EUROPEAN
COMMISSION

Brussels, 23.5.2022
SWD(2022) 625 final

COMMISSION STAFF WORKING DOCUMENT

2022 Country Report - Sweden

Accompanying the document

Recommendation for a COUNCIL RECOMMENDATION

on the 2022 National Reform Programme of Sweden and delivering a Council opinion on the 2022 Convergence Programme of Sweden

{COM(2022) 625 final} - {SWD(2022) 640 final}

European Commission

Sweden

2022 Country Report



ECONOMIC AND EMPLOYMENT SNAPSHOT

The Swedish economy back on its feet, while geopolitical effects are starting to kick in

Sweden's economy was on a strong footing before the onset of the COVID-19 pandemic. In 2019, Sweden's per capita GDP was around 150% of the EU average, the fourth highest in the EU, while the labour force participation rate was the highest in the EU. In the 5 years prior to the pandemic, Swedish GDP expanded by 2.6% per year on average. The general government balance was in surplus throughout this period, while the banking sector remained profitable and well capitalised. However, macroeconomic imbalances stemming from a poorly functioning housing market and high household debt continued to build up.

The pandemic has had a significant impact on the Swedish economy, but the latter has recovered strongly. The economy contracted by 2.8% in 2020. It started to bounce back from the middle of 2020, underpinned by strong policy support, as international supply bottlenecks eased. Private consumption and exports picked up again, as did private investment with many companies investing in digital equipment and software. Real GDP growth reached 4.8% in 2021 and by mid-2021 Sweden's real GDP had already surpassed its pre-pandemic level. Economic growth is expected to fall to 2.3% in 2022 due to the combined impact of higher inflation (lowering purchasing power), the war in Ukraine and supply bottlenecks, before slowing further to 1.4% in 2023 (see Annex 19). The unemployment rate is set to drop to 7% in 2023, roughly equal to its pre-pandemic level.

The harmonised index of consumer prices (HICP) inflation has picked up sharply. The marked rise in inflation in 2021 was chiefly on the back of higher energy prices, but also reflects broader price pressures, including from supply