 2024	SDG 4, 8, 10
2023 CSR 4	**Limited Progress**		
Reduce reliance on fossil fuels	Limited Progress	Relevant measures planned as of 2021	SDG 7, 9, 13
by accelerating the deployment of renewables, including by expanding and upgrading energy transmission networks,	Some Progress	Relevant measures planned as of 2025	SDG 7, 9, 13
introducing reforms to simplify and speed up administrative and permitting procedures,	Some Progress	Relevant measures planned as of 2025	SDG 7, 9, 13
improving energy efficiency and	Some Progress	Relevant RRP measures planned as of 2021, 2022, 2023 and 2025	SDG 7, 9, 13
stepping up policy efforts aimed at the provision and acquisition of skills and competences needed for the green transition.	Some Progress		SDG 4, 7, 13

Note:

* See footnote ([19]).

** RRP measures included in this table contribute to the implementation of CSRs. Nevertheless, additional measures outside the RRP may be necessary to fully implement CSRs and address their underlying challenges. Measures indicated as 'being implemented' are only those included in the RRF payment requests submitted and positively assessed by the European Commission.

Source: European Commission.

This Annex provides a snapshot of Sweden's implementation of its recovery and resilience plan (RRP), past the mid-way point of the Recovery and Resilience Facility's (RRF) lifetime. The RRF has proven central to the EU's recovery from the COVID-19 pandemic, helping speed up the twin green and digital transition, while adapting to geopolitical and economic developments, and strengthening resilience against future shocks. The RRF is also helping implement the UN Sustainable Development Goals and address the country-specific recommendations (see Annex 2).

The RRP paves the way for disbursing up to EUR 3.45 billion in grants under the RRF over the 2021-2026 period, representing 0.6% of Sweden's GDP ([20]). As of mid-May 2024, Sweden still has its full RRF allocation available, which will be disbursed upon assessment of future fulfilment of the 57 milestones and targets ([21]) included in the Council Implementing Decision ([22]) (CID), ahead of the 2026 deadline established for the Facility.

Sweden's progress in implementing its plan is recorded in the Recovery and Resilience Scoreboard ([23]). The scoreboard gives an overview of the progress made in implementing the RRF as a whole. The graph and tables below show the current state of play as reflected in the scoreboard.

Sweden's RRP includes a REPowerEU chapter to phase out its dependency on Russian fossil fuels, diversify its energy supplies, and produce more clean energy in the coming years. The chapter will contribute to ensuring the supply of affordable, secure, and sustainable energy.

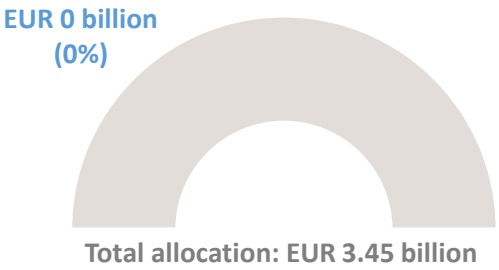
Table A3.1: **Key facts of the Swedish RRP**

Initial plan CID adoption date	4 May 2022
Scope	Revised plan with REPowerEU chapter
Last major revision	9 November 2023
Total allocation	EUR 3.4 billion in grants (0.6% of 2023 GDP)
Investments and reforms	14 investments and 16 reforms
Total number of milestones and targets	57
Fulfilled milestones and targets	0 (0% of total)

Source: RRF Scoreboard

The plan has a strong focus on the green transition, dedicating 43.65% of the available funds to measures that support climate objectives and 21.2% of its total allocation to support the digital transition. It also retains a strong social dimension with social protection measures, including in particular vocational education, Swedish language training and student housing.

Graph A3.1: **Total grants disbursed under the RRF**



Note: This graph displays the amount of grants, including pre-financing, disbursed so far under the RRF. Grants are non-repayable financial contributions. The total amount of grants given to each Member State is determined by an allocation key and the total estimated cost of the respective RRP.
Source: RRF Scoreboard

([20]) GDP information is based on 2023 data. Source: https://ec.europa.eu/economy_finance/recovery-and-resilience-scoreboard/index.html?lang=en

([21]) A milestone or target is satisfactorily fulfilled once a Member State has provided evidence to the Commission that it has reached the milestone or target and the Commission has assessed it positively in an implementing decision.

([22]) https://data.consilium.europa.eu/doc/document/ST-7772-2022-ADD-1/en/pdf

([23]) https://ec.europa.eu/economy_finance/recovery-and-resilience-scoreboard/country_overview.html

With a significantly delayed implementation of its RRP, Sweden is working towards its first payment request as of 15 May 2024. Table A3.2 highlights some relevant measures that will be implemented before 2026 to keep making Sweden's economy greener, more digital, inclusive, and resilient.

Table A3.2: **Measures in Sweden's RRP**

Upcoming reforms and investments
• More efficient digital services at public administration bodies • Investments in innovative R&D projects aimed at reducing industrial emissions • Funding for the protection of biodiversity

Source: FENIX

EU funding instruments provide considerable resources for recovery and growth to the EU Member States. In addition to the EUR 3.4 billion of Recovery and Resilience Facility (RRF) funding described in Annex 3, EU cohesion policy funds ([24]) provide EUR 1.7 billion to Sweden for the 2021-2027 period ([25]). Support from these two instruments combined represents around 0.94% of the country's GDP, compared to the EU average of 5.38% of GDP ([26]). Cohesion policy supports regional development, economic, social and territorial convergence and competitiveness through long-term investment in line with EU priorities and with national and regional strategies.

During the 2014-2020 programming period, cohesion policy funds boosted Sweden's competitiveness, with tangible achievements notably in research and development, skills development and business support. By the end of the eligibility period in December 2023, 2014-2020 cohesion policy funds ([27]) had made EUR 2.1 billion available to Sweden ([28]), of which EUR 1.1 billion has been disbursed since March 2020, when the COVID-19 pandemic began ([29]). The React-EU programme helped mitigate the impact of the pandemic, including through skills development and business support. The achievements of the European Regional Development Fund (ERDF) over the programming period included action to support to 4 211 new businesses and create 12 183 new jobs (full-time equivalents). The ERDF has also supported the cooperation between research institutions and 3 264 SMEs. During the same period, over 582 200 participants took part in more than 890 projects supported by the ESF in Sweden. These measures supported the thematic objectives of the Swedish ESF programme: promoting sustainable employment and mobility; promoting social inclusion, combating poverty and discrimination; and investing in education and training for lifelong learning.

In the current programming period (2021-2027), cohesion policy will provide a further boost to Sweden's competitiveness, to the green transition and to social cohesion, improving the living and working conditions of Sweden's people. In 2021-2027, under the Smarter Europe objective, with funding from the ERDF amounting to EUR 574 million, 16 581 SMEs are planned to be supported via grants or financial instruments. These investments will strengthen the conditions for research and demand-driven innovation, create opportunities for entrepreneurship, and support digitalisation, internationalisation and competitiveness. This is expected to lead to, for example, 3 136 businesses cooperating with research organisations and 3 730 SMEs introducing product or process innovation. The Just Transition Fund (JTF), with an allocation of EUR 156 million, will focus on helping the steel industry in Norrbotten, the metal industry in Västerbotten, and the cement industry on the island of Gotland during their industrial transformation towards carbon neutrality. These investments are expected to contribute to a decrease of 3 041 554 tonnes of CO2 eq./year in 2029. The ESF+ • In 2021-2027, the ESF+ will contribute to increased employment and skills development in Sweden, with a total budget of around 1,6 billion euros. 136 projects have already been approved, with approximately 129 000 planned participants in these projects. Some of the main areas of ESF+ support in Sweden will include increasing the opportunities for an inclusive and sustainable working life for everyone, increasing the opportunity for work, reducing the risk of economic vulnerability, and social innovation. With this work, cohesion policy substantially contributes to achieving the UN Sustainable Development Goals (SDGs) in Sweden, in particular SDG 9 (Industry, innovation, infrastructure), SDG 8 (Decent work and economic growth) and SDG 1 (No poverty).

([24]) In 2021-2027, cohesion policy funds include the European Regional Development Fund, the European Social Fund Plus and the Just Transition Fund.

([25]) European territorial cooperation (ETC) programmes are excluded from the figure. In 2021-2027, the total investment, including national financing, amounts to EUR 4 billion.

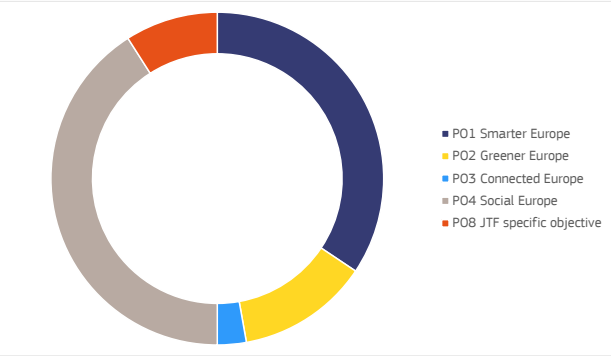
([26]) RRF funding includes both grants and loans, where applicable. The EU average is calculated for cohesion policy funds excluding ETC programmes. GDP figures are based on Eurostat data for 2022.

([27]) In 2014-2020, cohesion policy funds included the European Regional Development Fund and the European Social Fund. REACT-EU allocations are included but ETC programmes are excluded.

([28]) In 2014-2020, the total investment, including national financing, amounted to EUR 3.8 billion.

([29]) Cut-off date: 14 May 2024.

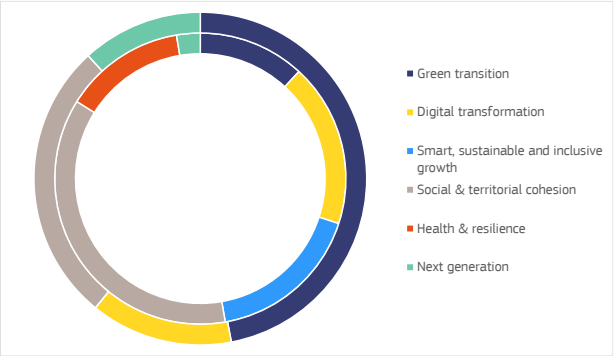
Graph A4.1: **Distribution of cohesion policy funding across policy objectives in Sweden**



Source: European Commission

Through combined action, cohesion policy and the recovery and resilience plan (RRP) have a mutually reinforcing impact in Sweden. For instance, the ERDF supports SMEs in their early stages of development which have a potential for growth and for significantly contributing to environmental and climate benefits via a financial instrument, while the RRP supports climate investment in the private sector, under the schemes referred to as the industry leap and the climate leap. These schemes involve projects that develop or implement new technology with zero, low or negative greenhouse gas emissions. Also in relation to the green transition, the JTF invests in measures to boost the capacity of the electricity grid in Gotland in order to strengthen the electricity network for the green transition. This occurs in complementarity with the RRP reform on shortening the permitting process for electricity grid construction. Together, cohesion policy and the RRP also help modernise the labour market. The ERDF and JTF support skills development for smart specialisation, entrepreneurship and industrial transition, the ESF+ helps with integrating people into the labour market and lifelong learning, and the Swedish RRP contains an employment protection act that aims to promote lifelong learning and increase transition possibilities. The contribution of cohesion policy and the RRP funding by policy objective is illustrated by Graphs A4.1 and A4.2.

Graph A4.2: **Distribution of RRF funding by pillar in Sweden**



(1) Each RRP measure helps achieve the aims of two of the six policy pillars of the RRF. The primary contribution is shown in the outer circle while the secondary contribution is shown in the inner circle. Each contribution represents 100% of the RRF funds. Therefore, the total contribution to all pillars displayed on this chart amounts to 200% of the RRF funds allocated to Sweden.

Source: European Commission

The Technical Support Instrument (TSI) helps Sweden invest in its public administration and create a better enabling environment for EU and national investment. The TSI has funded projects in Sweden to design and implement growth-enhancing reforms since 2018. The support provided in 2023 included action to: i) strengthen its system for multi-level skills governance; ii) improve the tax-gap estimations by the relevant state authorities; iii) implement reforms related to combating the 'shadow economy' phenomenon; and iv) advance the transition to climate neutrality in Upper Norrland. The TSI also helps Sweden implement specific reforms and investments included in its RRP, such as the reform of the public employment service.

Sweden also received funding from several other EU instruments, including those listed in Table A4.1.

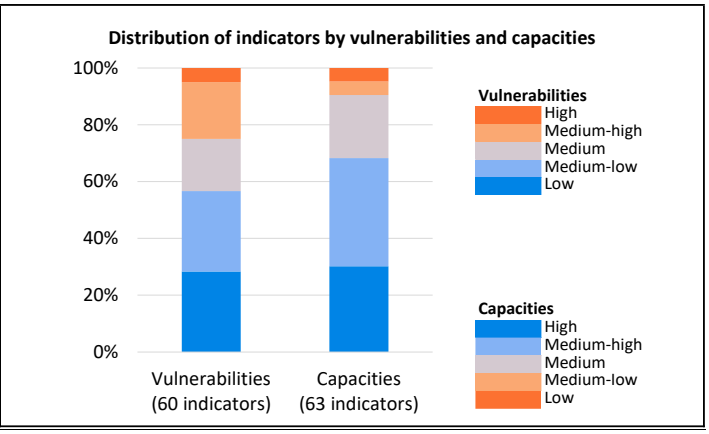
Table A4.1: **Support from EU instruments in Sweden**

EU grants		
	Amount 2014-2020 (EUR million)	Amount 2021-2027 (EUR million)
Cohesion policy	2 109.1	1 725.0
RRF grants (1)	-	3 445.7
Public sector loan facility (grant component) (2)	-	11.8
Common agricultural policy (3)	8 400.0	4 521.0
EMFF/EMFAF (4)	120.2	115.9
Connecting Europe Facility (5)	411.1	365.7
Horizon 2020 / Horizon Europe (6)	2 319.6	1 079.2
LIFE programme (7)	101.2	204.7
EU guarantees		
	EU Guarantee (EUR million)	Volume of operations (EUR million)
European Fund for Strategic Investment 2015-2020 (8)	1 013.5	2 996.1
InvestEU 2021-2027 (9)	298.0	883.0

(1) RRF implementation period is 2021-2026.
(2) The public sector loan facility's programming period is 2021-2025 and the amount reflects the national share in its grant component reserved until the end of the period.
(3) Common agricultural policy programming periods are 2014-2022 and 2023-2027.
(4) EMFF – European Maritime and Fisheries Fund, EMFAF – European Maritime, Fisheries and Aquaculture Fund.
(5) Data on the Connecting Europe Facility covers transport and energy and has a cut-off date of 15 May 2024.
(6) Data on Horizon Europe (2021-2027) has a cut-off date of 13 May 2024.
(7) 2021-2027 data on the LIFE programme has a cut-off date of 15 May 2024.
(8) The amount of the EU guarantee signed under the EFSI Infrastructure and Innovation Window was derived based on the signed amount of the operations and the average internal multiplier, as reported by the EIB (cut-off date is 31 December 2023).
(9) The amount of the EU guarantee and of the volume of operations signed under InvestEU includes the EU compartment as well as the Member State compartments (cut-off date is 31 December 2023).
Source: European Commission

Table A5.1: **Resilience indices across dimensions for Sweden and the EU-27**

Dimension		SE 2023 RDB	SE 2024 RDB	EU-27 2024 RDB
Overall resilience	Vulnerabilities			
	Capacities			
Social and economic	Vulnerabilities			
	Capacities			
Green	Vulnerabilities			
	Capacities			
Digital	Vulnerabilities			
	Capacities			
Geopolitical	Vulnerabilities			
	Capacities			



(1) The synthetic indices aggregate the relative resilience situation of countries across all indicators considered. For an indicator, each country's relative situation in the latest available year is compared with the collection of values of that indicator for all Member States and all years in the reference period.
Source: Resilience Dashboards - version spring 2024, data up to 2022

This Annex uses the Commission's resilience dashboards (RDB) ([30]) to show Sweden's relative resilience capacities and vulnerabilities ([31]) that may be of relevance for societal, economic, digital and green transformations, and for dealing with future shocks and geopolitical challenges. ([32])

According to the RDB's set of resilience indicators, Sweden has overall medium-high capacities, and medium-low vulnerabilities, below the EU average characterised by medium overall vulnerabilities. Over 50% of its vulnerability indicators fall into the low or medium-low category, while over 60% of its capacity indicators fall into the high or medium-high category.

In the social and economic dimension, **Sweden's performance is above the EU average, with both medium-low vulnerabilities and high capacities**. Among its vulnerabilities, it has among the lowest number of premature deaths due to particle pollution in the EU and the second lowest number of young people neither in employment nor in education and training. Its capacities in most areas are strong. Exceptions, in the medium category, are the income stabilisation coefficient, the average PISA score and the impact of social transfers on poverty reduction, weaker than in the 2023 RDB.

In the green dimension, **Sweden has medium-high capacities and medium-low vulnerabilities.** Exceptions to its generally high capacities are its medium-low performance in the inland use of trains and Natura 2000 protected areas. It has medium-low vulnerabilities on average, below the EU average, with the lowest GHG emissions per capita and among the lowest fatalities from extreme climate events in Europe. Its water exploitation and soil sealing indices are also among the EU's lowest. However, its consumption footprint per capita, raw material consumption per capita and waste generation index are above the EU average, giving it medium-high vulnerabilities in these areas.

In the digital dimension Sweden's performance is above the EU average, with both medium-low vulnerabilities and high capacities. It stands out for its robust capacities in gross value added of ICT and cybersecurity awareness of individuals. Although it has the

([30]) Https://ec.europa.eu/info/strategy/strategic-planning/strategic-foresight/2020-strategic-foresight-report/resilience-dashboards_en. Resilience is defined as the ability not only to withstand and cope with challenges but also to undergo transitions, in a sustainable, fair, and democratic manner. 2020 Strategic Foresight Report: *Charting the course towards a more resilient Europe* (COM(2020) 493).

([31]) Vulnerabilities describe features that can exacerbate the negative impact of crises and transitions, or obstacles that may hinder the achievement of long-term strategic goals, while capacities refer to enablers or abilities to cope with crises and structural changes and to manage transitions.

([32]) This Annex is linked to Annex 1 on SDGs, Annex 6 on the green deal, Annex 8 on the fair transition to climate neutrality, Annex 9 on resource productivity, efficiency and circularity, Annex 10 on the digital transition and Annex 14 on the European pillar of social rights.

lowest vulnerabilities in the EU measured by the availability of cloud services and access to digital public services, it is amongst the most vulnerable in ICT trade deficit in services.

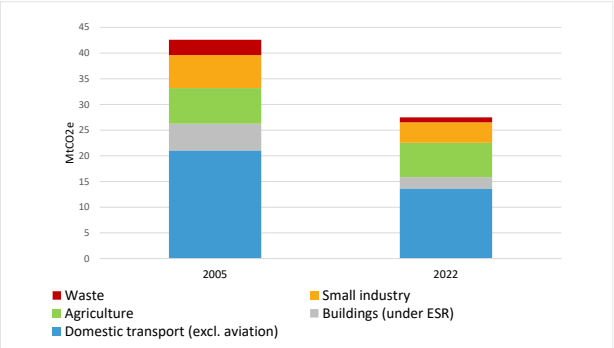
In the geopolitical dimension, Sweden has maintained its medium vulnerabilities and medium capacities as in the 2023 RDB. Among its geopolitical vulnerabilities, its supplier concentration of energy carriers and base metals are among the highest in the EU. Medium-high vulnerabilities are also found in Sweden's extra-EU export and import partner concentration. However, in terms of capacities, compared to the 2023 RDB, matters have improved in trade openness towards extra-EU countries but also within the EU, and in the proportion of non-EU citizens in total employment, in both cases going from medium to high.

Sweden has made progress in the green transition, with more action needed on specifying the funding framework for the climate and energy transition, on the circular economy and other areas. This Annex provides a snapshot of climate, energy, and environmental aspects of the transition in Sweden ([33]).

Sweden's draft updated national energy and climate plan (NECP) provides only partial information on the investment needed to achieve its 2030 climate and energy targets. The plan provides estimates of current and future investment in electricity generation (unchanged since the 2019 NECP) and transmission networks but lacks a more comprehensive assessment of the investment needed to meet the climate targets, including estimates for industry and transport. The plan outlines some of the main sources of funding but does not provide a consolidated overview. It is therefore not possible to identify potential funding gaps ([34]).

With the policies and measures in place, Sweden it is uncertain whether Sweden's 2030 effort sharing target will still be reached ([35]). In 2022, Sweden's greenhouse gas emissions from the effort sharing sectors are estimated to stand at 36.4% below those of 2005. The country's policies were projected to reduce emissions by 61.9% compared to 2005 before the reduction obligation was lowered. This would have resulted in reductions of 11.9 percentage points beyond Sweden's effort sharing target to achieve a 50% reduction ([36]). Sweden would have exceeded its effort sharing target but it is unclear whether it will reach the target after the changes to the reduction obligation. Sweden has committed to achieve climate neutrality by 2045.

Graph A6.1: **Greenhouse gas emissions from the effort sharing sectors in Mt CO2eq, 2005-2022**



Source: European Environment Agency

There is scope for increasing Sweden's targets for renewable energy and energy efficiency in its final updated NECP ([37]). Currently set at 65% by 2030 in the draft updated NECP, Sweden's target for renewable energy is significantly below the required contribution of 76%. Its energy efficiency contributions of 40.4 Mtoe in primary energy consumption and 30.11 Mtoe in final energy consumption for 2030 are also less ambitious than those required by the Energy Efficiency Directive.

([33]) This Annex is complemented by Annex 7 on energy transition and competitiveness, Annex 8 on the fair transition to climate neutrality, Annex 9 on resource efficiency, circularity, and productivity, and relevant topics in other annexes to this country report.

([34]) See the Commission's (2023) assessment of the draft national energy and climate plan of Sweden..

([35]) The national greenhouse gas emission reduction target is laid down in Regulation (EU) 2023/857 (the Effort Sharing Regulation). The aim is to align action in the sectors concerned to meet the EU-level economy-wide target of reducing greenhouse gas by at least 55% compared to 1990 levels. The target also applies to sectors outside the current EU Emissions Trading System, notably buildings (heating and cooling), road transport, agriculture, waste, and small industry (known as the effort sharing sectors).

([36]) The effort sharing emissions for 2022 are based on approximated inventory data. The final data will be established in 2027 after a comprehensive review. Sweden's draft updated NECP does not provide emission projections for the effort sharing sectors. The information on projections of effort sharing emissions "with existing measures" (WEM) and "with additional measures" (WAM) is based on the latest data that had to be reported by 15 March 2023 under Art. 18 of Regulation 2018/1999 (the Governance Regulation). The projections do not take into account the impact of new measures such as changes in biofuel blending requirements.

([37]) The EU target set out in the revised Renewable Energy Directive is to have 42.5% of gross final energy consumption coming from renewable energy sources by 2030, with the aspiration to reach 45%. The formula in Annex I to Directive (EU) 2023/1791 sets the indicative national contribution for Sweden at 35.4 Mtoe for primary energy consumption. The Commission communicated a corrected national contribution of 25.41 Mtoe in final energy consumption for 2030 in accordance with Article 4(5) of the Energy Efficiency Directive to increase the contribution towards the Union's binding energy efficiency target. See the Commission Recommendation of 18.12.2023 to Sweden.

Sweden is an EU frontrunner in sustainable transport ([38]). Standing at 6.1% in 2023, Sweden has the highest share of battery electric vehicles in its passenger car fleet of all EU countries. Its 31 800 publicly accessible charging points provided one charging point for every 15 e-vehicles in 2023 (below the EU average of 1:10). The composition of road transport is very similar to the EU average, with passenger cars accounting for 83 % of distances travelled, and rail and buses and coaches together for 15%. On the transport of freight, the split between modes of transport is relatively more balanced, with railways accounting for 29% and road transport accounting for 71% of freight movements. 75% of the Swedish rail network is electrified.

Sweden is facing significant challenges in enhancing the carbon-absorbing capacity of its land-use sector, as carbon removals are declining. Sweden is one of the EU Member States with the highest net carbon removals through its land use, land-use change, and forestry (LULUCF). To reach its 2030 LULUCF target, additional carbon removals of 3 955 kt CO_2eq are needed ([39]). According to the latest projections, Sweden's carbon removals are expected to fall short of the target ([40]).

Having broadly implemented its 2018 national adaptation strategy, Sweden is set to introduce a new strategy this year. Climate change will have a significant impact on Sweden's natural and built environment and give rise to major societal challenges. Projected impacts and challenges include landslides and erosion, floods, and water shortages. Climate change is also expected to considerably impact Sweden's forests. Sweden has earmarked a budget for climate adaptation that can be deployed at short notice. It has also created an adaptation fund for municipalities and increased their funding to prevent natural disasters such as landslides and floods. Despite stepping up its efforts on climate adaptation, Sweden's forestry sector is still facing significant challenges due to new risks associated with climate change ([41]).

There is still room for improvement on biodiversity and nature protection and restoration. At the end of 2021, 15% of Sweden's land area and 14.9% of its marine area was under protection ([42]). According to the report on the conservation status of protected habitats and species covered by Article 17 of the Habitats Directive, in 2013-2018, only 22.6% of habitats and 47.5% of species reached a good conservation status ([43]). Moreover, conservation status is uneven across groups: of the 33 biogeographical assessments of the 16 EU forest habitat types protected under the EU nature directives in Sweden, only 6.06% (two habitat types in the Alpine region) have a favourable conservation status, while all the others have an unfavourable status ([44]). The common farmland bird index increased from 81.1 in 2011 to 84.7 in 2018. However, for bird species that are dependent on forests, levels are decreasing in Sweden, especially for those species linked to forests with a more complex structure ([45]).

Intensive agriculture has a major impact on ecosystems, biodiversity, soil health and air quality. Between 2015 and 2023, the agricultural sector's annual economic output fluctuated between EUR 5.4 and EUR 6.5 billion ([46]) and stood at EUR 5.9 billion in 2023. Sweden is an EU leader on converting to organic agriculture. The share of Sweden's utilised agricultural area under organic farming reached 20.2% in 2021. This is more than twice the EU average of 9.1% ([47]) and has been steadily decreasing since 2019. Conservation tillage practices, which increase soil organic carbon, covered 23% of Sweden's tillable area in 2016. According to the impact assessment for the

([38]) Unless otherwise indicated, data in this section refer to 2021. See European Commission, 2023, EU transport in figures, transport.ec.europa.eu.

([39]) National LULUCF targets of the Member States in line with Regulation (EU) 2023/839.

([40]) Projections submitted in Sweden's draft updated NECP, 2023.

([41]) See also the Commission's 2023 assessment and recommendation on Sweden's progress on climate adaptation.

([42]) A lower share than in the previous year.

([43]) Versus, respectively, 15% and 28% in the EU.

([44]) State of Nature Report, EEA 2021.

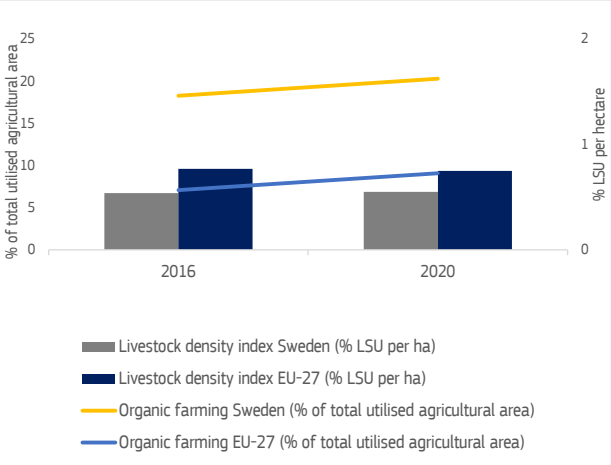
([45]) Svensk Fågeltaxering, Övervakning av fåglarnas populationsutveckling (Monitoring the population development of birds), Årsrapporterna för 2018 and 2021 (Annual Reports for 2018 and 2021).

([46]) Production value at basic price (2015=100).

([47]) In 2020. Data for 2021 are not yet available.

Soil Monitoring Law ([48]), 5% of Swedish soil could be considered as unhealthy ([49]). Soil erosion affects 37% of the country's cropland area, while 6% of its peatland area is used for agriculture. Sweden's net stock change of organic soils in cropland and grassland areas has increased over time, reaching 2 676 kt in 2021 ([50]).

Graph A6.2: **Changes in livestock density and organic farming**



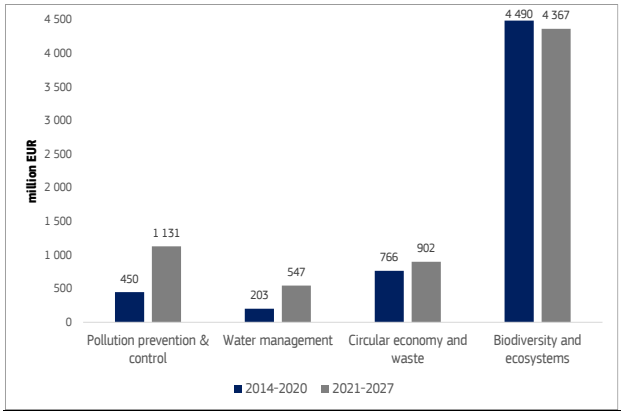
Livestock unit (LSU)/ha of UAA: it measures the stock of animals (cattle, sheep, goats, equidae, pigs, poultry and rabbits) converted in LSUs per hectare of UAA.
Source: Eurostat

Agriculture remains a significant source of pollution. The latest figures for the gross nitrogen balance on agricultural land in Sweden show a nitrogen surplus, with an average nitrogen balance of 26.1 kg of nitrogen per hectare per year in 2019. Water bodies are affected by pesticide contamination and 100% of monitoring sites were reported to have pesticide levels exceeding the thresholds set by the Water Framework Directive in 2020. However, no exceedances were reported in 2021.

Food waste remains below the EU average, while composting and digestion levels could be improved. In 2021, Sweden produced 86 kg of food waste per person (EU average: 131 kg). Food waste was mainly due to household practices.

Sweden would benefit from investing more in measures to protect biodiversity and ecosystems, in the circular economy and in pollution prevention and control. Between 2014 and 2020, the environmental investment gap reached at least EUR 6 billion per year, equivalent to 1.3% of GDP (EU average: 0.8%). The gap is estimated to be increasing over the 2021-2027 period and to reach EUR 7 billion per year. There remains opportunity to increase funding, in particular for biodiversity and ecosystems (a gap of EUR 4.4 billion), pollution prevention and control (EUR 1.1 billion), and for circular economy and waste (EUR 902 million).

Graph A6.3: **Environmental investment gap, annual average**



The numbers are computed by the European Commission based on the latest internal reports, Eurostat, EIB and national data sources.
Source: European Commission

([48]) SWD 417 final of 05.07.2023 - impact assessment for the Directive of the European Parliament and of the Council on Soil Monitoring and Resilience (Soil Monitoring Law), (cfr. pg. 10, pg. 189-190, pg. 835-845).

([49]) However, not all soil degradation processes could be quantified for all land uses. This number simply indicates an order of magnitude.

([50]) FAOSTAT

Table A6.1: **Indicators tracking progress on the European Green Deal from a macroeconomic perspective**

							Target	Distance	
		2005	2019	2020	2021	2022	2030	WEM	WAM
Progress to climate and energy policy targets									
Greenhouse gas emission reductions in effort sharing sectors [1]	Mt CO_{2eq}, %, pp	43 228.5	-28%	-32%	-33%	-36%	-50%	12	12
Net greenhouse gas removals from LULUCF [2]	Kt CO2eq	-50 683	-40 513	-43 043	-43 591	-41 218	-47 321	n/a	n/a
Share of energy from renewable sources (1) [3]	%	40%	56%	60%	63%	66%	76%	-	-
Energy efficiency: primary energy consumption [3]	Mtoe	49.0	45.8	41.3	43.3	42.5	35.4		
Energy efficiency: final energy consumption [3]	Mtoe	33.2	31.5	30.5	31.7	31.0	25.4		
							EU-27		Projected
		2018	2019	2020	2021	2022	2021	2022	2030
Green transition: mobility									
Greenhouse gas emissions: road transport	Mt CO2e	-	-	-	15.2	13.6	769.0	786.6	6.1
Share of zero-emission vehicles in new registrations [4]	%	2	4.3	9.6	19.1	32.8	9	12.1	n/a
Number of publicly accessible AC/DC charging points		-	-	14450	18407	24352	299178	446956	n/a
Share of electrified railways	%	75.3%	75.1%	75.0%	75.0%	-	56.1%	-	n/a
Green transition: buildings									
Greenhouse gas emissions: buildings	Mt CO2e	-	-	-	2.4	2.2	537.0	486.7	1.0
Final energy consumption in buildings	2015=100	-	-	-	-	-	104.0%	97.2%	
Climate adaptation									
Climate protection gap [5]	score 1-4	-	-	0.0	0.8	1.0	1.5	1.5	n/a
		2018	2019	2020	2021	2022	2020	2021	2022
State of the environment									
Water | Water exploitation index (WEI+) (1) [6]	% of renewable freshwater	1.0	0.2	-	-	-	3.6	-	-
Circular economy | Material footprint [7]	tonnes per person	25.1	24.7	23.7	26.3	26.9	14.2	14.8	14.9
Pollution | Years of life lost due to air pollution by PM2.5 [8]	per 100.000 inhabitants	85	51	32	57	-	545	584	-
Biodiversity | Habitats in good conservation status [9]	%	22.6					14.7		
Common farmland bird index [10]	2000=100	77	81	85	-	-	78	-	-
Green transition: agri-food sector									
Organic farming	% of total utilised agricultural area	20.29	20.43	20.31	20.2	-	9.1	-	-
Nitrates in groundwater	mg NO_3/litre	0.35	0.22	0.24	-	-	20.42	-	-
Food waste per capita	Kg per capita			89	86	-	130	131	-
Share of soil in poor health [11]	%					5			41
Soil organic matter in agricultural land [12]	Mt per ha	288	-	-	-	-	7 904	-	-

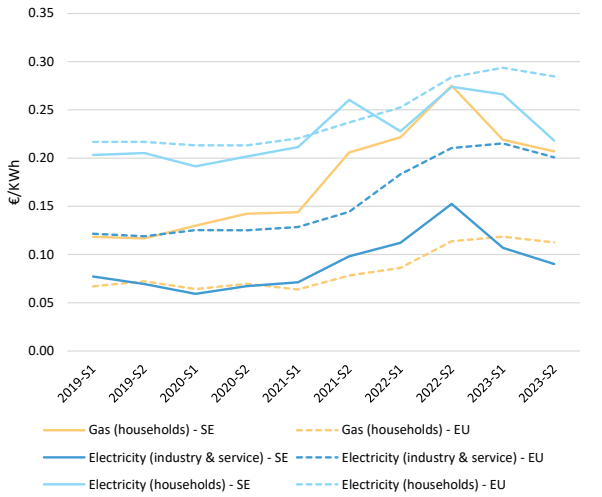
Sources: (1) Member States' emission data for 2019 and 2020 are in global warming potential (GWP) values from the 4th Assessment Report (AR4) of the Intergovernmental Panel on Climate Change (IPCC). Member States' 2005 base year emissions under Regulation (EU) 2018/842, emissions data for 2021 and 2022, and 2030 projections are in GWP values from the 5th Assessment Report (AR5) of the IPCC. 2021 data are based on the final inventory reports, 2022 data are based on approximated inventory reports and European Environmental Agency's calculation of effort sharing emissions. The final data for 2021 and 2022 will be established after a comprehensive review in 2027. The 2030 target is in percentage change of the 2005 base year emissions. Distance to target is the gap between the 2030 target and projected effort sharing emissions with existing measures (WEM) and with additional measures (WAM), in percentage change from the 2005 base year emissions. The measures included for the 2030 emission projections reflect the state of play as reported in Member States' draft updated national energy and climate plans or, if unavailable, as reported by 15 March 2023 as per Regulation 2018/1999. (2) Net removals are expressed in negative figures, net emissions in positive figures. Reported data are from the 2024 greenhouse gas inventory submission. 2030 value of net greenhouse gas removals as in Regulation (EU) 2023/839 – Annex IIa. (3) The 2030 national objectives for renewable energy and energy efficiency are indicative national contributions, in line with Regulation (EU) 2018/1999 (the Governance Regulation), the EU-level 2030 renewable energy target set out in Directive EU/2018/2001 amended by Directive EU/2023/2413 (the revised Renewable Energy Directive) – 42.5% of gross final energy consumption with the aspiration to reach 45% –, and the formula in Annex I to Directive (EU) 2023/1791 (the Energy Efficiency Directive). (4) Passenger battery electric vehicles (BEV) and fuel cell electric vehicles (FCEV). (5) The climate protection gap refers to the share of non-insured economic losses caused by climate-related disasters, based on modelling of the risk from floods, wildfires, windstorms, and the insurance penetration rate. Scale: 0 (no protection gap) –4 (very high gap) (European Insurance and Occupational Pensions Authority, 2022). (6) Total water consumption in renewable freshwater resources available for a territory and period. (7) Material extractions for consumption and investment. (8) Years of potential life lost through premature death due to exposure to particulate matter with a diameter of less than 2.5 micrometres. (9) Share of habitats in good conservation status according to the records submitted under Art. 17 of the Habitats Directive (Directive 92/43/EEC) for 2013-2018. (10) Multi-species index measuring changes in population abundances of farmland bird species. (11) Source: annex 12 of the Commission's proposal for a soil monitoring law, SWD (2023) 417 final. (12) Estimates of organic carbon content in arable land.

This annex ([51]) sets out Sweden's progress and challenges in accelerating the net-zero energy transition while bolstering the EU's competitiveness in the clean energy sector ([52]). It considers measures and targets put forward in the draft updated National Energy and Climate Plan for 2030 ([53]).

Sweden remains at a high level of energy security and is continuing its progress in installed renewable energy capacity, including having the highest share of renewable energy in heating and cooling in the EU. Topics requiring further attention include investments into grid infrastructure and network capacity, tapping into the full potential of energy efficiency and increasing market surveillance on products with ecodesign and energy labelling.

In line with overall EU trends, Swedish average electricity prices for households decreased by 20% between the second half of 2022 and the second half of 2023 and were still 9% higher than pre-crisis levels ([54]). Average prices for industrial consumers dropped significantly by 41% between 2022 and 2023 and reaching pre-crisis levels. Sweden's industrial consumers still pay some of the lowest electricity prices in the EU. Sweden has the highest gas retail prices in the EU for both households and industrial consumers, but the impact is limited because gas plays only a minor role in the Swedish energy mix.

Graph A7.1: **Sweden's energy retail prices for households and industry**



(1) For industry, consumption bands are I3 for gas and IC for electricity, which refer to medium-sized consumers and provide an insight into affordability
(2) For households, the consumption bands are D2 for gas and DC for electricity
(3) Industry prices are shown without VAT and other recoverable taxes/levies/fees as non-household consumers are usually able to recover VAT and some other taxes
Source: Eurostat

In relative terms, electricity prices for non-household consumers have increased significantly compared to the US and Japan up until the second half of 2022. However, they have since registered a sharp decline, nearly reaching the levels seen in the US and Japan by the second half of 2023. This shift indicates a potential rebound in the international competitiveness of energy-intensive industries in Sweden.

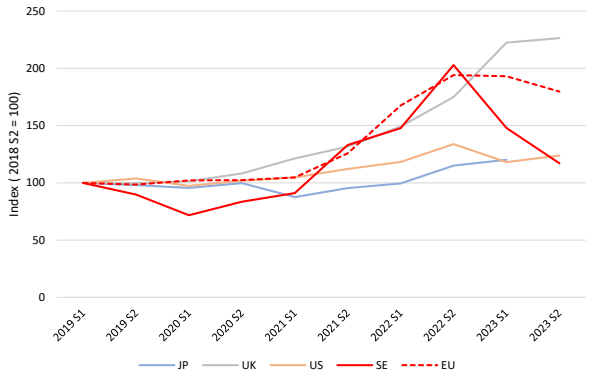
([51]) This annex is complemented by Annex 6 because the European Green Deal focuses on the clean energy transition) and by Annex 8 on action to protect the most vulnerable groups complementing ongoing efforts under the European Green Deal, REPowerEU and European Green Deal Industrial Plan.

([52]) In line with the Green Deal Industrial Plan and the Net-Zero Industry Act.

([53]) Sweden submitted its draft updated NECP in July 2023. The Commission issued an assessment and country specific recommendations on 18 December 2023, Commission Recommendation, Assessment (SWD) and Factsheet of the draft updated National Energy and Climate Plan of Sweden - European Commission (europa.eu).

([54]) Based on average household electricity prices in 2019-2020.

Graph A7.2: **Trends in electricity prices for non-household consumers (EU and foreign partners)**



(1) For Eurostat data (EU and SE), the band consumption is ID referring to large-sized consumers with an annual consumption of between 2 000 MWh and 20 000 MWh, such as in electricity intensive manufacturing sectors, and gives an insight into international competitiveness
(2) JP = Japan
Source: Eurostat, IEA

There were no interventions in price-setting for electricity in Sweden. However, the Swedish government has earmarked and allocated EUR 6.8 billion (1.3% of GDP ([55]) to shielding households and firms from the energy crisis (between September 2021 and January 2023). Energy support to households was allocated via utilities irrespective of whether they were in poverty. Municipal services have provided financial assistance to households with difficulties in sustaining their livelihoods and reduced access to the labour market and capacity for work *([56])*.

Regarding consumer empowerment in the electricity and gas markets, Sweden has completed the 100% deployment of smart meters but does not have a national framework for energy communities that fully reflects Electricity Directive 2019/944 ([57]). Sweden allows electricity consumers to enter into flexible or dynamic price contracts, and suppliers must offer such contracts if they have more than 200 000 customers ([58]). In 2022, around 26% of household customers held fixed-term contracts and 52% held variable ones ([59]). Switching rates in electricity were around 10% and switching time in both electricity and gas was 10 days.

Sweden has a high level of energy security, largely due to its low dependence on fossil fuels. In 2022, natural gas accounted for only 1% of gross available energy and 0.1% of gross electricity generation *([60])*. This low consumption, combined with a diversified portfolio of reliable providers (Denmark, Finland, the Netherlands and Norway) contributes to the security of gas supply of Sweden. Following Russia's full-scale invasion of Ukraine, Sweden declared an early warning under the Gas Security of Supply Regulation on 21 June 2022. Sweden managed to reduce its gas demand between August 2022 and December 2023 by 32% (compared with the average for the previous 5 years). Annual consumption amounted to 0.7 bcm in 2022 (1.2 bcm in 2021). Sweden has one small storage facility (Skallen, 9mcm), corresponding to around 1% of its annual gas consumption in 2022, which is used to meet peak demand. Sweden fulfilled its gas storage obligations last winter, reaching 95.3% by 1 November 2023, and ended the winter season with a storage filled at 70.95% by 1 April 2024.

No adequacy issues were recorded for the security of electricity supply during the first half of 2023 according to ENTSO-E analysis ([61]). Similarly, no adequacy issues were experienced during the winter of 2023-2024 thanks to higher filling levels of hydro reservoirs and higher than expected availability of nuclear units. The filling level in Swedish reservoirs was 80% by the end of October 2023, thanks to low hydro electricity production during June-August 2023 and a wet summer. To further support the security of electricity supply, Sweden

([55]) Bruegel, 2023, *National fiscal policy responses to the energy crisis*, https://www.bruegel.org/dataset/national-policies-shield-consumers-rising-energy-prices. This is one of the lowest shares of GDP spent on retail price interventions by a Member State.

([56]) Source: the updated Swedish NECP.

([57]) Directive (EU) 2019/944 of the European Parliament and of the Council of 5 June 2019 on common rules for the internal market for electricity.

([58]) Energy Retail and Consumer Protection 2023 Market Monitoring Report (europa.eu), ACER.

([59]) No data are available on the remaining types of contracts, which were probably of mixed nature, in bundled offers, etc. No percentages on contracts in gas market are available from the Energy Retail and Consumer Protection 2023 Market Monitoring Report (europa.eu), ACER.

([60]) Eurostat **data**, https://ec.europa.eu/eurostat/databrowser/view/nrg_bal_s__custom_9376397/default/table?lang=en.

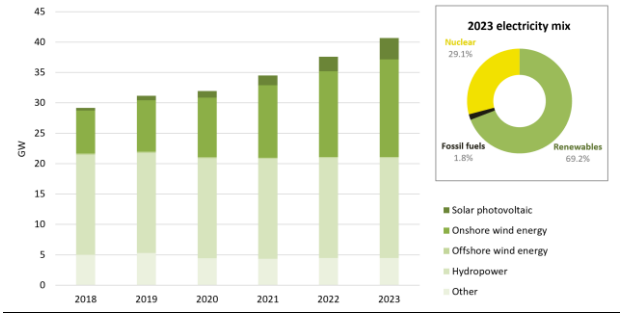
([61]) ERAA 2023 | ENTSO-E – ERAA 2023 (entsoe.eu).

is aiming to achieve a 100% fossil-free energy mix by 2040 (including by improving conditions for the deployment of nuclear power).

Sweden has the highest share of renewable energy in the EU (66% of its gross final energy consumption in 2022). The main renewable energy source remains solid biofuels (59%), followed by hydropower (26%) and wind and solar power (15%) ([62]). In 2023, total renewable energy capacity installed was 40.6 GW (a 8% increase on 2022 ([63]). Hydropower remained stable at 16.4 GW, while wind energy increased 14% y/y to 16.3 GW in 2023 (16.1 GW from onshore wind). The output from solar energy saw a strong increase of 46% in comparison to 2022 to 3.5 GW in 2023, whereas bioenergy remained stable and accounted for 4.5 GW.

Renewables accounted for 83% of electricity generation in 2022 ([64]), with the main sources being hydropower (42%) and wind power (17%). Biomass is still an important source of electricity (9%). Solar power is increasing but is still a low share (1%). Nuclear energy constitutes 31% of the electricity mix.

Graph A7.3: **Sweden's installed renewable capacity (left) and electricity generation mix (right)**



(1) "Other" includes solid biofuels, renewable municipal waste and biogas

Source: IRENA, Ember

As regards the acceleration of renewable energy deployment, Sweden aims to develop 13 GW of wind capacity and about 5 GW of solar power capacity between 2021 and 2030 ([65]). The strategy for sustainable development of onshore wind energy, which was developed jointly by the Swedish Energy Agency and the Swedish Environmental Protection Agency in 2021, outlines national development needs for wind energy at regional level and serves as a planning tool. Sweden is a member of the North Sea Energy Cooperation (NSEC) ([66]), which focuses on promoting sources such as offshore wind energy and renewable hydrogen in the context of regional cooperation. Sweden plans to take further measures to streamline administrative procedures for the uptake of solar energy. The Swedish Energy Agency has set up a dedicated contact point for permitting, exemption and notification procedures linked to renewable energy ([67]). Sweden has introduced tax incentives to encourage the installation of photovoltaic systems. An online initiative 'Solelportalen.se' has been in place since 2018.

In the transport sector, the share of renewable energy reached 29% in 2022 and was projected to increase to 78% in 2030 before the most recent policy changes. Sweden has introduced a supply obligation for service stations with sales of more than 1 500 m^3 of petrol or diesel to offer at least one type of renewable fuel. In 2018, Sweden also put in place a support scheme for an eco-bonus system to shift freight transport from roads to the sea. The scheme has been extended to cover rail transport by 2024. A set of support measures for the uptake of electromobility is also in place. These concern electric vehicles, recharging infrastructure, hydrogen-refuelling points (including for light- and heavy-duty vehicles) and recharging points for heavy-duty vehicles. On 1 January 2024, Sweden lowered the obligation to blend in biofuels and lowered fossil fuel taxes making it uncertain that the share of renewable energy will increase as much as projected earlier.

In 2022, renewable energy accounted for 69.4% of total energy use in heating and cooling – the highest share in the EU. Almost all of this came fromsolid biofuels (81%) and heat pumps (14%). Sweden expects that bioenergy will

([62]) IEA 2022 statistics by country.

([63]) IRENA report 2024.

([64]) SHARES tool, Eurostat.

([65]) Sweden's updated draft NECP.

([66]) The NSEC member countries are Belgium, Denmark, France, Germany, Ireland, Luxembourg, the Netherlands, Norway and Sweden. The NSEC supports and facilitates the development of the offshore grid and the region's large renewable energy potential.

([67]) https://www.energimyndigheten.se/fornybart/tillstand

remain dominant for heating and cooling in the coming years, but that its contribution will decrease by over 3 TWh between 2021 and 2025 and fall still further by over 0.5 TWh to 112 TWh in 2030 ([68]).

Sweden continues to be a net exporter of electricity, thanks to its substantial installed capacities of onshore wind and hydro reservoir. Sweden does not have specific goals for offshore wind but is investigating areas for offshore renewable generation. Sweden is interconnected with Denmark, Finland, Germany, Lithuania, Poland and Norway. Sweden is developing projects of common interest (PCIs) for third and fourth electricity interconnection lines with Finland ('Aurora Line' and 'Aurora Line 2'). The two 400 kV electricity lines with Finland will increase capacity by 1600 MW by 2025 and 2032 respectively.

Sweden requires new transmission grid investments and renewal of extensive parts of the existing transmission network. In its 2022-2031 network development plan, Svenska Kraftnät has identified a need to construct around 800 km of new transmission lines and 25 new substations, and to renew 1 700 km of lines and 45 substations. Two of the largest network development projects are the West Coast programme (to eliminate bottlenecks on the west coast); and the North-South programme (with around 50 different projects to increase cross-zonal capacity between the SE2 and SE3 bidding zones by 2040).

Energy efficiency gains have slowed, but there is still some untapped energy efficiency potential. In 2022, Sweden had primary energy consumption of 42.5 Mtoe (1.8% down on 2021 and 10.4% down on 2012). It had final energy consumption of 31.0 Mtoe (2.1% down on 2021 and 4.9% down on 2012). In the last year, the best results came from the residential sector, whose final energy consumption decreased by 10.3%; and the worst results came from the industry sector, whose final energy consumption increased by 0.7%.

Sweden is expected to maintain the residential sector's positive contribution to its 2030 building energy consumption reduction target. The evolution of its residential final energy consumption ([69]) has followed a long-term downward trend (-8% between 2020 and 2022), in line with the national targets set out in its long-term renovation strategy. In accordance with this strategy, Sweden has implemented a comprehensive set of energy efficiency measures in the building ecosystem that complement the traditional umbrella energy and carbon tax.

Nearly half of the financial schemes dedicated to energy efficiency are grant-based, but some other programmes are based on tax reliefs. Despite the existence of financial instruments for energy efficiency financing (e.g. the *Gröna obligationer* ([70]), its increased use should diversify away from a primarily grant-based environment. In addition, the energy efficiency angle in industry and businesses has scope to be improved, as currently residential buildings receive most support.

Sweden carries out a low number of market surveillance activities on products covered by eco-design and energy labelling. This raises concerns with respect to the level playing field for economic operators; and uncertainty regarding the compliance levels of the concerned products (and therefore possible missed energy and CO_2 savings).

Sweden has two projects of common interest for hydrogen interconnectors: the first with Finland (the Nordic-Baltic Hydrogen Corridor); and the second with Finland and Germany (the Baltic Sea Hydrogen Collector). No official statistics are available as yet for hydrogen production or electrolyser capacity in Sweden.

Sweden remains highly dependent on non-EU countries for clean energy technologies (particularly for solar PV and wind components). Sweden has a strong position in battery manufacturing with the first circular

([68]) Draft updated NECP.

([69]) Final energy consumption in households from Eurostat (data tables of December 2023) and climate-corrected by the Joint Research Centre with 2005-2022 as the reference period (FEC climate-corrected = FEC/(HDD/HDD reference period).

([70]) Swedens-sovereign-green-bond-framework.pdf (riksgalden.se)

battery production gigafactory in Skellefteå. Other manufacturing plants for battery and battery components are in the pipeline, including on anodes, cathodes and separators. An expansion of the factory in northern Sweden is expected to increase battery production capacity to up to 60 Gwh per year. This expansion has received support through the InvestEU programme. Solar PV projects have also received EU funds and Sweden's manufacturing capacity of modules and cells is expected to increase in the coming years. Sweden is already a leader in the EU in mining and will play an important role in supporting the EU's supply of critical raw materials for the manufacturing of clean technologies such as batteries (see Annex 12).

Sweden is prominent in many low-carbon technologies (e.g. efficient biofuels for low-carbon energy transition; forestry and bioenergy; research and demonstration in transport; electrification; batteries and smart grids). Sweden has rare earth elements (REE) reserves and is developing mining investment proposals (Annex 12). Domestic REE mining, refining and permanent magnet manufacturing are important assets in the wind industry value chain. New graphite processing plants are also under development. Sweden is piloting fossil-free steel production and is planning to build a hydrogen green steel plant. Sweden is at the forefront on technology and research to make energy-intensive industry more energy- and resource-efficient and ultimately free from CO_2 emissions.

Table A7.1: **Key Energy Indicators**

		Sweden				EU			
		2019	2020	2021	2022	2019	2020	2021	2022
ENERGY DEPENDNCE	**Import Dependency [%]**	**30.0%**	**32.0%**	**21.2%**	**26.8%**	**60.5%**	**57.5%**	**55.5%**	**62.5%**
	of Solid fossil fuels	103.2%	98.8%	94.2%	104.7%	43.3%	35.8%	37.3%	45.8%
	of Oil and petroleum products	106.8%	118.1%	72.4%	104.4%	96.7%	96.8%	91.7%	97.7%
	of Natural Gas	100.0%	100.0%	100.0%	100.0%	89.7%	83.6%	83.6%	97.6%
	Dependency from Russian Fossil Fuels [%]								
	of Natural Gas	0.0%	12.7%	9.8%	7.6%	39.7%	41.3%	41.1%	21.0%
	of Crude Oil	29.9%	10.8%	12.1%	4.1%	28.8%	26.7%	26.4%	19.5%
	of Hard Coal	17.7%	23.8%	30.8%	4.8%	43.5%	49.1%	47.4%	21.5%

		2016	2017	2018	2019	2020	2021	2022
DIVERSIFICATION OF GAS SUPPLIES	**Gas Consumption (in bcm)**	**0.9**	**1.1**	**1.2**	**1.1**	**1.1**	**1.2**	**0.9**
	Gas Consumption year-on-year change [%]	-4.5%	23.9%	7.2%	-6.6%	-2.8%	5.6%	-26.5%
	Gas Imports - by type (in bcm)	**0.9**	**1.1**	**1.1**	**1.1**	**1.4**	**1.2**	**0.8**
	Gas imports - pipeline	0.9	0.8	0.8	0.8	0.8	0.8	0.6
	Gas imports - LNG	0.0	0.3	0.3	0.3	0.7	0.4	0.2
	Gas Imports - by main source supplier (in bcm) (1)							
	Norway	-	0.2	0.1	0.1	0.1	0.0	0.1
	Denmark	0.9	0.8	0.8	0.8	0.8	0.8	0.6
	Russia	-	-	-	-	0.2	0.1	0.1

		2019	2020	2021	2022	2023
	LNG Terminals - storage capacity m3 LNG					
	Number of LNG Terminals	0	0	0	0	0
	LNG Storage capacity (m3 LNG)	0	0	0	0	0
	Underground Storage					
	Number of storage facilities	1	1	1	1	1
	Technical Capacity (bcm)	0.01	0.01	0.01	0.01	0.01

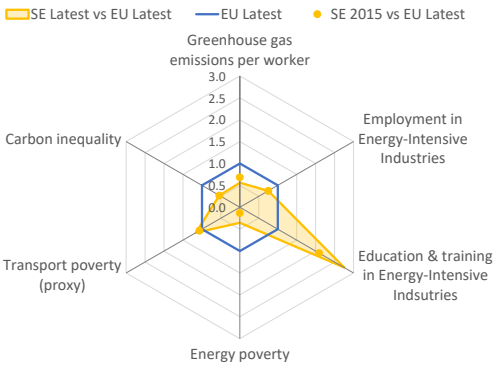
		2016	2017	2018	2019	2020	2021	2022	2023
ELECTRICITY/ENERGY	**Gross Electricity Production (GWh) (2)**	**156 010**	**164 250**	**163 400**	**168 439**	**163 833**	**171 798**	**173 159**	-
	Combustible Fuels	15 150	15 547	15 571	16 390	13 618	16 137	16 015	-
	Nuclear	63 101	65 696	68 549	66 130	49 198	52 965	51 944	-
	Hydro	62 137	65 168	62 250	65 393	72 440	73 926	69 967	-
	Wind	15 479	17 609	16 623	19 847	27 526	27 244	33 253	-
	Solar	143	230	407	679	1 051	1 526	1 980	
	Geothermal	0	0	0	0	0	0	0	-
	Other Sources	0	0	0	0	0	0	0	-
	Gross Electricity Production [%]								
	Combustible Fuels	9.7%	9.5%	9.5%	9.7%	8.3%	9.4%	9.2%	-
	Nuclear	40.4%	40.0%	42.0%	39.3%	30.0%	30.8%	30.0%	-
	Hydro	39.8%	39.7%	38.1%	38.8%	44.2%	43.0%	40.4%	-
	Wind	9.9%	10.7%	10.2%	11.8%	16.8%	15.9%	19.2%	-
	Solar	0.1%	0.1%	0.2%	0.4%	0.6%	0.9%	1.1%	-
	Geothermal	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-
	Other Sources	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-
	Net Imports of Electricity (GWh)	**- 11 735**	**- 18 992**	**- 17 223**	**- 26 161**	**- 24 997**	**- 25 568**	**- 33 219**	-
	As a % of electricity available for final consumption	-9.0%	-14.6%	-13.2%	-20.5%	-19.8%	-19.5%	-26.4%	-
	Electricity Interconnection [%]		**25.6%**	**26.0%**	**25.2%**	**24.2%**	**16.3%**	**14.4%**	**12.8%**
	Share of renewable energy consumption - by sector [%]								-
	Electricity	64.9%	65.9%	66.2%	71.2%	74.5%	75.8%	83.3%	-
	Heating/cooling	63.4%	63.6%	63.3%	64.4%	66.4%	68.8%	69.4%	-
	Transport	26.6%	26.8%	29.7%	30.3%	31.9%	28.6%	29.2%	-
	Overall	52.6%	53.4%	53.9%	55.8%	60.1%	62.7%	66.0%	-

		2019	2020	2021	2022	2023
CLEAN ENERGY	**VC investments in climate tech start-ups and scale-ups (EUR Mln)**	**977.32**	**543.99**	**3 417.12**	**1 991.05**	**3 034.80**
	as a % of total VC investment (3) in Sweden start-ups and scale-ups	28.0%	15.7%	39.4%	29.9%	71.8%
	Research & Innovation spending in Energy Union R&i priorites					
	Public R&I (EUR mln)	154.6	206.6	245.7	-	-
	Public R&I (% GDP)	0.032%	0.043%	0.046%	-	-
	Private R&I (EUR mln)	774.3	792.5	-	-	-
	Private R&I (% GDP)	0.162%	0.165%	-	-	-

(1) The ranking of the main suppliers is based on the latest available figures (for 2022)
(2) Venture Capital investment includes Venture Capital deals (all stages), Small M&A deals and Private Equity (PE) growth deals (for companies that have previously been part of the portfolio of a VC investment firm or have received Angel or Seed funding).
Source: Eurostat, Gas Infrastructure Europe, JRC elaboration based on PitchBook data (03/2024), JRC SETIS (2024)

This Annex monitors Sweden's progress in ensuring a fair transition towards climate neutrality and environmental sustainability, particularly for workers and households in vulnerable situations. Sweden's green economy is expanding. Between 2015 and 2021, employment in the environmental goods and services sector grew by 30.5% (EU: 18.2%), reaching, at 160 900 workers, 3.1% of total employment (EU: 2.7%). Also, between 2015 and 2022, the greenhouse gas emission intensity of Sweden's workforce (see Graph A8.1 and Table A8.1) declined from 9.8 to 8.0 tonnes per worker, below the EU average (14.3 tonnes per worker in 2022) ([71]), indicating a positive trend in the green transition. Sweden has the highest upskilling rate for the green transition in the EU, in line with the Council Recommendation of 2022 ([72]), which supports the fair transition and the implementation of the REPowerEU plan. Sweden's recovery and resilience plan (RRP) promotes a sustainable and inclusive recovery, for instance through investment in the Climate Leap programme, complementing the measures supported by the Just Transition Fund (JTF) and action supported by the European Social Fund Plus (ESF+). The RRP focuses on increasing the number of places in higher education and upper secondary vocational training.

Graph A8.1: **Fair transition challenges in Sweden**



Source: Eurostat, EU Labour Force Survey, EMPL-JRC GD-AMEDI/AMEDI+ and DISCO(H) projects (see Table A8.1).

Employment in Sweden's sectors that are most affected by the green transition slightly decreased. In 2023, employment in Sweden's energy-intensive industries ([73]) comprised 2.6% of total employment (3.5% in the EU). Employment in mining and quarrying has risen by 24.7% since 2015 (to around 11 600 workers in 2023). The job vacancy rate in construction (see Graph A8.2), a key sector for the green transition, is lower than the EU average (1.7% vs 3.6% in the EU in 2023). Nevertheless, 54% of small and medium-sized enterprises (SMEs) in the construction sector reported that skills shortages are holding them back in general business activities ([74]). According to the European Labour Authority (ELA) ([75]), labour shortages were reported in 2023 for a number of occupations that required specific skills or knowledge for the green transition ([76]), including mechanical engineering technicians, power production plant operators and plumbers and pipe fitters. The job vacancy rate for transportation is lower than the EU average (2.2% vs EU: 2.7% in 2022), while the job vacancy rate in the electricity and gas supply sector keeps being considerably above the EU average. In 2022, it was 4.6 percentage points higher than the EU average (6.3% vs EU: 1.7% in 2022).

([71]) Workforce-related calculations are based on the EU Labour Force Survey. Note, in the 2023 country report for Sweden, such indicators were calculated based on employment statistics in the national accounts. This may result in limited comparability across the two reports.

([72]) [54]) The Council Recommendation of 16 June 2022 on ensuring a fair transition towards climate neutrality (2022/C 243/04) covers employment, skills, tax-benefit and social protection systems, essential services and housing

([73]) Mining and quarrying (NACE B), chemicals (C20), minerals (C23), metals (C24) and automotive (C29)

([74]) Eurobarometer on skills shortages, recruitment, and retention strategies in small and medium-sized enterprises.

([75]) Based on the European Labour Authority 2024 EURES Report on labour shortages and surpluses 2023, i.e., data submitted by the EURES National Coordination Offices.

([76]) Skills and knowledge requirements are based on the European Skills Competences and Occupations (ESCO) taxonomy on skills for the green transition.

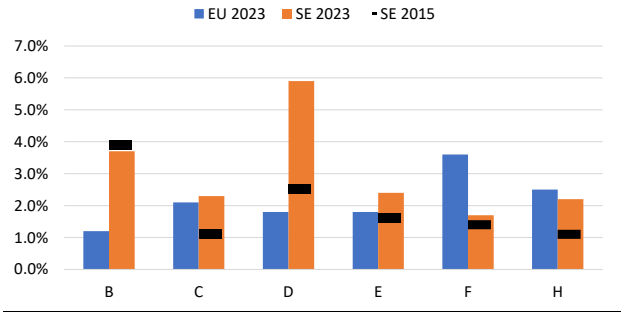
Table A8.1: **Key indicators for a fair transition in Sweden**

Indicator	Description	SE 2015	SE	EU
GHG per worker	Greenhouse gas emissions per worker – CO_2 equivalent tonnes	9.8	8.0 (2022)	14.3 (2022)
Employment EII	Employment share in energy-intensive industries, including mining and quarrying (NACE B), chemicals (C20), minerals (C23), metals (C24) and automotive (C29)	2.6%	2.6% (2023)	3.5% (2023)
Education & training EII	Adult participation in education and training (last 4 weeks) in energy-intensive industries	22.8%	29.9% (2023)	10.9% (2023)
Energy poverty	Share of the total population living in a household unable to keep its home adequately warm	1.2%	3.3% (2022)	9.3% (2022)
Transport poverty (proxy)	Estimated share of the AROP population that spends over 6% of expenditure on fuels for personal transport	39.6%	43.0% (2023)	37.1% (2023)
Carbon inequality	Ratio between the consumption footprint of the top 20% vs bottom 20% of the income distribution	1.5	1.5 (2021)	2.7 (2021)

Source: Eurostat (env_ac_ainah_r2, lfsa_egan2d, ilc_mdes01), EU Labour Force Survey (break in time series in 2021), EMPL-JRC GD-AMEDI/AMEDI+ and DISCO(H) projects.

Upskilling and reskilling in energy-intensive industries is well on track, thanks to increased participation in learning activities. Skills are of core importance for both preserving jobs in transforming sectors and for smooth labour market transitions. In energy-intensive industries, workers' participation in education and training increased from 23.0% in 2015 to 29.9% in 2023, well above the EU average (10.9%). In Sweden, 38% of SMEs indicate that the skills required for greening business activities are becoming more important (EU: 42%) ([74]). If Sweden matches its projected contribution to the EU's renewable energy target, between 800 and 2 400 additional skilled workers will be needed for the deployment of wind and solar energy by 2030, which may require an investment in skills of EUR 8.8-11.0 million ([77]). To address this challenge, the JTF supports upskilling and reskilling measures for the steel industry in Norrbotten County and for the metal industry in Västerbotten County. Meanwhile, the ESF+ provides upskilling and reskilling opportunities for the whole country.

Graph A8.2: **Job vacancy rate in transforming sectors and mining and quarrying**



B - Mining and quarrying
C - Manufacturing
D - Electricity, gas, steam and air conditioning supply
E - Water supply; sewerage, waste management and remediation activities
F - Construction
H - Transportation and storage
Source: Eurostat jvs_a_rate_r2.

Energy poverty and, in particular, transport poverty indicators have worsened since the spike in energy prices, with the poorest households being the most affected. The share of the population unable to keep their homes adequately warm increased from 1.2% in 2015 to 3.3% in 2022, still well below the EU average (9.3%) ([78]). The indicator increased by 1.6 percentage points between 2021 and 2022 on the back of energy price increases due to supply constraints caused by the COVID-19 pandemic and Russia's war of aggression against Ukraine, despite the emergency measures implemented in Sweden. 5.5% of the population at risk of poverty (AROP) (EU: 20.1%) and 3.9% of lower middle-income households (in deciles 4-5) (EU: 11.6%) were unable to keep their homes adequately warm in 2022. The RRP includes financial incentives aiming to increase energy efficiency of multi-dwelling buildings through renovations. In January

([77]) EMPL-JRC AMEDI+ project.

([78]) Energy poverty is a multi-dimensional concept. The indicator used focuses on an outcome of energy poverty. Further indicators are available at the Energy Poverty Advisory Hub.

2023, 43.0% of the population at risk of poverty spent more than 6% of their budget on private transport fuels (EU: 37.1%) ([79]). Sweden addresses energy poverty issues through its general social policy and welfare measures thus it does not establish an ad hoc national objective or plan to reduce energy poverty in line with indicators identified in the Recommendation of the Commission on energy poverty.

Despite being below the EU average, environmental inequalities remain an issue in Sweden. In 2021, the consumption footprint for 20% of the population with the highest income was 1.5 times higher than the footprint of the poorest 20% ([80]) (EU: 1.8). For both groups, the consumption footprint is highest for food and mobility. The average levels of air pollution in 2021 stood below the EU average (5.6 vs 11.4 $\mu g/m^3$ PM2.5), and all regions were below critical levels of air pollution ([81]). However, an estimated 650 premature deaths occur annually due to exposure to air pollution ([82]).

The overall implementation of fair transition measures is progressing well but there is still scope for further targeted green measures. In line with the Council Recommendation of 2022, several general labour market programmes, skills development measures and lifelong learning opportunities are in place, including the newly introduced student finance scheme for transition and retraining. The Swedish labour relations with their long-term tradition of collective bargaining provide a suitable framework for managing digital and green transitions and their impact on employment and jobs. However, there continue to be knowledge gaps as regards the potential social and distributional impacts of the overall climate policy, as well as the implications of the green transition for the Swedish labour market ([83]).

([79]) Affordability of private transport fuels is key dimension of transport poverty. The indicators has been developed in the context of the EMPL-JRC GD-AMEDI/AMEDI+ projects. Methodology explained in Economic and distributional effects of higher energy prices on households in the EU.

([80]) Developed in the context of the EMPL-JRC DISCO(H) project. Methodology explained in Joint Research Centre, 2024. Carbon and environmental footprint inequality of household consumption in the EU. JRC137520. The EU average refers to EU27 without Italy (household income data not available for IT in the HBS)

([81]) Two times higher than the recommendations in the WHO Air Quality Guidelines (annual exposure of $5 \mu g/m^3$).

([82]) EEA - Air Quality Health Risk Assessment

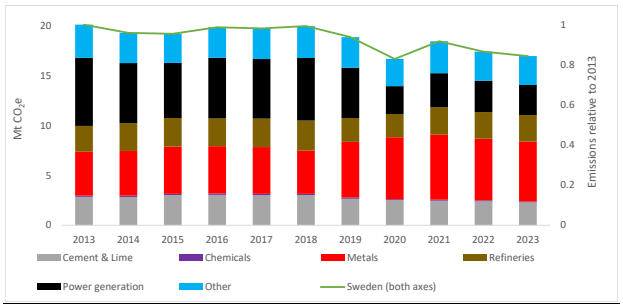
([83]) Based on the monitoring review of the Council Recommendation on ensuring a fair transition towards climate neutrality, which took place in October 2023.

ANNEX 9: RESOURCE PRODUCTIVITY, EFFICIENCY AND CIRCULARITY

The green transition of industry and the built environment, in particular decarbonisation, resource efficiency and circularity, is essential to boost Sweden's competitiveness ([84]). In this regard, priorities for Sweden are reducing its reliance on incineration and increasing its use of circular materials and circular business models in industry and construction.

The pace of Sweden's circular economy transition is insufficient to achieve the Circular Economy Action Plan goals. The material footprint remained among the highest in the EU and increased to 26.9 tonnes per capita in 2022, after a drop in 2020. Moreover, the amount of total waste produced increased from 12.4 to 14.7 tonnes per capita between 2010 and 2020, roughly three times the EU average of 4.8 tonnes per capita and the third-highest value among all Member States. There is still room to make better use of the potential of the circular economy transition to drive the decarbonisation of Sweden's industry. The Swedish national energy and climate plan does not mention the circular economy in relation to greenhouse gas reductions and energy efficiency. Furthermore, its section on research, development and innovation contains few details.

Graph A9.1: **ETS emissions by sector since 2013**



Source: European Commission

Between 2019 and 2023, greenhouse gas emissions from the sectors covered by the EU emissions trading system (ETS) in Sweden ([85]) declined by 10%. In 2023, only 18% of greenhouse gases emitted by Sweden's ETS installations came from power generation. Of the total emissions from all industry sectors, cement and lime production emitted 16%, the metals industry emitted 43%, refineries accounted for 19%, and 21% came from other industries. With 1%, the share of the chemicals industry was negligible. Between 2019 and 2023, emissions from the power sector decreased by 40%, while the industry sectors slightly increased emissions, by 1% (EU averages: 26% and 14%, resulting in an overall decrease of 14%). Between 2013 and 2023, greenhouse gas emissions declined by 56% in power generation but increased by 5% in industrial manufacturing, driven mainly by metals but also by refineries.

There is still room for improving Sweden's industrial efficiency. Sweden's secondary material use stood at 6.1% in 2022 (versus an EU average of 11.5%). Resource productivity stagnated between 2017 and 2022 and the distance to the EU average is still significant: 1.56 versus 2.45 purchasing power standards per kg in 2022. Water abstraction for manufacturing purposes accounted for 57.7% of total water abstracted in 2018, making manufacturing the economic activity with the largest impact on water.

Strong eco-innovation performance has helped to develop a highly competitive environmental goods industry. The 2022 Eco-Innovation Scoreboard placed the country among the eco-innovation leaders, with a score of 160.95 points. As of September 2023, Sweden totalled 52 awarded EU Ecolabel licences and 6 123 products with the EU Ecolabel, showing a steady increase in both products and licences.

Progress has been achieved in limiting industry's pollution. The impact of particulate matter emissions from the Swedish industry on air quality was below the EU average. PM2.5 emissions per economic output (EUR'10) ([86]) decreased to 0.05 g in 2021, versus an EU average of 0.07 g/EUR'10 in 2020. A similar trend was reported for PM10 emissions, which decreased from 0.09 g/EUR'10 in 2017 to 0.07 g/EUR'10 in 2021, versus an EU average of 0.10 g/EUR'10 in 2020. Moreover, between 2010

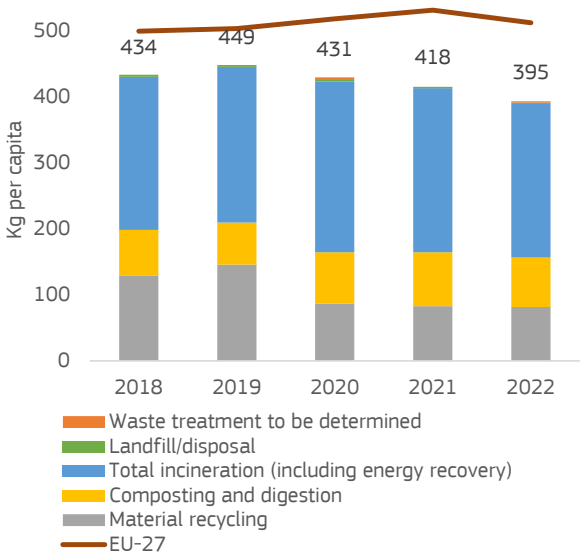
([84]) See also Annexes 6, 7 and 12.

([85]) This analysis excludes air travel. For more details and the data sources, see Weitzel, M; van der Vorst, C. (2024), Uneven progress in reducing emissions in the EU ETS, JRC Science for policy brief, JRC138215, Joint Research Centre.

([86]) In 2010 prices.

and 2021, the Swedish industrial sector decreased its emissions of all main pollutants into the air.

Graph A9.2: **Treatment of municipal waste**



Source: Eurostat

Sweden would benefit from reducing waste generation and shifting away from incineration. The municipal waste recycling rate stood at 39.7% in 2022, and Sweden is not on track to meet the municipal waste recycling target by 2025. The plastic packaging recycling rate dropped to 23.8% in 2021 and e-waste recycling rate decreased to 76.3% in 2021. Sweden relies more on waste incineration with energy recovery than any other EU country. The incineration capacity is higher than the domestic waste generation, so Sweden imports waste for incineration. Innovation in waste treatment technologies is slowing down, with only 5 new patents registered in 2021. However, Sweden is currently expanding curb side collection of packaging waste, which is expected to help reduce incineration.

There is scope to use existing buildings more efficiently. In 2023, Sweden's building permits index, based on useful floor area, stood at 86.7 on average ([87]). In 2020, the residential floor area per capita was 55.43 m2, versus an EU average of 54.42 m^2. Also, the non-residential floor area per capita of 20.92 m^2 was higher than the EU average (18 m^2 in 2020) and it has remained relatively stable over time. In 2020, Sweden submitted a long-term renovation strategy that aims to decarbonise the building stock.

To meet the EU targets, Sweden would need to minimise the pressure from human activities. Construction and demolition waste per capita tripled between 2010 and 2020, while remaining below the EU average. The proportion of backfilling has increased since 2014 and stood at 20.4% in 2020, above the EU average of 9.9%. However, Sweden's recovery rate decreased from 90% in 2018 to 52% in 2021. The country achieved the Waste Framework Directive's target of recovering 70% by 2020 (the value reached 74% in 2020), but more action is needed to improve circularity. Large businesses in the Swedish construction sector are advanced in reporting circular business models covering waste materials, energy, and water. Sweden has also developed simplified life cycle assessment methodologies and whole-life carbon databases, to facilitate whole-life carbon accounting and regulation. In 2027, Sweden plans to introduce CO_2 limits for new buildings.

Table A9.1: **Circularity indicators**

	2018	2019	2020	2021	2022	2023	EU-27	Latest year
Industry								
Resource productivity (purchasing power standard (PPS) per kilogram)	1.5	1.5	1.5	1.5	1.6	-	2.5	2022
Circular material use rate (%)	6.6	6.4	6.9	6.2	6.1	-	11.5	2022
Eco-innovation index (2013=100)	164.0	168.2	163.9	157.6	161.0	-	121.5	2022
Recycling of plastic packaging (%)	50.0	53.2	33.5	23.8	-	-	40.7	2021
Cost of air emissions from industry (EUR bn)	6.7	6.5	6.0	6.3	-	-	352.7	2021
Built environment								
Recovery rate from construction and demolition waste (%)	90.0	-	74.0	52.1	-	-	89.0	2020
Soil sealing index (base year = 2006)	102.5	-	-	-	-	-	103.4	2018
Non-residential floor area (m^2 per capita)	20.8	20.9	20.9	-	-	-	18.0	2020
Waste backfilled (%)	19.1	-	20.4	-	21.4	-	9.9	2020

Source: Eurostat, European Environment Agency

([87]) 2015=100.

Digital transformation is key to ensuring a resilient and competitive economy. In line with the Digital Decade Policy Programme, and in particular with the targets in that Programme for digital transformation by 2030, this Annex describes Sweden's performance on digital skills, digital infrastructure/connectivity and the digitalisation of businesses and public services. Where relevant, it makes reference to progress on implementing the Recovery and Resilience Plan (RRP). Sweden allocates 21.2% of its total RRP budget to digital (EUR 0.7 billion) ([88]). Under Cohesion Policy, an additional EUR 0.2 billion (13% of the country's total Cohesion Policy funding) is allocated to the country's digital transformation ([89]).

The Digital Decade Policy Programme sets out a pathway for EU's successful digital transformation by 2030. Sweden's national roadmap outlines the actions it intends to take to reach the objectives and targets at national level. The first Report on the State of the Digital Decade highlighted the need to accelerate and deepen the collective efforts to reach the EU-wide targets and objectives ([90]). Among others, a digitally skilled population increases the development and adoption of digital technologies and leads to productivity gains and new business models. It also leads to higher inclusion and participation in an environment increasingly shaped by the digital transformation ([91]). Digital technologies, infrastructure and tools all play a role in addressing the current structural challenges, including strategic dependencies, cybersecurity and climate change.

Sweden remains one of the top performers in digital skills. The country performs well above the EU average for basic and advanced digital skills. Sweden considers digital skills as a central component of all relevant strategies and measures (including for higher-level education and vocational training). Furthermore, Sweden's RRP contains investment measures to increase the number of study places at universities and other higher-education institutions, including in higher vocational education in relevant fields.

Sweden scores high on digital infrastructure/connectivity. Sweden's very high capacity network (VHCN) coverage is above the EU average. Sweden's 2016 broadband plan ([92]) announced that the entire country should have access to high-speed connectivity, mainly using fibre. In areas where the costs of deploying fibre are prohibitive (expected to affect less than 2% of the population), mobile technologies are being assessed. Moreover, as part of its RRP, Sweden aims to promote fixed high-speed broadband networks in areas where access would not be provided on a commercial basis alone. Regarding 5G coverage, Sweden spectacularly caught up with the EU average by improving from 20% to 90% coverage between 2022 and 2023. This is mainly due to Sweden successfully completing several spectrum auctions in 2023.

Sweden is an EU forerunner in the digitalisation of businesses. The country scores well above the EU average for SMEs with at least a basic level of digital skills and companies' use of advanced technologies like cloud computing. There are new or recent strategies on artificial intelligence and the provision and use of data. Sweden often involves academia and the private sector in joint partnerships to ensure the rapid transfer of knowledge and technology to the market. In 2022, 3.8% of enterprises in Sweden reported ICT service outage due to cyberattacks (e.g. ransomware attacks, denial of service attacks). Over the same year, 37% of enterprises developed or reviewed their ICT security policy within the previous 12 months.

Sweden performs well on the digitalisation of public services. The country scores above the EU average in digital public services for people and

([88]) The share of financial allocations that contribute to digital objectives has been calculated using Annex VII to the Recovery and Resilience Facility Regulation.

([89]) This amount includes all investment specifically aimed at or substantially contributing to digital transformation in the 2021-2027 Cohesion Policy programming period. The source funds are the European Regional Development Fund, the Cohesion Fund, the European Social Fund Plus, and the Just Transition Fund.

([90]) European Commission (2023): Report on the State of the Digital Decade 2023, 2023 Report on the state of the Digital Decade | Shaping Europe's digital future (europa.eu).

([91]) See for example OECD (2019): OECD Economic Outlook, Digitalisation and productivity: A story of complementarities, OECD Economic Outlook, Volume 2019 Issue 1 | OECD iLibrary (oecd-ilibrary.org) and OECD (2019): Going Digital: Shaping Policies, Improving Lives – Summary, https://www.oecd.org/digital/going-digital-synthesis-summary.pdf.

([92]) https://pts.se/globalassets/sverige-helt-uppkopplat-2025-slutlig.pdf

Table A10.1:**Key Digital Decade targets monitored by the Digital Economy and Society Index indicators**

	Sweden			EU	Digital Decade target by 2030 (EU)
	2022	2023	2024	2024	
Digital skills					
At least basic digital skills	**67%**	**67%**	**66%**	**56%**	**80%**
% individuals	2021	2021	2023	2023	2030
ICT specialists ([1])	**8.0%**	**8.6%**	**8.7%**	**4.8%**	**20 million**
% individuals in employment aged 15-74	2021	2022	2023	2023	2030
Digital infrastructure/connectivity					
Fixed very high capacity network (VHCN) coverage	**83%**	**82%**	**88%**	**79%**	**100%**
% households	2021	2022	2023	2023	2030
Fibre to the premises (FTTP) coverage ([2])	**82%**	**82%**	**84%**	**64%**	**-**
% households	2021	2022	2023	2023	
Overall 5G coverage	**18%**	**20%**	**90%**	**89%**	**100%**
% populated areas	2021	2022	2023	2023	2030
Digitalisation of businesses					
SMEs with at least a basic level of digital intensity	**86%**	**NA**	**80%**	**58%**	**90%**
% SMEs	2021		2023	2023	2030
Data analytics	**NA**	**NA**	**35%**	**33%**	**-**
% enterprises			2023	2023	
Cloud	**69%**	**69%**	**66%**	**39%**	**-**
% enterprises	2021	2021	2023	2023	
Artificial intelligence	**10%**	**10%**	**10%**	**8%**	**-**
% enterprises	2021	2021	2023	2023	
AI or cloud or data analytics ([3])	**NA**	**NA**	**73%**	**55%**	**75%**
% enterprises			2023	2023	2030
Digitalisation of public services					
Digital public services for citizens	**85**	**88**	**93**	**79**	**100**
Score (0 to 100)	2021	2022	2023	2023	2030
Digital public services for businesses	**88**	**88**	**96**	**85**	**100**
Score (0 to 100)	2021	2022	2023	2023	2030
Access to e-health records	**NA**	**70**	**78**	**79**	**100**
Score (0 to 100)		2022	2023	2023	2030

(1) The 20 million target represents about 10% of total employment.
(2) The fibre to the premises coverage indicator is included separately as its evolution will also be monitored separately and taken into consideration when interpreting VHCN coverage data in the Digital Decade.
(3) At least 75% of EU enterprises have taken up one or more of the following, in line with their business operations: (i) cloud computing services; (ii) big data; (iii) artificial intelligence.

Source: Digital Economy and Society Index

businesses, but interoperability and data exchange between different authorities could be improved. The Agency for Digital Government (Digg) acts as a central hub in this area. The government requested a new study to propose a national law to improve interoperability within the Swedish public sector. The results of the study were presented in December 2023 ([93]). The study proposed gathering all interoperability aspects relevant for public services in a single piece of legislation. Furthermore, it also suggested that Digg should prescribe standards and specifications to ensure interoperability in the whole public

([93])https://www.regeringen.se/contentassets/6866c386b0ec492c8171c92c9c8922cf/en-reform-for-datadelning-sou-202396.pdf

sector. With the aim of standardising solutions for citizens and businesses across public administration, Sweden's RRP includes investments to develop new digital services and to upgrade and modernise existing ones. Sweden has notified three electronic identification (e-ID) means under the eIDAS Regulation: BankID, Freja eID, and EFOS. These e-ID schemes offer the possibility of interacting with public organisations via a smart device. In December 2022, the government asked for a study on how to issue a secure and trusted eID. The study's findings were presented in October 2023 ([94]).

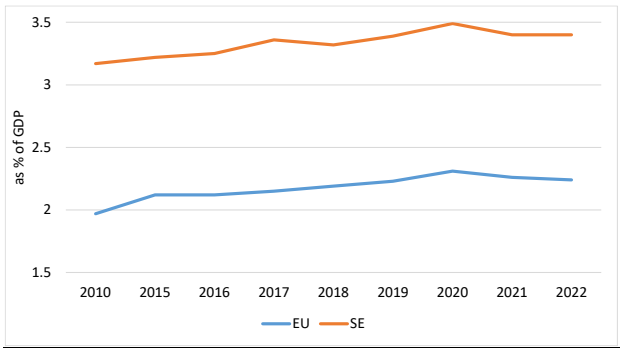
([94])https://www.regeringen.se/contentassets/a5930bae77714ecc9e9a7b51e9f240ae/en-saker-och-tillganglig-statlig-e-legitimation-sou-202361.pdf

This Annex provides a general overview of the performance of Sweden's research and innovation system, which is essential for delivering the twin transition and ensuring long-term competitiveness.

Sweden is an 'innovation leader' with a performance substantially higher than the European average. According to the 2023 edition of the European Innovation Scoreboard ([95]), the country's overall performance is 134.5% of the EU average. It has increased by 10 percentage points since 2016, at a higher rate than the EU's (8.5%), which means Sweden's performance lead over the EU average has been widening (see Annex 12).

Sweden has the second highest R&D intensity in the EU (3.4% of GDP in 2022) ([96]) and it is among the top performers in terms of business investment in R&D (2.51% of GDP in 2022) and public R&D investment (0.89% of GDP in 2022). However, compared to 2020, there is a slight decrease in all three indicators.

Graph A11.1: **R&D intensity (gross domestic expenditure on R&D as % of GDP) 2010-2022**



Source: Eurostat

The Swedish recovery and resilience plan (RRP) features a EUR 286 million research and innovation investment to support the green transition ([97]). This accounts for around 8.3% of the EU's contribution to the RRP (modified in 2023). A particular focus is on support for climate investment to help decarbonise the industrial sector, in particular projects that develop, demonstrate and implement new technology with zero, low or negative greenhouse gas emissions in industries with high process emissions. This investment is complemented by a rich set of other policy initiatives directed at societal challenges, for instance the recently launched Impact Innovation Initiative.

Sustaining a high-quality public research base and a sufficient pool of talent is essential to keep the Swedish knowledge economy competitive. The country benefits from an innovation-friendly environment, highly skilled workers, attractive research systems and internationally competitive and innovative large companies. Despite these strengths and although Sweden is a leading country in the EU in terms of researchers and scientific publications in relation to population size, there has not been a corresponding increase in scientific impact ([98]).

A shortage of highly skilled staff in science, technology and engineering might hamper future investment in R&D in Sweden. In Sweden's most R&D-intensive companies, the availability of skilled staff is a key factor in decisions on where to invest in R&D. More than 52% of companies consider it difficult to recruit R&D staff, and more than 54% of companies consider it more difficult to recruit R&D staff than 5 years ago ([99]). The number of new doctoral graduates has fallen sharply since 2016 ([100]). The number of new graduates in science & engineering per thousand population aged 25-34 has also decreased over the last 10 years, although a

([95]) 2023 European Innovation Scoreboard (EIS), country profile: Sweden https://ec.europa.eu/assets/rtd/eis/2023/ec_rtd_eis-country-profile-se.pdf. The EIS provides a comparative analysis of innovation performance in EU countries, including the relative strengths and weaknesses of their national innovation systems (also compared to the EU average).

([96]) European benchmark target for R&D intensity: 3%.

([97]) Further information: https://www.oecd-ilibrary.org/docserver/45d3a149-en.pdf?expires=1702286900&id=id&accname=oid031827&checksum=97D42A2035DC16C5241D11E37FA85C21.

([98]) Such as measured by citation impact, see Swedish Research Barometer 2023, https://www.vr.se/analys/rapporter/vara-rapporter/2023-11-30-forskningsbarometern-2023.html and https://ec.europa.eu/research-and-innovation/en/statistics/performance-indicators/european-innovation-scoreboard/eis#.

([99]) Royal Swedish Academy of Engineering Sciences, https://www.iva.se/projekt/naringslivets-fou-investeringar/fou-barometern-2022/

([100])New doctoral graduates per 1 000 population aged 25-34, https://ec.europa.eu/research-and-innovation/en/statistics/performance-indicators/european-innovation-scoreboard/eis

Table A11.1:**Key innovation indicators**

Sweden	2010	2015	2020	2021	2022	EU average (1)
Key indicators						
R&D intensity (GERD as % of GDP)	3.17	3.22	3.49	3.4	3.4	2.24
Public expenditure on R&D as % of GDP	0.99	0.97	0.96	0.93	0.89	0.73
Business enterprise expenditure on R&D (BERD) as % of GDP	2.18	2.24	2.53	2.47	2.51	1.48
Quality of the R&I system						
Scientific publications of the country within the top 10% most cited publications worldwide as % of total publications of the country	12.8	13	11.9	:	**:**	9.6
Patent Cooperation Treaty (PCT) patent applications per billion GDP (in PPS)	9.5	9.3	8.6	:	**:**	3.4
Academia-business cooperation						
Public-private scientific co-publications as % of total publications	11	11	11.6	12	:	7.6
Public expenditure on R&D financed by business enterprise (national) as % of GDP	:	0.039	:	0.029	:	0.054
Human capital and skills availability						
New graduates in science & engineering per thousand pop. aged 25-34	14.3	13.9	12.9	13.7	:	16.9
Public support for business enterprise expenditure on R&D (BERD)						
Total public sector support for BERD as % of GDP	:	:	:	0.14	:	0.204
R&D tax incentives: foregone revenues as % of GDP	0	0.019	:	0.038	:	0.104
Green innovation						
Share of environment-related patents in total patent applications filed under PCT (%)	13.7	12.8	11.2	:	:	14.7
Finance for innovation and economic renewal						
Venture capital (market statistics) as % of GDP	0.087	0.053	0.072	0.129	0.161	0.085
Employment share of high growth enterprises measured in employment (%)	:	14.83	19.18	:	**:**	12.51

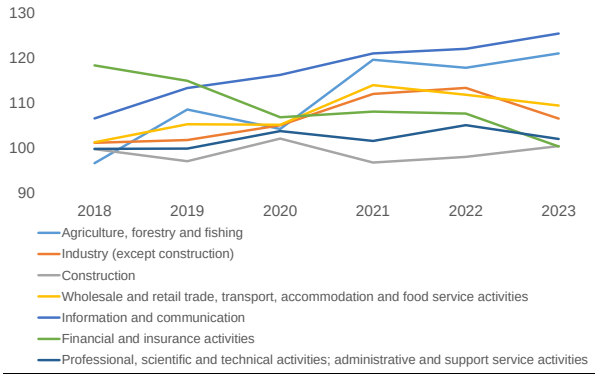
(1) EU average for the latest available year or the year with the largest number of country data.
Source: Eurostat, OECD, DG JRC, Science-Metrix (Scopus database and EPO's Patent Statistical Database), Invest Europe

slightly positive trend has been noticed since 2019 ([101]). This issue might be related to deteriorating basic skills as shown in PISA (Programme for International Student Assessment) 2022, where the share of pupils who underperform has increased by 8.4 pps in maths, by 4.7 pps in science and by 5.9 pps in reading since 2018.

([101])Source: Eurostat.

Sweden has a highly competitive economy, founded on robust educational levels, political stability, and substantial investment in R&D. However, according to the IMD World Competitiveness Ranking ([102]), Sweden dropped four places to 8th in 2023. Despite this setback, Sweden remains strong in key areas such as infrastructure (4th) and business efficiency (6th). Significant declines have nonetheless been observed in economic performance (from 21st to 28th), government efficiency (from 5th to 14th) (See Annex 13) and labour force (from 4th to 16th). Measures in these specific areas will boost Sweden's economic strength and competitiveness.

Graph A12.1: **Labour productivity**



Source: Eurostat

Sweden's labour productivity (as expressed in GDP per person employed) was the sixth highest in the EU in 2022 ([103]). However, in 2023 real labour productivity per person in industry ([104]) declined by -5.5% (year-on-year), compared to 1.24% decrease in EU average). Industry contributed 23.7% ([105]) to Sweden's GDP in 2022, so this negative performance in productivity could have a significant impact on the Swedish economy. This decline can be attributed to significant contractions in the construction sector. In addition, the non-tradable sector (financial, insurance, arts, entertainment and recreation activities) has not grown, whereas manufacturing, market services (retail and administrative services) and tradable sectors (agriculture, forestry, fishing, the automotive sector, and the information and communication sector) did grow in 2022 (see Graph A12.1).

Sweden is an innovation leader, with a performance level of 134.5% the EU average, but has lost the top innovator position. According to the Innovation Scoreboard 2023 ([106]), Sweden's performance level has increased by 10 percentage points since 2016, at a higher rate than the EU's (8.5%) (See Annex 11).This strength lies in human resources (in 2023, Sweden had a performance level of 183.5 relative to the EU baseline of 100), the attractiveness of the research system (176.0 vs 100) and the use of information technologies (180.4 vs 100). However, there are areas for improvement: fostering job-to-job mobility of human resources in science and technology (41.7 vs 100), boosting non-R&D innovation expenditure (73.1 vs 100) and providing greater government support for business R&D (76.5 vs 100). Efforts in these areas will help boost Sweden's innovation leadership (see Annex 11).

On digitalisation, Sweden has performed robustly but not progressed as fast as previously. According to the 2022 edition of the Digital Economy and Society Index (DESI) ([107])), Sweden holds the fourth position in the ranking. Sweden's digital strength is based on its human capital. However, there are areas for improvement, such as 5G coverage, where according to July 2021 data, Sweden (at 18 % of populated areas) scores significantly lower than the EU average (66%) . As well 55.1% of firms report challenges in filling vacancies of ICT professionals. Targeted measures in these specific domains will help Sweden keep its position as a digital front runner. On a positive note, Swedish firms are increasingly adopting digital technologies and Sweden here ranks third in the EU. This success is attributed to robust collaboration between academia and the business sector, particularly in artificial intelligence (AI), cloud computing, high-performance computing and quantum computing. Sweden leads on several digital technology integration indicators but aims to go further still by encouraging to more firms to use big data and AI to meet the digital decade target of a 75% uptake by 2030.

([102]) IMD World Competitiveness Sweden

([103]) Eurostat. Labour productivity per person employed and hour worked (EU27_2020=100)

([104]) Eurostat. Real labour productivity per person in industry

([105]) Statista: Sweden- Distribution of gross domestic product (GDP) across economic sectors from 2012 to 2022

([106]) European Innovation Scoreboard Sweden.pdf

([107]) Sweden in the Digital Economy and Society Index

Sweden has performed solidly within the EU's single market, but there is still room for improvement ([108]). In 2023, the number of non-transposed EU directives was lower than the EU average (0.5% vs 0.7%) and the number of incorrectly transposed directives was also below average (0.8% vs 1.1%). Sweden performs well on public procurement, with a lower percentage of single bids than the EU average (11% vs 28.6%) and fewer direct awards (1% vs 8.1%). The number of pending infringements is likewise lower than the EU average (19 vs 25.9). Despite these positive aspects, Sweden's level of trade integration in the single market is less than the EU average, so there is potential for further improvement in various areas to ensure more robust and effective integration into the single market. Sweden solved 69% of the SOLVIT cases (70) it handled as lead centre (below the EU average of 88.3%). However, many of the unresolved cases are due to a systemic issue related to difficulties in registering in the population register and obtaining the personal identification number that is necessary in order to gain access to certain essential public and private services. Its resolution rate without these cases would have been 85.9%.

Favourable conditions for access to finance are contributing to a conducive business environment. Equity ([109]) is widely distributed and in 2022 exceeded both the EU average (0.72 vs 0.17) and peers (Finland: 0.34 and Denmark: 0.20). Furthermore, a lower percentage of companies than the EU average seek external financing (0.45 vs 0.49) ([110]). In addition, the proportion of SMEs facing late payments is below the EU average (44.5% vs 48.7%). These positive indicators reflect a supportive and advantageous framework for businesses operating in Sweden.

Sweden's industrial strategy prioritises jobs and skills. According to the OECD Industrial Strategy Fact Sheet ([111]), industry in Sweden relies less on grants and tax expenditures and more on financial instruments such as loans and guarantees. It prioritises jobs and skills development, thus showing commitment to workforce. Moreover, support is mainly directed to the transport, real estate and information sectors, thus demonstrating a strategic allocation of resources.

Sweden is at the forefront of industry decarbonisation (as indicated by its high ranking in the Net Zero Readiness Index ([112])). Northern Sweden plays a key role in industry's sustainable transition, with a large part of the fossil-free energy production and digital industrial projects (fossil-free steel projects HYBRIT and H2GS), fossil-free iron ore mining (LKAB and Kaunis Iron), battery giga-factories (Northvolt), and green and emission-free ammonia and fertiliser (Fertiberia)). Furthermore, Sweden is one of the leading mining nations in the EU in iron, zinc, copper, lead, silver, gold and industrial minerals (mainly limestone) ([113]). Sweden also has mineral potential for several critical metals (including rare-earth elements (REE), graphite, lithium, cobalt, nickel, platinum group metals, tungsten, indium, phosphorus and vanadium) that are needed in the production of batteries (see Annex 7). Improving the refining, processing and recycling of Swedish critical raw materials ([114]) will boost this process.

More could be done to reduce constraints on firms related to material shortages and vacancy rates. In 2023, both the percentage of firms facing constraints related to material supply and the vacancy rate were higher than the EU average (35.4% vs 17.2%) ([115]) and (2.7% vs 2.5%) ([116]). Education is also in decline (as shown by the increasing share of 15-year-olds with inadequate basic skills and the decreasing share of top performers in PISA 2022). Nearly one in three students does not reach a minimum proficiency level in mathematics, and this share has increased by 8.4 percentage points since 2018. Nearly half of students with disadvantaged and migrant backgrounds underperform (see Annex 15).

([108]) Single market scoreboard. Sweden

([109]) EIF Access to finance index - Equity, Composite: VC/GDP, IPO/GDP, SMEs using equity, index values between 0 and 1.

([110]) EIF Access to finance index - Loan, Composite: SME external financing over last 6 months, index values between 0 and 1.

([111]) Quantifying Industrial Strategy: Sweden Factsheet OECD.

([112]) Net zero readiness index. KPMG

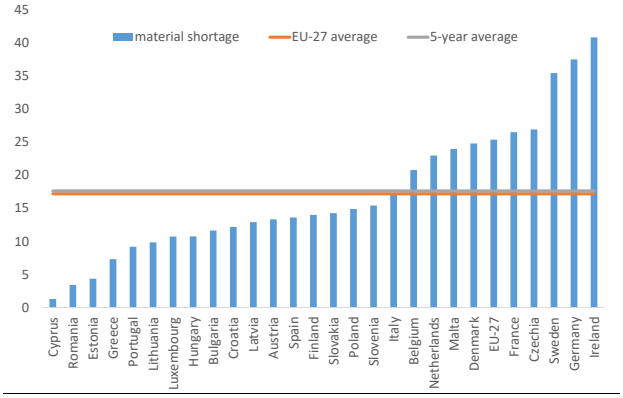
([113]) Swedish Geological Survey, Statistics of the Swedish Mining Industry

([114]) Critical Raw Materials Act: EU Critical raw materials act

([115]) ECFIN BCS.

([116]) Eurostat.

Graph A12.2: **Material shortages**



Source: Eurostat

Sweden is in the intermediate stage of implementing the components needed to connect to the Once-Only Technical System (OOTS) ([117]). As part of the Single Digital Gateway Regulation ([118]), the system will enable the automated cross-border exchange of evidence between competent authorities, improving online access to information, administrative procedures and assistance within the EU. The onboarding of Swedish competent authorities is crucial for the system to function smoothly and to reduce administrative burden.

([117])OOTS Commission Implementing Regulation (EU) 2022/1463

([118])Single Digital Gateway Regulation: Single Digital Gateway Regulation 2018/1724

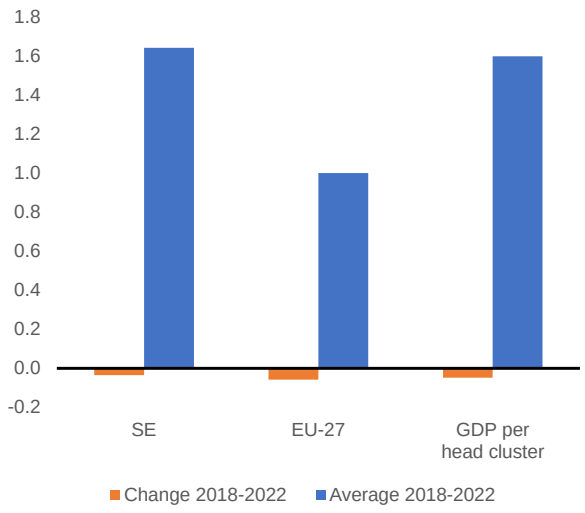
Table A12.1:**Industry and the Single Market**

Sweden							
POLICY AREA	**INDICATOR NAME**	**2019**	**2020**	**2021**	**2022**	**2023**	**EU27 average***
HEADLINE INDICATORS							
Economic Structure	Net Private investment, level of private capital stock, net of depreciation, % GDP[1]	5,7	5,8	6,9	7,9	6,6	**3,8**
	Net Public investment, level of public capital stock, net of depreciation, % GDP[1]	1,7	1,7	1,5	1,4	1,5	**1,2**
	Real labour productivity per person in industry (% yoy)[2]	0,8	-0,5	11,5	0,4	-5,5	**-1,24**
Cost competitiveness	Nominal unit labour cost in industry (% yoy)[2]	-1,4	2,7	-1,5	-2,3	1,5	**9,83**
SINGLE MARKET							
Single Market integration	EU Trade integration, % (Average intra-EU imports + average intra EU exports)/GDP[2]	25,7	23,5	25,5	29,1	30,0	**42,9**
Compliance	Transposition deficit, % of all directives not transposed[3]	0,7	0,7	2	0,7	0,5	**0,7**
	Conformity deficit, % of all directives transposed incorrectly[3]	1,6	1,6	1	1,1	0,8	**1,1**
	SOLVIT, % resolution rate per country[3]	78,4	62,7	70,6	68,3	69,0	**88,3**
	Number of pending infringement proceedings[3]	21	23	24	18	19	**25,9**
Restrictions	EEA Services Trade Restrictiveness Index[4]	0,04	0,04	0,04	0,04	0,04	**0,05**
Public procurement	Single bids, % of total contractors[3]	8	9	10	13	11	**28,6**
	Direct Awards, %[3]	0	0	1	1	1	**8,1**
ECONOMIC STRUCTURE							
Shortages	Material Shortage (industry), firms facing constraints, %[5]	20,2	10,6	25,3	54,7	35,4	**17,2**
	Labour Shortage using survey data (industry), firms facing constraints, %[5]	6,1	3,3	8,3	17,6	13,4	**23,3**
	Vacancy rate, % of vacant posts to all available ones (vacant + occupied)[2]	2,45	1,8	2,5	3,2	2,7	**2,5**
Strategic dependencies	Concentration in selected raw materials, Import concentration index based on a basket of critical raw materials[6]	0,17	0,17	0,15	0,18	0,26	**0,22**
	Installed renewables electricity capacity, % of total electricity produced[2]	0,6	0,7	0,7	0,7		**50**
BUSINESS ENVIRONMENT - SMEs							
Investment obstacles	Impact of regulation on long-term investment, % of firms reporting business regulation as major obstacle[7]	11,1	7,6	9,2	10,0	10,0	**22,2**
Business demography	Bankruptcies, Index (2015=100)[2]	-	-	-	-	-	**105,6**
	Business registrations, Index (2015=100)[2]	-	-	-	-	-	**120,2**
Late payments	Payment gap - corporates B2B, difference in days between offered and actual payment[8]	-	19	15	12	16	**15**
	Payment gap - public sector, difference in days between offered and actual payment[8]	-	18	13	13	15	**16**
	Share of SMEs experiencing late payments in past 6 months, %[9]	32,5	29,2	35,2	31,7	44,5	**48,7**
Access to finance	EIF Access to finance index - Loan, Composite: SME external financing over last 6 months, index values between 0 and 1[10]	0,61	0,48	0,41	0,45	-	**0,49**
	EIF Access to finance index - Equity, Composite: VC/GDP, IPO/GDP, SMEs using equity, index values between 0 and 1[10]	0,87	0,94	1,00	0,72	-	**0,17**

Source: (1) AMECO, (2) Eurostat, (3) Single Market Scoreboard, (4) OECD, (5) ECFIN BCS, (6) COMEXT and Commission calculations, (7) EIB Investment Survey, (8) Intrum Payment Report, (9) SAFE survey, (10) EIF SME Access to Finance Index
* Own Commission calculations for the EU27 average

Sweden's public administration is essential for the economy's competitiveness by, in particular, shaping the conditions for the twin transitions and creating a favourable business environment. It continues to have a high level of perceived effectiveness; however, the overall score has been slightly decreasing since 2018. Despite changes in government, several ongoing reform initiatives are still a priority, such as digitalisation and better coordination between different levels of government and policy areas. Other initiatives, such as public inquiries addressing unauthorised influence and corruption, were discontinued. The government's new priorities concern the structure of the public administration system, the civil service and requirements for transparency and accountability ([119]).

Graph A13.1: **Government effectiveness**



Average value over 2018-2022 and change over 2018-2022. The GDP per head bar shows the mean value of the government effectiveness indicator for the group of EU countries belonging to the same GDP per head cluster as Sweden (EU countries are ranked in terms of their GDP per head and grouped into three equally sized clusters).
Source: Worldwide Governance Indicators

There is good regulatory governance in Sweden. The legislative process relies heavily on evidence-informed policymaking, with public inquiries and consultations for all major reform initiatives. However, the latest report of the National Audit Office concluded that most major reforms between 2000 and 2017 had significant shortcomings in their design and results and that there was no established process for systematic *ex post* evaluation ([120]). In response to these findings, the government proposed new measures, including a new regulation on impact assessments.

Sweden is an early adopter of digital services and a promoter of e-governance ([121]). Data on the use of digital services indicate that e-governance performance continues to improve. This follows a short decline in 2020 as a result of the impact of COVID-19 on services. Most people use the internet to interact with public authorities ([122]). A public inquiry is currently examining possibilities for an electronic identification system, which up until now depended on private providers and raised data protection concerns. Sweden is an early adopter of artificial intelligence (AI) in public administration. The Agency for Digital Government is leading cooperation efforts between public agencies, and the government also plans to support municipalities in using AI technologies. According to a joint report of several public agencies published in January 2023, the use of AI is expected to affect the tasks of public administration employees, but not public sector employment ([123]).

The capacity and quality of the Swedish civil service is high. Sweden is among the best-performing countries on gender parity in senior civil service management positions, although it has slightly decreased ([124]). The age structure of the civil service is younger than that of the EU average (Table A13.1). Participation of public administration employees in adult training is significantly higher than the EU average and is actively encouraged. In July 2023, the government, in collaboration with the Swedish Agency for Public Management, launched an introductory training programme for civil servants, designed to help them manage the duties and obligations of their role.

([119])European Commission, DG REFORM, Public administration and governance: Sweden, Publications Office of the EU, 2024 (forthcoming).

([120])Riksrevisionen, 2022, https://www.riksrevisionen.se/en.html.

([121])European Commission, State of Digital Decade, 2023.

([122])Eurostat, ICT use survey, 2023.

([123])Agency for Digital Government, 2023, https://www.digg.se/analys-och-uppfoljning/publikationer/publikationer/2023-01-23-slutrapport-uppdrag-att-framja-offentlig-forvaltnings-formaga-att-anvanda-artificiell-intelligens.

([124])European Institute for Gender Equality, 2023.

Table A13.1:**Public administration indicators**

SE	Indicator ([1])	2019	2020	2021	2022	2023	EU-27([2])
E-government and open government data							
1	Share of internet users within the last year that used a public authority website or app	n/a	n/a	n/a	95.8	96.4	75.0
2	E-government benchmark overall score ([3])	n/a	75.4	73.6	76.7	81.8	75.8
3	Open data and portal maturity index	0.6	0.8	0.8	0.8	0.8	0.8
Educational attainment level, adult learning, gender parity and ageing							
4	Share of public administration employees with higher education (levels 5-8, %)	71.5	72.8	73.4 (b)	72.8	72.7	52.9
5	Participation rate of public administration employees in adult learning (%)	42.4	33.6	39.9 (b)	43.2	46.7	17.9
6	Gender parity in senior civil service positions ([4])	0.6	0.6	2.2	3.4	5.0	9.2
7	Ratio of 25-49 to 50-64 year olds in NACE sector O	1.8	1.9	1.8 (b)	1.8	2.0	1.5
Public financial management							
8	Medium-term budgetary framework index	0.8	0.8	0.8	0.8	n/a	0.7
9	Strength of fiscal rules index	1.6	1.6	1.6	1.6	n/a	1.4
Evidence-based policy making							
10	Regulatory governance	n/a	n/a	1.66	n/a	n/a	1.7

([1]) High values denote a good performance, except for indicator # 6. ([2]) 2023 value. If unavailable, the latest value available is shown. ([3]) Measures the user centricity (including for cross-border services) and transparency of digital public services as well as the existence of key enablers for the provision of those services. ([4]) Defined as the absolute value of the difference between the percentage of men and women in senior civil service positions.
Flags: (b) break in time series; (d) definition differs; (u) low reliability.
Source: E-government activities of individuals via websites, Eurostat (# 1); E-government benchmark report (# 2); Open data maturity report (# 3); Labour Force Survey, Eurostat (# 4, 5, 7); European Institute for Gender Equality (# 6); Fiscal Governance Database (# 8, 9); OECD Indicators of Regulatory Policy and Governance (# 10).

The justice system is efficient, and its digitalisation is at an overall good level. The time needed to resolve administrative cases at first instance in 2022 was 107 days and is comparatively low among Member States. The clearance rate remains stable and positive for civil and commercial litigious cases (at 103% in 2021 and 102% in 2022) and for administrative cases (at 103% in 2021 and 2022). The level of digitalisation is overall good. In particular, digital tools are widely used in courts, including an electronic case management system, technology for distance communication and a secure remote work environment for judges and staff. Some gaps exist in the arrangements for producing machine-readable judgments, digital solutions to conduct and follow criminal proceedings, or accessing first instance court judgments online. On judicial independence, no systemic deficiencies have been reported ([125]).

([125])For a more detailed analysis of the performance of the Swedish justice system, see the 2024 EU Justice Scoreboard (forthcoming) and the country chapter on Sweden in the Commission's 2024 Rule of Law Report (forthcoming).

ANNEX 14: EMPLOYMENT, SKILLS AND SOCIAL POLICY CHALLENGES IN LIGHT OF THE EUROPEAN PILLAR OF SOCIAL RIGHTS

The European Pillar of Social Rights is the compass for upward convergence towards better working and living conditions in the EU. This Annex provides an overview of Sweden's progress in implementing the Pillar's 20 principles and the EU headline and national targets for 2030 on employment, skills, and poverty reduction.

Table A14.1:**Social Scoreboard for Sweden**

Policy area	Headline indicator	
Equal opportunities and access to the labour market	Adult participation in learning (during the last 12 months, excl. guided on the job training, % of the population aged 25-64, 2022)	66.5
	Early leavers from education and training (% of the population aged 18-24, 2023)	7.4
	Share of individuals who have basic or above basic overall digital skills (% of the population aged 16-74, 2023)	66.4
	Young people not in employment, education or training (% of the population aged 15-29, 2023)	5.7
	Gender employment gap (percentage points, population aged 20-64, 2023)	4.7
	Income quintile ratio (S80/S20, 2022)	4.4
Dynamic labour markets and fair working conditions	Employment rate (% of the population aged 20-64, 2023)	82.6
	Unemployment rate (% of the active population aged 15-74, 2023)	7.7
	Long term unemployment (% of the active population aged 15-74, 2023)	1.6
	Gross disposable household income (GDHI) per capita growth (index, 2008=100, 2022)	121.6
Social protection and inclusion	At risk of poverty or social exclusion (AROPE) rate (% of the total population, 2022)	18.6
	At risk of poverty or social exclusion (AROPE) rate for children (% of the population aged 0-17, 2022)	19.9
	Impact of social transfers (other than pensions) on poverty reduction (% reduction of AROP, 2022)	39.85
	Disability employment gap (percentage points, population aged 20-64, 2022)	25.7
	Housing cost overburden (% of the total population, 2022)	9.1
	Children aged less than 3 years in formal childcare (% of the under 3-years-old population, 2022)	54.4
	Self-reported unmet need for medical care (% of the population aged 16+, 2022)	1.8

Critical situation | To watch | Weak but improving | Good but to monitor | On average | Better than average | Best performers

Update of 25 April 2024. Members States are categorised based on the Social Scoreboard according to a methodology agreed with the EMCO and SPC Committees. Please consult the Annex of the Joint Employment Report 2024 for details on the methodology.
Source: Eurostat.

The labour market in Sweden is performing well overall, but significant challenges to integrating people born outside the EU. The employment rate remains one of the highest in the EU, at 82.6% in 2023 (EU: 75.3%). However, Sweden still faces difficulties in integrating vulnerable people into the labour market. The disability employment gap widened in 2022 to be once more above the EU average (25.7 percentage points (pps) in Sweden vs 21.4 pps in the EU). Also, the employment rate of people born outside the EU in 2023 was much lower, at 71.7%. While this is above the EU average of 67%, it is significantly below that of people born in Sweden, which was 85.5% in 2023. This represents an employment gap of 13.8 pps, considerably above the EU average of 9.3 pps. The difference between people born in Sweden and those born outside the EU is even bigger for women, even though the employment rate of women born outside the EU is above the EU average. The Swedish European Social Fund Plus (ESF+) programme specifically aims to activate those people who are still furthest away from the labour market, including persons with disabilities, newly arrived migrants and long-term unemployed people.

There are high levels of unemployment and labour market slack in Sweden. In 2023, the unemployment rate (7.7%) remained was higher than the EU average (6.1%). Labour market slack ([126]) reached 16.4% in 2023, well above the EU average of 12%. Youth unemployment (15-24 age group) remained high, at 22.1 % in 2023, slightly on the rise from 2022. This is significantly above the EU average of 14.5% in 2023. When it comes to long-term unemployment, there is another wide gap between people born in Sweden and those born outside the EU. The proportion of Swedish-born unemployed people (15-74 age group) who had been unemployed for more than 12 months was 12.1% in 2023, against 33.4% for those born outside the EU. For the EU as a whole, people born outside the EU are less likely to be long-term unemployed compared to native-born in the EU (33.3% vs 35.9%, respectively). The Swedish public employment services have gone through a reform in recent years, which includes a re-structuring of the active labour market policy (ALMP) system. During the reform the concentration of resources on job seekers who are harder to place has been maintained. However, Sweden still faces challenges in matching jobseekers with available job vacancies.

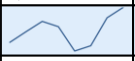
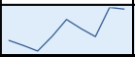
There are also wide gaps in education and skills between people born outside the EU and those born in Sweden. While the share of early leavers from education or training (18-24 age group) is below the EU average in all categories, there is a wide gap between young people born in Sweden and those born outside the

([126])Labour market slack refers to all unmet needs for employment, namely it represents the extent to which labour supply exceeds labour demand in the short term.

EU (6.4% vs 12.2%, respectively, in 2023). It should however be noted that early leavers are defined as individuals who have completed at most a lower secondary education and were not in further education or training during the four weeks preceding the Eurostat survey. The rate of young people not in employment, education, or training (NEETs) (15-29 age group) remains significantly below the EU average (5.7% vs 11.2% in 2023). However, in this area there is also a gap between young people born in Sweden and those born outside the EU: 5.0% vs 8.4% in 2023. The Recovery and Resilience Facility has contributed to establishing new places in regional adult vocational education which, together with related reforms sum up to more than 68 000 new study places, for individuals with the greatest education needs.

Skills mismatches have decreased in a labour market that is characterised by labour shortages greater than before the COVID-19 pandemic. The percentage of employers reporting that labour shortages are a factor limiting their production remain higher than their pre-pandemic levels in industry and services (12% in industry, 23% in services in October 2023), despite having fallen since their peak in 2022. Nevertheless, these rates are lower than the respective EU averages. Yet the job vacancy rate, albeit falling to 2.8% in 2023, slighlty above the EU average (2.7%). Together with the lagging labour market integration of some groups, labour shortages and skills mismatches also undermine Sweden's potential to improve its economic competitiveness. The macroeconomic skills mismatch ([127]) has slightly decreased since 2020, and it remains at a relatively low level (16.7% in 2022), due to a reduction in the gap between the employment rates of workers with different educational levels. The skills mismatch of younger workers (15-29 age group) has decreased, despite remaining the highest among the age groups of the working population and above the general skills mismatch.

Table A14.2:**Situation of Sweden on 2030 employment, skills and poverty reduction targets**

Indicators	Latest data	Trend (2016-2023	2030 target	EU target
Employment (%)	82.6 (2023)		82	78
Adult learning[1] (%)	66.5 (2022)		60	60
Poverty reduction[2] (thousands)	53 2023		-15	-15 000

(1) Adult Education Survey, adults in learning in the past 12 months, special extraction excl. guided on-the-job training.
(2) Change in the number of persons at risk of poverty or social exclusion (AROPE), reference year 2019.
Source: Eurostat, DG EMPL.

Poverty and income inequality have increased. The share of people at risk of poverty or social exclusion increased in 2022, after a decrease in 2021. For adults (18 and over), it stood at 18.6% in 2022, the highest figure ever recorded in Sweden, although still below the EU average of 21.6%. Notably, in 2022 there was a large gap between people born in Sweden and those born outside the EU (13.5% vs 38%, respectively), slightly above the EU averages (18.8% vs 40%). Income inequality, measured by the ratio between the earnings of the fifth and the first quintile of the income distribution, also increased in 2022, after falling in 2021. The ratio was the highest it has ever been for Sweden in 2022 (4.36), and only slightly below the EU average (4.7). The Swedish ESF+ programme will invest about EUR 21 million to help reduce the risk of financial vulnerability and contribute to an inclusive society. Further efforts are needed to reach the 2030 national poverty target of reducing the number of people at risk of poverty or social exclusion by at least 15 000 compared to 2019.

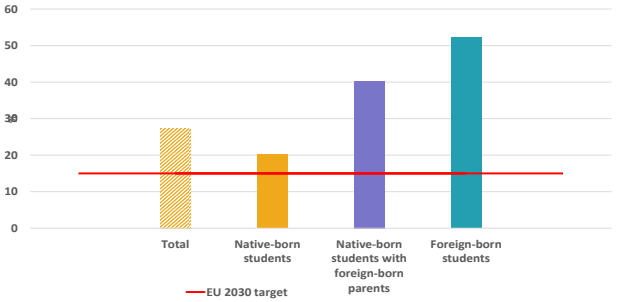
([127])The macroeconomic skills mismatch measures the dispersion of employment rates across three skill groups (proxied by education levels, with ISCED 0-2 = low skills; 3-4 = medium skills and 5-7 = high skills). If there is a big discrepancy between the employment rates of the high, medium, and low-skilled, this suggests that there is a large gap between the skills that the population has and the skills that the economy needs.

This Annex outlines the main challenges of Sweden's education and training system based on the 2023 Education and Training Monitor and the 2022 OECD Programme for International Student Assessment (PISA) results.

Basic skills have deteriorated since 2018, with increasing underachievement rates and decreasing top performance. Recent reversal of the positive PISA trends 2012-2018 led to underachievement comparable to 2012 levels. Increase has been largest in mathematics with 8.4 pps (EU 6.6 pps), leading to a rate of 27.2% (vs EU 29.5%), above the EU target of under 15%. The increase was also significant in reading (5.9 pps vs EU 3.7 pps). The share of top performers in mathematics decreased by 2.6 pps (falling to 10% vs EU 7.9%), and in reading by 3.1 pps (to 10.2% vs EU 6.5%) ([128]). The COVID pandemic might have impacted results less than in other countries as schools in Sweden were largely kept open. Only 15% of students reported their school being closed for more than 3 months. However, the persistent shortage of qualified teachers in schools may impact on quality (see below). While students still perform better than the EU average, negative trends may hamper future skills development and competitiveness due to the less solid foundation. The decline in the share of top performers represents a risk for the innovation capacity of the country.

Low socio-economic status and migrant background increase the risk of underperformance. Students from disadvantaged backgrounds are more likely to underperform in mathematics compared with those from more affluent backgrounds (44.4% vs 10.9%). The share of disadvantaged students who underperform also increased more strongly since 2018 (11.7 pps vs 2.6 pps for the advantaged), leading to a widening socio-economic gap (33.5 pps). Similar gaps exist in reading (29.7 pps) and science (30.3 pps). Worryingly, the performance gap between native-born students and foreign-born students is 32.2 pps, one of the highest in the EU, and remains high for migrant background students born in the country (20.2 pps) (see Graph A15.1). The gap in the performance remains significant (27 score points) after accounting for socio-economic background and language spoken at home.

Graph A15.1: **Underachievement in mathematics in Sweden by country of birth, PISA 2022**



Source: OECD (2023).

Knowledge of the language affects educational results particularly strongly in Sweden. According to the Progress in International Reading Literacy Study (PIRLS) 2021, the reading performance of children who only sometimes speak the language of the test at home is 50 points lower than of those who always speak it, corresponding to more than 1 year of teaching ([129]), the highest such gap in PIRLS 2021.

Qualifying for upper secondary education is a challenge and more difficult for students with migrant background. In 2022, 15% of all the students had compulsory school grades too low to qualify for the national upper secondary education programme. Students with migrant background who arrive in the country after starting school are much less likely to qualify (66.8% of those arriving in the first 5 grades, and 32% of those arriving in the last 4 grades, of compulsory school qualify, vs 89.5% for the native-born). Not speaking the language of tuition and a low socio-economic and/or education background of parents have a negative impact on results. They are also underrepresented in independent schools, whose pupils have better chances of qualifying for upper secondary (91.6% vs 83.3% for those from municipal schools), partly also linked to the profile of students attending municipal or private

([128])OECD (2023), PISA 2022 Results (Volume I): The State of Learning and Equity in Education, PISA, OECD Publishing, Paris, https://www.oecd.org/publications/pisa-2022-results-volume-i-53f23881-en.htm.

([129])European Commission (2023), Children's reading competence and well-being in the EU: an EU comparative analysis of the PIRLS results, Publications Office of the European Union, 2023, https://data.europa.eu/doi/10.2766/820665.

Table A15.1:**EU-level targets and other contextual indicators under the European Education Area strategic framework**

				2012		2018		2023	
Indicator			Target	Sweden	EU-27	Sweden	EU-27	Sweden	EU-27
[1]Participation in early childhood education (age 3+)			96%	95.0% [2013]	91.8% [2013]	95.1%	92.2%	96.1% [2021]	92.5% [2021,d]
[2]Low-achieving 15-year-olds in:		Reading	< 15%	22.7%	18.0%	18.4%	22.5%	24.3% [2022]	26.2% [2022]
		Mathematics	< 15%	27.1%	22.1%	18.8%	22.9%	27.2% [2022]	29.5% [2022]
		Science	< 15%	22.2%	16.8%	19.0%	22.3%	23.7% [2022]	24.2% [2022]
Early leavers from education and training (age 18-24)	[3]Total		< 9 %	7.5%	12.6%	7.5% [b]	10.5%	7.4%	9.5%
	[3] By gender	Men		8.5%	14.5%	8.8% [b]	12.1%	8.6%	11.3%
		Women		6.3%	10.6%	6.0% [b]	8.7%	6.2%	7.7%
	[4] By degree of urbanisation	Cities		6.4% [b]	11.2%	5.6% [b]	9.4%	5.9%	8.6%
		Rural areas		8.9% [b]	14.0%	9.2% [b]	11.0%	10.4%	9.9%
	[5] By country of birth	Native		6.7%	11.3%	5.5% [b]	9.2%	6.4%	8.2%
		EU-born		9.8% [u]	26.2%	8.6% [bu]	22.4%	: [u]	21.0%
		Non EU-born		13.2%	30.1%	17.2% [b]	23.0%	12.2%	21.6%
[6]Socio-economic gap (percentage points)				28.1	:	24.4	29.5	33.5 [2022]	37.2 [2022]
[7]Exposure of VET graduates to work-based learning			≥ 60% (2025)	:	:	:	:	65.7%	64.5%
Tertiary educational attainment (age 25-34)	[8]Total		45%	43.5%	34.1%	47.6% [IN/A]	38.7%	54.1%	43.1%
	[8] By gender	Men		37.2%	29.1%	40.4% [b]	33.3%	46.8%	37.6%
		Women		50.2%	39.2%	55.1% [b]	44.2%	61.9%	48.8%
	[9] By degree of urbanisation	Cities		53.1% [b]	43.5%	60.2% [b]	49.0%	66.1%	53.3%
		Rural areas		30.6% [b]	24.8%	31.8% [b]	27.7%	37.7%	31.7%
	[10] By country of birth	Native		44.5%	35.4%	47.7% [b]	39.7%	55.6%	44.2%
		EU-born		56.3%	29.3%	63.5% [b]	36.7%	68.3%	40.2%
		Non EU-born		37.2% [IN/A]	24.2%	43.8% [b]	31.0%	46.2%	37.1%
[11]Participation in adult learning (age 25-64)			≥ 47% (2025)	:	:	58.8% [2016]	37.4% [2016]	66.5% [2022]	39.5% [2022]
[12]Share of school teachers (ISCED 1-3) who are 55 years or over				28.8% [2013]	22.7% [2013]	25.3%	23.8%	24.8% [2021]	24.5% [2021]

Notes: b = break in time series; d = definition differs; e = estimated; p = provisional; u = low reliability; : = data not available.
Source: 1,3,4,5,7,8,9,10,12=Eurostat; 11= Eurostat, Adult Education Survey; 2,6=OECD, PISA.

schools ([130]). In 2023, early leaving from education and training was 7.4%, below the EU average of 9.5%.

Shortage of qualified teachers exists at most levels of education, with regional and local variations. It is particularly high in early childhood education and care (ECEC), where only 41% of ECEC teachers are qualified (with regional variations between 30% and 54% ([131]) and municipal between 22% and 75%). In compulsory schools in 2022-2023, only 70.8% of teachers were qualified in at least one of their subjects, and in upper-secondary 83.4%. Municipal schools have more qualified teachers, both in compulsory (71.8% vs independent 63.9%) and in upper secondary schools (86.7% vs 75.7%) ([132]). In vocational education and training (VET), a doubling in the number of students studying to become VET teachers is needed ([133]).

Participation in ECEC is high, and staff are provided with targeted language training. In 2021, the participation rate of children older than 3 years was 96.1% vs EU 92.5%. Since autumn 2022, the National Agency for Education provides Swedish courses for ECEC staff ([134]).

Tertiary education attainment is high. In 2023, it was 54.1% vs EU 43.1%. It has increased by 1.7 pps from 2022, and by 8.1 pps in the last decade. The employment rate of recent higher education graduates (aged 20–34) in 2022 was 92.1% (EU: 86.7%.)

([130])National Agency for Education (2022), Slutbetyg i grundskolan, Våren 2022, Beskrivande statistik Stockholm, Skolverket. https://www.skolverket.se/getFile?file=10334

([131])Databasen Jämförelsetal - Skolverket (artisan.se): https://jmftal.artisan.se/databas.aspx#tab-0.

([132])National Agency for Education (2023), Pedagogisk personal i skola och vuxenutbildning. Läsåret 2022/23. Beskrivande statistik Stockholm, Skolverket.

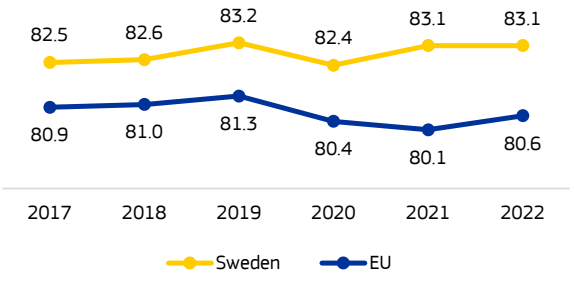
([133])Cedefop (2023), Vocational education and training in Sweden: short description, Luxembourg: Publications Office, http://data.europa.eu/doi/10.2801/800830.

([134])https://www.skolverket.se/skolutveckling/anordna-och-administrera-utbildning/anordna-utbildning-inom-komvux/relaterade-lankar/spraktraning-for-anstallda-i-valfarden/spraktraning-for-anstallda-i-forskolan

A healthy population and an effective, accessible and resilient health system are prerequisites for a sustainable economy and society. This Annex provides a snapshot of population health and the health system in Sweden.

Life expectancy in Sweden remains among the highest in the EU. In 2022, life expectancy at birth in Sweden was among the highest in the EU, at 83.1 years, rebounding to pre-pandemic levels following a reduction in 2020. This rebound reflects the lower COVID-19 mortality in Sweden in 2021 and 2022 compared to 2020 ([135]). In 2021, the leading causes of death were diseases of the circulatory system ('cardiovascular diseases') followed by cancer, and Alzheimer's disease and other forms of dementia. Compared to other EU countries, Sweden had very low rates of mortality from preventable and treatable causes in 2021. These point to the effectiveness of the public health and healthcare system in preventing deaths from such conditions. The low rate of preventable mortality is largely due to low rates of premature deaths from lung cancer and cardiovascular diseases. A specific cause for concern is Sweden's comparatively high death rate due to suicide. Suicide rates have decreased in Sweden since 2005, but remain above the EU average for women.

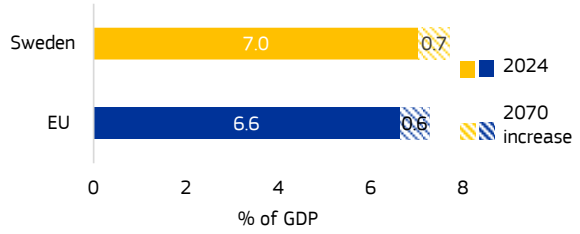
Graph A16.1: **Life expectancy at birth, years**



Source: Eurostat

In 2021, total expenditure on healthcare dropped back slightly to 11.2% of GDP, but remained above the EU average level (10.9%). This is in line with the trend observed for other countries too, which is driven – to a varying extent – by a growth in GDP in 2021 following an initial contraction in 2020 at the onset of the COVID-19 pandemic. In real terms, health spending in Sweden increased by 11% from 2020 to 2021. Provisional data suggest that in 2022 total health spending fell back to 10.6% of GDP. Public expenditure on health as a proportion of current health expenditure fell slightly by 0.3 percentage points (pps) to 85.9% in 2021, but remained well above the EU average of 81.1%. The largest share of health spending in Sweden in 2021 (around a third) was for outpatient care (including home care), which is much higher than the respective average share across the EU. Inpatient care accounted for around 23% of total healthcare spending in 2021. This represents a marked decline since 2010, when the budget share held by inpatient care stood at around 27%. Based on the age profile of the Swedish population, public spending on health is projected to increase by 0.7 pps of GDP by 2070, compared to 0.6 pps for the EU overall (see Graph 16.2 and Annex 21).

Graph A16.2: **Projected increase in public expenditure on healthcare over 2024-2070**



Baseline scenario
Source: European Commission / EPC (2024)

In 2021, spending on prevention in Sweden amounted to 4.9% of total spending on healthcare, compared to 6.0% for the EU overall. Between 2019 and 2021, spending on prevention in Sweden increased by around 55% (compared to a 106% increase for the EU overall). Proportionally, budget shares for prevention across the EU increased most for emergency response, disease detection and immunisation programmes. Between 2019 and 2021, Sweden saw a remarkable proportional increase in reported spending on immunisation programmes, epidemiological surveillance and risk and disease control programmes. On another issue related to public health, Sweden had one of the lowest rates of antibiotic consumption in the EU in 2021.

([135])Based on data provided directly by Member States to the European Centre for Disease Prevention and Control, under the European Surveillance System.

Table A16.1:**Key health indicators**

	2018	2019	2020	2021	2022	EU average (latest year)
Treatable mortality per 100 000 population (mortality avoidable through optimal quality healthcare)	65,6	60,2	62,1	59,7	NA	93.3 (2021)
Cancer mortality per 100 000 population	221,3	216,7	214,1	206,6	NA	235.4 (2021)
Current expenditure on health, % GDP	10,9	10,8	11,3	11,2	10,6	10.9 (2021)
Public share of health expenditure, % of current health expenditure	84,8	85,1	86,2	85,9	NA	81.1 (2021)
Spending on prevention, % of current health expenditure	3,4	3,2	3,4	4,9	NA	6.0 (2021)
Available hospital beds per 100 000 population	213	207	205	200	NA	525 (2021)
Doctors per 1 000 population	4,3	4,3	4,3	4.3*	NA	4.1 (2021)*
Nurses per 1 000 population	10,9	10,9	10,7	NA	NA	7.9 (2021)
Total consumption of antibacterials for systemic use, daily defined dose per 1 000 inhabitants per day ***	12,4	11,8	10,3	10,1	11,2	19.4 (2022)

Note: The EU average is weighted for all indicators except for doctors and nurses per 1 000 population, for which the EU simple average is used. Doctors' density data refer to practising doctors in all countries except Greece, Portugal (licensed to practise) and Slovakia (professionally active). Nurses' density data refer to practising nurses in all countries except Ireland, France, Portugal, Slovakia (professionally active) and Greece (hospital only).

Source: Eurostat Database; except: * OECD, ** Joint Questionnaire on non-monetary healthcare statistics, *** ECDC, **** Council Recommendation on stepping up EU actions to combat antimicrobial resistance in a One Health approach.

Consumption has gradually decreased over the past decade and that trend continued during the pandemic. Moreover, Sweden takes a comprehensive approach to addressing antimicrobial resistance. The national strategy for 2020-2023 has the overarching goal of preserving the possibility of effective treatment of bacterial infections in humans and animals ([136]).

About 1 in 6 people had a mental health issue in 2019, which was close to the EU average. The most common mental health issues in Sweden are anxiety and depression, with higher prevalence among women and people on lower incomes. In a recent Eurobarometer survey ([137]) most respondents from Sweden reported that either they or a family member had encountered issues accessing mental health services due to long waiting lists and delays before diagnosis or treatment. A significant proportion of respondents said that they did not know any good specialist. A new mental health strategy to address mental illness and promote suicide prevention is under development.

Sweden had higher numbers of doctors and nurses per 1 000 population than the EU overall in 2020. The number of doctors has increased since 2000, driven in part by an increasing number of foreign-trained doctors. The number of Swedish doctors who trained abroad has quadrupled since 2006, due mainly to limited capacity in domestic medical schools. Despite the increasing density of doctors, several regions report shortages of general practitioners (GPs). The share of GPs in Sweden (14%) is much lower than the EU average. The density of nurses has remained stable in the last decade, and several regions report some shortages – particularly of specialist (advanced practice) nurses in primary care.

Limited investments in healthcare are planned under EU programmes. During the 2021-2027 programming period for the cohesion policy funds, Sweden is planning to invest around EUR 3.8 million in e-health services and applications ([138]). Sweden has not earmarked any funding for investment in healthcare under its national recovery and resilience plan.

([136])Government Offices of Sweden (2023), Swedish Strategy to Combat Antibiotic Resistance 2020-2023.

([137])https://europa.eu/eurobarometer/surveys/detail/3032

([138])The EU cohesion policy data reflect the status as of 13 May 2024.

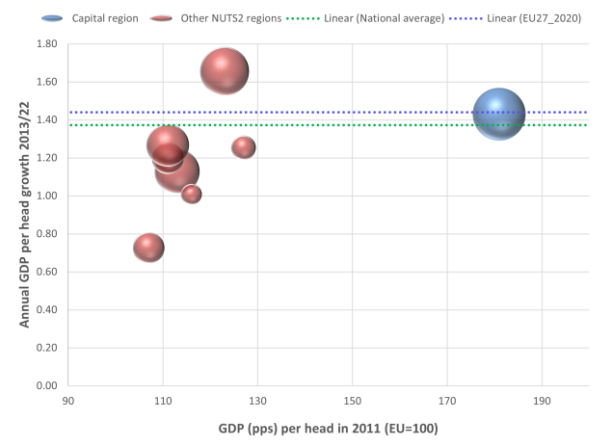
Annex 17 showcases the economic and social regional dynamics in Sweden. It provides an analysis of economic, social and territorial cohesion in the Swedish regions and assesses emerging investment needs relevant to foster economic growth, social development and competitiveness in the country.

Overview of economic and social performance at regional level

Sweden's regions continue to perform well in most economic and social indicators compared to the EU average. However, regional disparities have risen slightly over the last two decades, as has the gap between urban centres and the rest of the country.

GDP per capita (PPS) at country level was 120% of the EU average in 2022. All NUTS2 regions were above or close to the EU average, but the Stockholm capital region was by far the highest at 160% (Table A17.1). In contrast, Norra Mellansverige had the lowest figure of 99% at just below the EU average.

Graph A17.1: **Average GDP per capita growth vs GDP per capita in 2011**

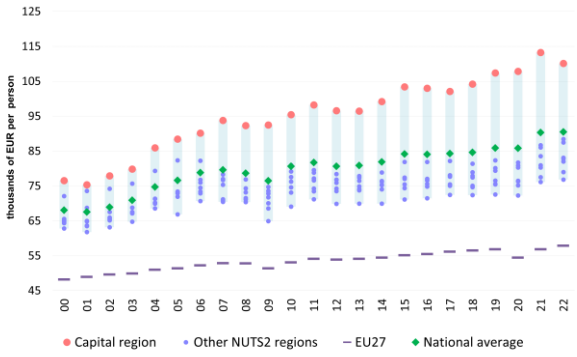


Source: DG REGIO calculations based on JRC (ARDECO) and Eurostat data

GDP per capita growth between 2013 and 2022 was relatively slow in Sweden. Only Västsverige grew faster than the EU average, all other NUTS2 regions grew slower than the EU average (Graph A17.1).

Labour productivity in Sweden is higher than the EU average in all NUTS2 regions (Graph A17.2). However, the productivity gap between the capital and the other regions has increased over time. As highlighted by the OECD ([139]), lower productivity is often associated with poor transport links, lower employment in knowledge-intensive sectors, lower R&D expenditure and a lower share of tertiary education.

Graph A17.2: **Real labour productivity in Sweden, 2000-2022**



Source: ARDECO, DG REGIO elaboration

The three northern regions were much less accessible than the other regions in 2021. More than 90% of the population living within a radius of 120 km could be reached by car in less than 90 minutes in the Stockholm region, but this ratio drops to 58% in Mellersta Norrland, 56% in Övre Norrland and 52% in Norra Mellansverige.

The population is growing in all Swedish regions mainly due to migration with the capital region's population growing the fastest and the three northern regions the slowest. Stockholm's population increased on average by 1.41% in 2013-2021 while the population grew by only around 0.24% in Mellersta Norrland, 0.33% in Övre Norrland and 0.44% in Norra Mellansverige.

Sweden is an innovation leader, but there are notable differences in regional innovation performance. Stockholm is one of the most innovative regions in the EU with 166.8% of the EU average in 2022 while Norra Mellansverige ranked lowest of all the Swedish regions with 102.1 (Map A17.1). A similar pattern can be seen in the 2022 Regional Competitiveness Index, where the Swedish regions overall score highly.

([139])OECD, Regional differences in productivity in Sweden: insights from OECD regions, ECO/WKP(2021)39.

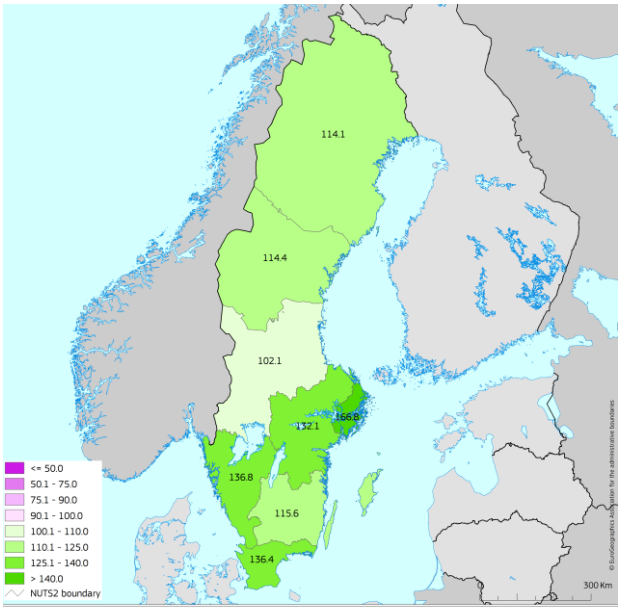
Table A17.1:**Selected indicators at regional level in Sweden**

NUTS region name	GDP per head (PPS)	Productivity (GVA (PPS) per person employed)	GDP per head growth	Population growth	Net migration	At-risk-of-poverty or social exclusion	Employment rate, ages 20-64	Unemployment rate	R&D expenditure	Transport performance by car	EU Regional Competitiveness Index 2.0 - 2022 edition
	Index, EU27 = 100 (2022)	Index, EU27 = 100 (2022)	Average % change on the preceding year (2013-2022)	Average annual change per 1000 residents (2013-2021)	Average annual change per 1000 residents (2013-2021)	% of population (2022)	% of population aged 20-64 (2023)	% of labour force (2023)	% of GDP (2021)	Share of population in a 120-km radius that can be reached within 1h30 (%) (2022)	Index, EU27 = 100
European Union (27 MS)	100	100	1.44	1.9	2.9	21.6	75.3	6.1	2.3	77.2	100
Sverige	120	113.8	1.37	10	7.6	18.6	82.6	7.7	3.4	74.1	120.3
Stockholm	160	135.9	1.43	14.1	8.4	15.3	85.2	6.9	3.6	90.5	138.9
Östra Mellansverige	103	103.5	1.13	10.8	9.1	20.6	80	9.1	3.6	70.6	117.5
Småland med öarna	103	98.1	1.2	8.2	7.4	18.9	83.9	6.9	1.6	55.2	106.1
Sydsverige	101	104.3	1.27	10.9	8.6	22.8	80.5	9.4	3.2	80.9	120.5
Västsverige	115	108.5	1.66	10	7.6	17.2	82.7	7.4	5.3	76.8	119.9
Norra Mellansverige	99	103.6	0.73	4.4	5.4	19.8	82.5	7.3	1	51.9	102.8
Mellersta Norrland	109	109.2	1.01	2.4	4	19	83.1	6.5	0.7	58.3	106.1
Övre Norrland	129	125	1.25	3.3	3.6	16.5	82.6	5.7	2.5	56.4	108.3

Source: Eurostat, EDGAR database

Stockholm ranked highest and Norra Mellansverige ranked lowest of all the regions (Table A17.1).

Map A17.1: **Sweden: Regional Competitiveness Index 2022 - Innovation sub-index**



Sweden, Regional Competitiveness Index 2.0, 2022 edition - Innovation sub-index

Source: DG REGIO, JRC

The employment rate was well above the EU average in all Swedish regions in 2023 (82.6% in Sweden vs. 75.3 in the EU). The rate was highest in Stockholm, 85.2%, and lowest in Östra Mellansverige, 80%. However, in 2023, Sweden had a relatively high level of unemployment, 7.7%, compared to the EU average of 6.1%. The unemployment rate was lowest in Övre Norrland (5.7%) but reached 9.4% in Sydsverige.

Investment and subnational reform needs ahead

Cohesion policy investments in Sweden support selected areas of particular relevance for the green and digital transition. The investment strategy agreed in the programmes adopted in 2022 remain valid for the current economic and social situation in Sweden. Taking into account recent developments, Sweden is invited to reflect on the following issues.

Skilled labour shortages are an obstacle to regional development, especially in Sweden's most northerly region. It is estimated that more than 100 000 skilled workers will be needed by 2035 in Sweden's northern sparsely populated areas. This constitutes a major skills gap ([140]). Accessibility and quality of transport links, especially railway, is also an issue in the northern parts of Sweden, with its long distances and sparce population. There are also clear signs of labour shortages across the country in relation to the green transition, but especially in non-urban areas (e.g. Nordregio ([141]).

Innovation will be key to addressing the challenges related to the green and digital transitions. This is especially in the context that economic growth has been slow for the past decade and labour productivity and innovation

([140]) Larsson, Peter, Rapport från samordnaren för samhällsomställning vid större företagsetableringar och företagsexpansioner i Norrbotten och Västerbotten, Government Offices – Ministry of Enterprise and Innovation, (2022)23.

([141])Nordregio Strategies to address rural labour shortage | Nordregio

capacity is significantly lower outside the capital region. Cohesion policy could support innovation projects which can contribute to more sustainability. Future reallocation under the programmes should be directed towards further greening of society with the ambition of reaching a climate neutral economy while continuing to address regional and disparities between urban and non-urban areas.

Sweden could also benefit from the opportunities under the Strategic Technologies for Europe Platform (STEP) initiative, to boost investments in critical technologies to support the green transformation of industry.

Swedish banks have structurally higher profitability than their European peers, strong liquidity positions and small loan losses. Total banking-sector assets are equivalent to just over 300% of GDP, of which the five largest banks hold 75%. Sweden's banks still rank among the most profitable in the EU (with an annualised return on equity of 13.2% vs 9.9% in the EU at the end of Q3-2023), as lending rates rose more than the interest paid on deposits over the past year. However, this increase in interest margin started from a comparatively low starting point. This is because volume growth rather than margins had previously been the main driver of banks' profits. The capital adequacy ratio stood at 22.1% (vs 19.6% in the EU), well above existing capital requirements, although this was partially driven by low risk weightings applied to mortgage loans and commercial real estate exposures. However, the leverage ratio, measured as equity in relation to total assets, has fallen over time and remains one of the lowest in the EU at around 5%. The liquidity coverage ratio amounted to 163.2% at the end of Q3-2023. In late 2023, Swedish banks also posted the highest loan-to-deposit ratio in the EU (154.1% vs 93.3% in the EU) linked to a high dependence on market funding, indicating sensitivity to changes in funding conditions. At 0.9%, the non-performing-loan ratio is one of the lowest in the EU (the EU average is 1.8%).

Banks dominate the financial system, yet their relative share is declining. Non-bank financial intermediation is growing, providing credit to both non-financial corporates and individuals. The non-bank financial sector, including insurance, pension, and investment funds, manages assets that are almost as large as those of the entire Swedish banking sector. This sector has large equity portfolios, but also increasingly invests in corporate bonds with a high exposure to real estate. The actions of the non-bank financial sector can amplify shocks and potentially spread risk to other asset classes and agents. In Sweden, banks are connected to the non-bank financial-intermediation sector via loans, securities, and derivatives exposures, as well as funding dependencies. Fintech activities within the non-bank sector also continue to grow, for example in insurance, while credit provision by non-bank fintech lenders is also increasing.

The changing macroeconomic environment, with higher interest rates and strong inflation, has led to stress building up in the commercial real estate sector. Swedish property companies' debt-to-operating-income ratios are high, following several years of increasing debt uptake. Due to a combination of higher interest rates and a slump in economic activity, funding and other costs have risen rapidly and weakened commercial real estate companies' interest-rate-coverage ratios. Given high leverage and short loan maturities, this has put pressure on commercial real estate companies. Nevertheless, strong fundamentals mitigate some of the pressure. Swedish property companies have resilient occupancy rates, and inflation-indexed contracts have kept rental levels up and helped limit the impact of increased yield requirements. Moreover, since many larger property companies have loans with fixed interest rates via credit agreements or interest-rate derivatives, the entire rise in interest rates has not yet affected them. As a result, commercial real estate valuations have only gradually fallen, declining by an average of around 5-10% since the peak in 2022, depending on the property segment.

Commercial real estate has a significant footprint in bank balance sheets, resulting in concentrated credit risk. Commercial real estate firms are financed mainly through bank loans (60%), but increasingly also through capital markets (from 10% in 2012 to 35% in 2022), mainly the bond market. Their funding costs have strongly increased as demonstrated by rising yields and interest rates on new bank loans. The prospect of interest rates remaining higher for longer, combined with a relatively short average maturity of around 3-4 years, means that interest-rate costs for these firms are likely to rise as debt is rolled over. Moreover, some borrowers, particularly sub-investment-grade issuers, may face strained refinancing conditions or much higher risk premiums on the bond market. Higher borrowing costs and volatile conditions in capital markets could lead borrowers to secure alternate financing, through existing and new credit facilities and secured loans, which Swedish banks can satisfy to a large extent.

Table A18.1:**Financial Stability Indicators**

	2017	2018	2019	2020	2021	2022	2023	EU	Median
Total assets of the banking sector (% of GDP)	289.6	272.8	279.1	311.8	280.1	291.6	290.3	257.0	184.6
Share (total assets) of the five largest banks (%)	58.2	54.3	54.8	54.1	55.0	58.3	-	-	69.6
Share (total assets) of domestic credit institutions (%)[1]	92.7	77.7	79.1	78.7	80.3	80.0	80.8	-	62.9
NFC credit growth (year-on-year % change)	5.7	6.1	3.6	4.0	7.0	12.0	1.8	-	2.4
HH credit growth (year-on-year % change)	7.0	5.5	5.1	5.6	6.8	3.4	0.5	-	1.4
Financial soundness indicators:[1]									
- non-performing loans (% of total loans)	1.3	1.0	1.1	1.0	1.0	0.8	0.9	1.8	1.8
- capital adequacy ratio (%)	25.9	20.7	21.6	22.3	22.2	22.0	22.1	19.6	20.1
- return on equity (%)[2]	10.9	12.2	10.9	8.4	10.0	9.8	13.2	9.9	13.2
Cost-to-income ratio (%)[1]	54.2	51.9	56.5	57.1	54.5	54.3	47.3	52.8	44.9
Loan-to-deposit ratio (%)[1]	172.7	190.7	187.9	163.2	152.6	162.3	154.1	93.3	80.2
Central bank liquidity as % of liabilities	0.0	0.0	0.0	1.2	0.1	0.0	0.0	-	0.7
Private sector debt (% of GDP)	201.1	197.0	199.7	212.7	213.5	207.5	-	133.0	118.4
Long-term interest rate spread versus Bund (basis points)	33.3	25.5	29.3	47.4	64.2	39.1	7.2	107.7	104.2
Market funding ratio (%)	62.6	62.6	63.7	63.4	63.4	62.0	-	50.8	39.8
Green bonds outstanding to all bonds (%)[3]	-	-	-	-	-	-	-	4.0	2.7

1-3 **4-10** **11-17** **18-24** **24-27** Colours indicate performance ranking among 27 EU Member States.

1Last data: Q3 2023.
2Data are annualised.
3Data available for EA countries only, EU average refers to EA area.
Source: ECB, Eurostat.

While banks are well placed to absorb potential losses, they face emerging risks related to real-estate firms' debt-servicing capacity. Overall, the capital base and profitability of Swedish banks are strong, and most have already set aside quite sizeable loan-loss reserves that can cushion any sizeable credit losses. Swedish banks have robust and prudent underwriting standards, based on stressed cash flow rather than on loan-to-value ratios. As a result, commercial real estate loans appear well collateralised overall, which should provide a cushion against any rise in non-performing loans. So far, the banks hold modest proportions of high-loan-to-value loans, and they report low non-performing-loan ratios for their corporate real-estate exposure. However, early signs of deterioration are visible in so-called Stage 2 loans, i.e. loans that are showing signs of weakness but not yet non-performing. These increased over the course of 2022 and remain elevated.

The share of mortgage loans with interest rates that are fixed or floating for a short period has increased, leaving households more exposed to changes in interest rates. A high level of indebtedness of households has led to a rapid rise in the debt-service burden of homeowners, given the prevalence of floating-rate mortgages. This interest-rate sensitivity has led to a considerable fall in disposable income for many borrowers – particularly those with a high loan-to-income ratio. New mortgagors are overrepresented in this group and tend to have larger nominal loans and smaller margins than existing mortgagors, thereby making them particularly exposed to higher inflation, higher interest rates and falling housing prices. This will negatively affect consumer spending by this group.

To reduce excessive borrowing, the Swedish supervisory authority has reinstated the macro-prudential measures that were eased at the beginning of the pandemic. With the potential impact on the wider financial system in mind, the Swedish Financial Services Authority even strengthened requirements in some areas, such as by introducing new risk-weight floors for mortgage and corporate exposures. Floors were set at 25% if secured by residential properties and at 35% if secured by commercial property from 30 September 2023. The Financial Services Authority also raised the countercyclical capital buffer to 2% from end-June 2023, and is in the process of changing the application of capital requirements for Swedish banks to adapt to the EU's banking package which implements the last parts of the Basel III agreement in the EU.

Sweden's tax revenues are relatively high in relation to GDP, with the highest contribution coming from labour taxation. Table A19.2 shows that Sweden's tax revenues as a percentage of GDP were above the EU average in 2022. However, in relative terms, the difference between the Swedish figure and the EU average decreased from 2.2% in 2021 to 1.6% in 2022. The share of labour tax in total tax revenue is significantly higher than the EU average, while the share of capital taxes is clearly below (see Graph A19.2).

Sweden has a relatively stringent carbon taxation framework, even if revenues from environmental taxes were slightly below the EU aggregate as a share of GDP and of total tax revenue. In Sweden, environmental tax revenues are low in part due to low emissions. For example, electricity is generated mostly from low-carbon sources. However, carbon is priced stringently when one compares tax rates. Sweden has the fourth highest effective average carbon rate (EACR) (adjusted for free allocation under the EU Emissions Trading System (ETS)) out of 71 countries that report to the OECD ([142]). The so-called reduction obligation, by which suppliers are obliged to blend in an increasing proportion of biofuels into petrol and diesel, has been reversed as of 2024. As of 2024, Sweden has reduced the energy taxes on fuels (EUR 0.5 billion). Pollution and resources taxes only account for 3.2% of environmental taxes, so there is potential to strengthen the application of the 'polluter pays' principle. While Sweden has a pesticide tax, it has abolished a tax on waste incineration in 2023, and a tax on plastic bags will expire in November 2024. There may also be scope as regards e.g. waste loadings to water and fertilisers. Sweden had previously implemented a tax on fertilisers, but this was subsequently removed.

The relatively low capital tax rate in Sweden is due to low taxation of capital gains / dividend income and of immovable property. Sweden has one of the largest differences in the OECD between the top statutory tax rate on employment income and dividend income (at 8% compared with the OECD average of 0.6% ([143]). Taxpayers therefore have an incentive to use income-shifting methods to re-classify employment income as capital income. Revenues from property taxes in Sweden were just 1% of GDP, which was significantly below the EU aggregate. In addition, recurrent taxes on immovable property, which are considered to be among the taxes least detrimental to economic growth, are below the EU average. Reducing the tax deductibility of mortgage interest payments and/or increasing recurrent property taxes for homeowners would help reduce risks related to high household debt and housing market imbalances. Moreover, Sweden does not tax inheritances and gifts. Despite some minor reforms in 2021 and 2022, only limited progress has been made on broader property tax reforms. The average forward-looking effective tax rates on corporate income exceeded the EU average by 0.5 pps in 2022, making Sweden's corporate taxation system slightly less competitive than the rest of the EU.

Sweden's Recovery and Resilience Plan (RRP) includes several tax reforms. In the field of environmental taxation, legislation will partially end the reduction of energy taxation in industry and agriculture and will adjust taxable benefit rates for company cars. In the field of capital gains taxation, the RRP includes the raising of the maximum amount of capital gains taxation resulting from the sale of a dwelling that can be deferred (this was implemented on 11 July 2020) and the ending of interest payments on such deferred capital gains (this was implemented on 1 January 2021).

The tax-benefit system helps reduce income inequality, but Sweden's labour tax burden is higher than the EU average at all wage levels. The negative impact of a high tax wedge is particularly pronounced for vulnerable groups, such as low-income and second earners. Graph A19.1 shows that the labour tax wedge in Sweden is higher than the EU average for all income levels. The tax wedge for low-income earners at 50% of the average wage is particularly high compared with the EU average. The picture is to some extent mitigated by the tax wedge for second earners with an income of 67% of average wage, whose spouses earns the average wage.

([142])78.58 Rate Unit: Real 2021 EUR/tCO2e (source: OECD Series on Carbon Pricing and Energy Taxation)

([143])OECD Economic Surveys: Sweden 2023

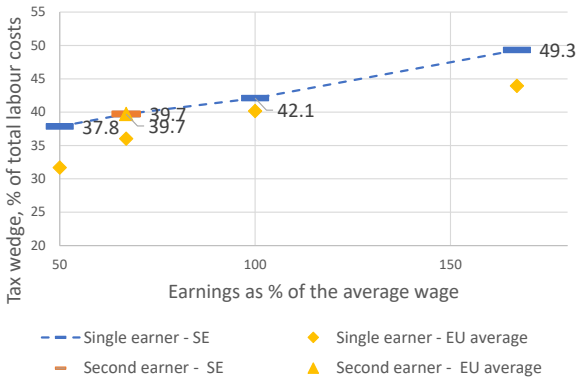
Table A19.1:**Taxation indicators**

		Sweden					EU-27				
		2010	2020	2021	2022	2023	2010	2020	2021	2022	2023
Tax structure	Total taxes (including compulsory actual social contributions) (% of GDP)	42.9	42.4	42.6	41.8	40.8	37.9	40.0	40.4	40.2	
	Labour taxes (as % of GDP)	24.2	24.6	24.0	23.2		20.0	21.3	20.7	20.3	
	Consumption taxes (as % of GDP)	12.6	12.0	11.8	11.9		10.8	10.7	11.2	11.0	
	Capital taxes (as % of GDP)	6.1	5.8	6.8	6.6		7.1	8.0	8.6	8.9	
	Of which, on income of corporations (as % of GDP)	3.1	3.0	3.5	3.6		2.4	2.5	3.0	3.4	
	Total property taxes (as % of GDP)	1.0	1.0	1.0	1.1		1.9	2.3	2.2	2.1	
	Recurrent taxes on immovable property (as % of GDP)	0.7	0.7	0.7	0.6		1.1	1.2	1.1	1.0	
	Environmental taxes as % of GDP	2.7	2.0	1.9	1.9		2.4	2.2	2.3	2.0	
Progressivity & fairness	Tax wedge at 50% of average wage (Single person) (*)	39.0	38.9	37.9	37.5	37.8	33.9	31.7	32.1	31.8	31.7
	Tax wedge at 100% of average wage (Single person) (*)	42.8	42.7	42.5	42.4	42.1	41.0	40.1	39.9	40.0	40.2
	Corporate income tax - effective average tax rates (1) (*)		20.4	19.7	19.5			19.5	19.0	19.0	
	Difference in Gini coefficient before and after taxes and cash social transfers (pensions excluded from social transfers) (2) (*)	10.3	9.6	9.9	9.1		8.6	8.1	8.2	7.9	
Tax administration & compliance	Outstanding tax arrears: total year-end tax debt (including debt considered not collectable) / total revenue (in %) (*)		0.4	0.9				40.9	35.5		
	VAT Gap (% of VAT total tax liability, VTTL)(**)	4.3	3.6	3.8	3.3			9.7	5.4		

(1) Forward-looking effective rate (OECD)
(2) A higher value indicates a stronger redistributive impact of taxation
(*) EU-27 simple average
(**) Forecast value for 2022, if available. For more details on the VAT gap, see European Commission, Directorate-General for Taxation and Customs Union, 2023, VAT gap in the EU, https://data.europa.eu/doi/10.2778/911698.
For more data on tax revenues as well as the methodology applied, see the Data on Taxation webpage, https://ec.europa.eu/taxation_customs/taxation-1/economic-analysis-taxation/data-taxation_en.
Source: European Commission and OECD

This is the EU average and is also identical to the tax wedge for single earners at this wage level, which indicates that work incentives for second earners moving into employment are equal to those for single persons at 67% of the average wage. The Swedish tax-benefit system has reduced the Gini coefficient by 9.1 pps in 2022, which was above the EU average of 7.9 pps (see Table A19.1). In the 2024 budget, Sweden announced that it will be lowering taxes for low- and middle-income earners (EUR 0.9 billion) and pensioners (EUR 0.1 billion). To help the unemployed back into employment, Sweden has implemented a system of subsidised 2-year employment contracts ('etableringsjobb').

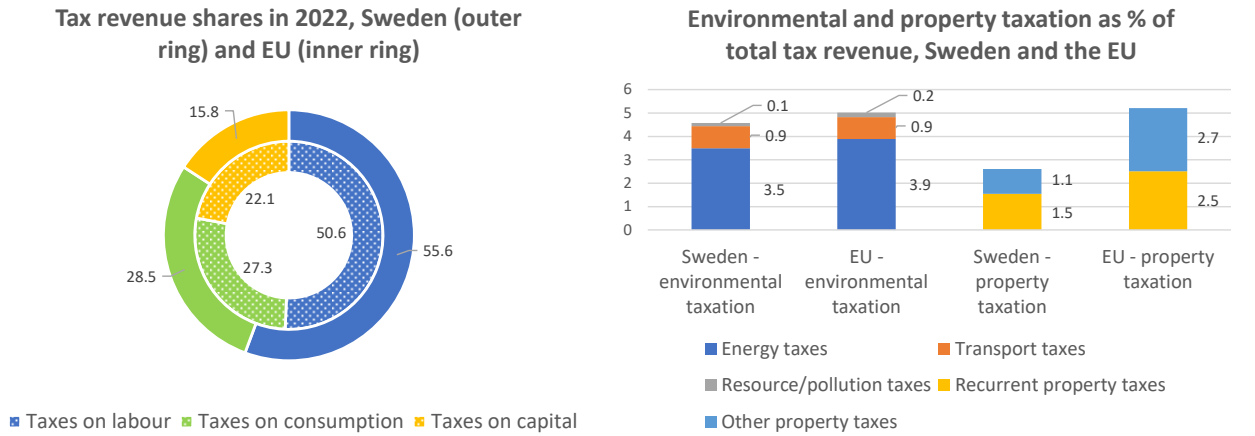
Graph A19.1: **Tax wedge for single and second earners as a % of total labour costs, 2023**



The second earner tax wedge assumes a first earner at 100% of the average wage and no children. For the methodology of the tax wedge for second earners, see OECD, 2016, *Taxing Wages 2014-2015*.
Source: European Commission

Sweden performs relatively well on tax compliance and tax administration. Outstanding tax arrears were 0.9% of total tax revenue in 2021 (0.4% in 2020) and significantly below the EU average of 35.5%. The EU average could nevertheless be inflated due to a small number of Member States with very high values. Features of the Swedish tax system that contribute to low arrears are a strong focus on cooperative compliance; a high proportion of source-based taxation; and the use of tax accounts, which each individual and company has

Graph A19.2: **Tax revenues from different tax types, % of total revenue**



Note: Values for EU are GDP-weighted EU averages (EU aggregates)
Source: European Commission

with the Swedish Tax Agency, to make payments. Furthermore, the VAT gap (the gap between revenues actually collected and the theoretical tax liability) was forecast to be 3.3% in 2022 after being 3.8% in 2021 (so below the EU-average of 5.4% in 2021).

Table A20.1:**Key economic and financial indicators**

	2004-07	2008-12	2013-20	2021	2022	2023	forecast 2024	forecast 2025
Real GDP (y-o-y)	3.8	0.7	1.9	6.1	2.7	-0.2	0.2	2.1
Potential growth (y-o-y)	.	1.7	2.2	2.1	1.9	1.7	1.4	1.5
Private consumption (y-o-y)	3.3	1.7	1.6	6.3	2.3	-2.5	0.5	2.5
Public consumption (y-o-y)	0.5	1.4	0.9	3.3	-0.1	1.5	1.7	0.5
Gross fixed capital formation (y-o-y)	6.9	-0.5	3.6	7.1	6.2	-1.5	-1.4	2.1
Exports of goods and services (y-o-y)	7.7	0.8	3.0	11.1	6.5	3.3	1.8	2.9
Imports of goods and services (y-o-y)	7.5	1.2	3.0	11.6	9.6	-0.9	1.6	2.5
Contribution to GDP growth:								
Domestic demand (y-o-y)	3.2	1.0	1.8	5.4	2.6	-1.1	0.3	1.8
Inventories (y-o-y)	0.1	-0.1	0.0	0.4	1.1	-1.3	-0.3	0.0
Net exports (y-o-y)	0.5	-0.1	0.1	0.3	-1.0	2.2	0.1	0.3
Contribution to potential GDP growth:								
Total Labour (hours) (y-o-y)	.	0.7	0.7	0.5	0.5	0.6	0.4	0.5
Capital accumulation (y-o-y)	.	0.6	0.8	0.8	0.9	0.8	0.7	0.7
Total factor productivity (y-o-y)	.	0.4	0.7	0.8	0.5	0.3	0.3	0.4
Output gap	1.6	-1.6	-0.5	-0.2	0.6	-1.3	-2.5	-1.9
Unemployment rate	6.9	7.9	7.4	8.9	7.5	7.7	8.4	8.2
GDP deflator (y-o-y)	1.4	1.7	2.1	2.6	6.0	5.6	2.6	1.3
Harmonised index of consumer prices (HICP, y-o-y)	1.3	1.9	1.2	2.7	8.1	5.9	2.0	1.8
HICP excluding energy and unprocessed food (y-o-y)	0.8	1.6	1.2	1.6	5.5	7.4	2.6	1.5
Nominal compensation per employee (y-o-y)	4.0	3.0	2.7	4.6	2.8	4.1	4.1	3.0
Labour productivity (real, hours worked, y-o-y)	2.4	0.1	1.1	3.5	0.4	-1.4	0.1	1.4
Unit labour costs (ULC, whole economy, y-o-y)	1.1	2.8	1.9	-0.3	2.8	5.8	3.6	1.3
Real unit labour costs (y-o-y)	-0.3	1.0	-0.2	-2.8	-3.0	0.2	0.9	0.0
Real effective exchange rate (ULC, y-o-y)	-0.6	1.9	-2.4	2.9	-5.6	-8.5	-1.4	-1.9
Real effective exchange rate (HICP, y-o-y)	-0.4	0.3	-2.2	3.1	-6.3	-4.9	.	.
Net savings rate of households (net saving as percentage of net disposable income)	4.7	10.4	14.0	15.5	13.0	14.4	.	.
Private credit flow, consolidated (% of GDP)	12.7	7.8	10.5	16.2	10.4	.	.	.
Private sector debt, consolidated (% of GDP)	153.3	190.5	198.8	213.5	208.0	.	.	.
of which household debt, consolidated (% of GDP)	61.3	75.1	86.8	91.9	87.5	.	.	.
of which non-financial corporate debt, consolidated (% of GDP)	92.1	115.4	112.0	121.7	120.5	.	.	.
Gross non-performing debt (% of total debt instruments and total loans and advances) (1)	.	.	1.0	0.8	0.7	.	.	.
Corporations, net lending (+) or net borrowing (-) (% of GDP)	4.4	2.1	-1.7	1.4	0.5	1.9	2.1	2.1
Corporations, gross operating surplus (% of GDP)	25.4	24.5	24.6	26.7	27.2	27.1	26.1	26.2
Households, net lending (+) or net borrowing (-) (% of GDP)	0.5	3.9	5.5	5.7	4.0	5.4	5.9	5.5
Deflated house price index (y-o-y)	10.1	1.5	4.6	8.1	-3.0	-10.9	.	.
Residential investment (% of GDP)	3.9	3.7	5.0	5.3	5.3	4.0	.	.
Current account balance (% of GDP), balance of payments	7.1	6.1	3.7	7.1	5.4	6.8	6.7	6.8
Trade balance (% of GDP), balance of payments	6.7	5.2	3.6	4.8	2.7	4.6	.	.
Terms of trade of goods and services (y-o-y)	-0.4	-0.1	0.0	0.4	-2.6	-1.0	-0.3	-0.3
Capital account balance (% of GDP)	-0.2	-0.2	0.0	0.0	0.1	0.0	.	.
Net international investment position (% of GDP)	-11.8	-8.9	2.6	19.0	31.0	33.2	.	.
NENDI - NIIP excluding non-defaultable instruments (% of GDP) (2)	-21.4	-22.1	-13.3	-2.7	-9.7	-10.2	.	.
IIP liabilities excluding non-defaultable instruments (% of GDP) (2)	122.5	153.3	163.8	146.0	167.7	157.8	.	.
Export performance vs. advanced countries (% change over 5 years)	.	.	-6.1	5.1	0.7	4.4	.	.
Export market share, goods and services (y-o-y)	-0.7	-4.3	0.0	-1.0	-6.0	2.2	-1.7	-0.8
Net FDI flows (% of GDP)	2.3	2.5	0.9	1.4	2.6	3.0	.	.
General government balance (% of GDP)	1.8	-0.1	-0.1	0.0	1.2	-0.6	-1.4	-0.9
Structural budget balance (% of GDP)	.	.	0.2	0.1	0.9	0.1	0.0	0.2
General government gross debt (% of GDP)	44.9	38.2	41.1	36.7	33.2	31.2	32.0	31.3

(1) domestic banking groups and stand-alone banks, EU and non-EU foreign-controlled subsidiaries and EU and non-EU foreign-controlled branches.
(2) NIIP excluding direct investment and portfolio equity shares.
Source: Eurostat and ECB as of 2024-5-17, where available; European Commission for forecast figures (Spring forecast 2024).

This annex assesses fiscal sustainability risks for Sweden over the short, medium and long term. It follows the multi-dimensional approach of the European Commission's 2023 Debt Sustainability Monitor, updated based on the Commission 2024 spring forecast.

1 – Short-term risks to fiscal sustainability are low. The Commission's early-detection indicator (S0) does not signal any short-term fiscal risks (Table A21.2) ([144]). Government gross financing needs are expected to be low, at around 6% of GDP on average over 2024-2025 (Table A21.1, Table 1). Financial markets' perceptions of sovereign risk are investment grade, as confirmed by the main rating agencies.

2 – Medium-term fiscal sustainability risks are low.

Under the DSA baseline, general government debt is projected to decline over the medium term, reaching 22% of GDP in 2034 (Graph 1 and Table 1) ([145]). The decrease in the government debt ratio is underpinned by the assumed structural primary surplus (excluding changes in cost of ageing) of 0.7% of GDP as of 2024. This level appears plausible compared with past fiscal performance (Table A21.2) ([146]). Moreover, the baseline projection benefits from a still favourable snowball effect up to 2034, although lower than in recent years. Government gross financing needs are expected to decrease over the projection period, reaching around 4% of GDP in 2034.

The baseline projection is stress-tested against four alternative deterministic scenarios to assess the impact of changes in key assumptions (Graph 1). All four scenarios confirm a declining debt path, at levels close to the baseline. Increasing the forecast deterioration of the structural primary balance in 2024 by one half, as in the *'lower SPB' scenario*, would only increase debt by less than 1 pp. of GDP by 2034. Assuming a temporary worsening of financial conditions (an increase of interest rates by 1 pp. on newly issued debt), as in the *'financial stress' scenario*, would not have a visible impact on debt by 2034 compared to the baseline. Reverting to the historical structural primary balance (corresponding to the 15-year average surplus of 1.1% of GDP), as in the *'historical SPB' scenario*, would reduce debt by around 2 pps. of GDP by 2034 compared with the baseline. In contrast, a permanent worsening of the macro-financial conditions, as under the *'adverse interest-growth rate differential' scenario* (in which the differential is 1 pp. higher than the baseline), would increase the debt ratio by around 2 pps. of GDP by 2034 compared with the baseline.

The stochastic projections indicate low risk due to the low probability of debt increasing over the next five years and low uncertainty ([147]). These stochastic simulations indicate that the debt ratio could be higher in 2028 than in 2023 with a probability of only 18%, entailing low risk given the initial low debt level. Moreover, there is only limited uncertainty around the baseline debt projection, as measured by the difference of around 10 pps. of GDP between the 10th and 90th debt distribution percentiles in five years' time (Graph 2).

3 – Long-term fiscal sustainability risks are low. This assessment is based on the combination of two fiscal gap indicators, capturing the required

([144])The S0 is a composite indicator of short-term risk of fiscal stress. It is based on a wide range of fiscal and financial-competitiveness indicators that have proven to be a good predictor of emerging fiscal stress in the past.

([145])The assumptions underlying the Commission's 'no-fiscal policy change' baseline include in particular: (i) a structural primary surplus, before changes in ageing costs, of 0.7% of GDP from 2024 onwards; (ii) inflation converging linearly towards the 10-year forward inflation-linked swap rate 10 years ahead (which refers to the 10-year inflation expectations 10 years ahead); (iii) the nominal short- and long-term interest rates on new and rolled over debt converging linearly from current values to market-based forward nominal rates by T+10; (iv) real GDP growth rates from the Commission 2024 spring forecast, followed by the EPC/OGWG 'T+10 methodology projections between T+3 and T+10 (average of 1.8%); (v) ageing costs in line with the 2024 Ageing Report (European Commission, Institutional Paper 279, April 2024). For information on the methodology, see the 2023 Debt Sustainability Monitor (European Commission, Institutional Paper 271, March 2024).

([146])This assessment is based on the fiscal consolidation space indicator, which measures the frequency with which a tighter fiscal position than assumed in a given scenario has been observed in the past. Technically, this consists in looking at the percentile rank of the projected SPB within the distribution of SPBs observed in the past in the country, taking into account all available data from 1980 to 2023.

([147])The stochastic projections show the joint impact on debt of 10,000 different shocks affecting the government's budgetary position, economic growth, interest rates and exchange rates. This covers 80% of all the simulated debt paths and therefore excludes tail events.

fiscal effort to stabilise debt (S2 indicator) and to bring it to 60% of GDP (S1 indicator) over the long term ([148]). This assessment is driven by the favourable initial budgetary position, allowing for a limited increase in ageing-related expenditure.

The S2 indicator points to low risk. It signals that Sweden would only need to improve its structural primary balance by 0.7 pp. of GDP to ensure that debt stabilises over the long term (Table A21.1, Table 2). This result is underpinned by the favourable initial budgetary position (contributing 0.1 pp. of GDP), leaving some leeway for the limited projected increase in ageing costs (contributing 0.7 pp. of GDP) that mainly results from an increase in long-term care and health care costs.

The S1 indicator also points to low risk. The negative value of this indicator (-1.1 pps. of GDP) shows that the country has a safety margin to maintain its debt below the 60% of GDP reference value by 2070. This result is mainly driven by the favourable initial budgetary position (contribution of -0.5 pp. of GDP) and the low starting level of the debt ratio (contribution of -0.7 pp. of GDP), which more than compensate for the projected increase in ageing costs by 2070 (contribution of 0.2 pp. of GDP) (Table 2).

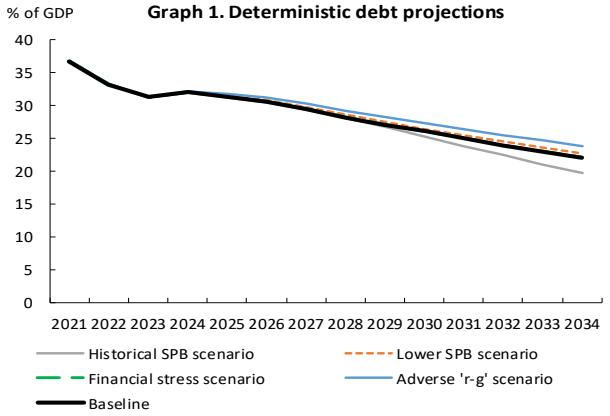
4 – Finally, several additional risk factors need to be considered in the assessment. On the one hand, risk-increasing factors are related to the sensitivity to the interest rate given the relatively high share of short-term public debt and contingent liability risks stemming from elevated private debt. On the other hand, risk-mitigating factors include the stability of debt maturity in recent years, relatively stable financing sources (with a diversified and large investor base), a relatively low share of public debt held by non-residents and historically low borrowing costs reflecting a long-standing strong creditor status. Sweden's positive net international investment position also helps mitigating vulnerabilities.

([148])The S2 fiscal sustainability indicator measures the permanent SPB adjustment in 2025 that would be required to stabilise public debt over an infinite horizon. It is complemented by the S1 indicator, which measures the permanent SPB adjustment in 2025 needed to bring the debt ratio to 60% by 2070. The impact of the drivers of S1 and S2 may differ due to the infinite horizon component considered in the S2 indicator. For both the S1 and S2 indicators, the risk assessment depends on the amount of fiscal consolidation needed: 'high risk' if the required effort exceeds 6 % of GDP, 'medium risk' if it is between 2% and 6% of GDP, and 'low risk' if the effort is negative or below 2% of GDP. The overall long-term risk classification combines the risk categories derived from S1 and S2. S1 may notch up the risk category derived from S2 if it signals a higher risk than S2. See the 2023 Debt Sustainability Monitor for further details.

Table A21.1:**Debt sustainability analysis – Sweden**

Table 1. Baseline debt projections	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Gross debt ratio (% of GDP)	**36.7**	**33.2**	**31.2**	**32.0**	**31.3**	**30.6**	**29.5**	**28.2**	**27.1**	**26.0**	**25.0**	**23.9**	**23.0**	**22.0**
Changes in the ratio	-3.5	-3.5	-1.9	0.7	-0.6	-0.7	-1.2	-1.2	-1.1	-1.1	-1.1	-1.0	-1.0	-1.0
of which														
Primary deficit	-0.2	-1.7	-0.1	0.7	0.2	-0.2	-0.6	-0.8	-0.7	-0.7	-0.6	-0.6	-0.5	-0.5
Snowball effect	-3.1	-2.5	-1.0	-0.1	-0.5	-0.5	-0.6	-0.5	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Stock-flow adjustments	-0.2	0.6	-0.9	0.1	-0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross financing needs (% of GDP)	8.5	5.9	5.3	6.7	5.8	5.8	5.3	5.0	4.8	4.6	4.4	4.2	4.1	3.9

Graph 1. Deterministic debt projections



Graph 2. Stochastic debt projections 2024-2028

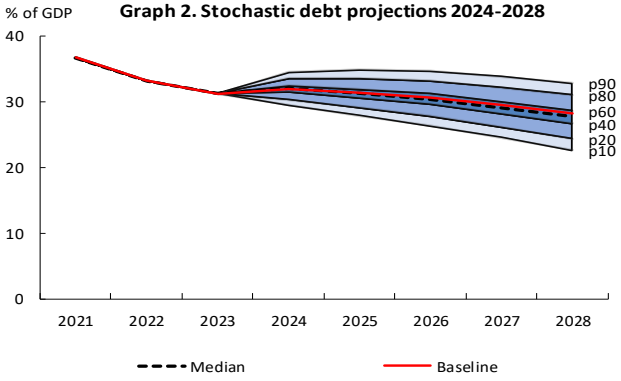


Table 2. Breakdown of the S1 and S2 sustainability gap indicators

		S1	**S2**
Overall index (pps. of GDP)		**-1.1**	**0.7**
of which			
Initial budgetary position		-0.5	0.1
Debt requirement		-0.7	
Ageing costs		0.2	0.7
of which	*Pensions*	-0.5	-0.5
	Health care	0.4	0.6
	Long-term care	0.7	1.1
	Education	-0.4	-0.6

Source: Commission services

Table A21.2:**Heat map of fiscal sustainability risks – Sweden**

Short term	**Medium term - Debt sustainability analysis (DSA)**								**Long term**		
Overall (S0)	**Overall**		**Deterministic scenarios**					**Stochastic projections**	**S2**	**S1**	**Overall (S1 + S2)**
			Baseline	Historical SPB	Lower SPB	Adverse 'r-g'	Financial stress				
LOW	**LOW**	Overall	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**
		Debt level (2034), % GDP	22.0	19.7	22.6	23.8	22.0				
		Debt peak year	2024	2024	2024	2024	2024				
		Fiscal consolidation space	87%	73%	88%	87%	87%				
		Probability of debt ratio exceeding in 2028 its 2023 level						18%			
		Difference between 90th and 10th percentiles (pps. GDP)						10.2			

(1) Debt level in 2034. Green: below 60% of GDP. Yellow: between 60% and 90%. Red: above 90%. (2) The debt peak year indicates whether debt is projected to increase overall over the next decade. Green: debt peaks early. Yellow: peak towards the middle of the projection period. Red: late peak. (3) Fiscal consolidation space measures the share of past fiscal positions in the country that were more stringent than the one assumed in the baseline. Green: high value, i.e. the assumed fiscal position is plausible by historical standards and leaves room for corrective measures if needed. Yellow: intermediate. Red: low. (4) Probability of debt ratio exceeding in 2028 its 2023 level. Green: low probability. Yellow: intermediate. Red: high (also reflecting the initial debt level). (5) the difference between the 90th and 10th percentiles measures uncertainty, based on the debt distribution under 10000 different shocks. Green, yellow and red cells indicate increasing uncertainty. (For further details on the Commission's multidimensional approach, see the 2023 Debt Sustainability Monitor)

Source: Commission services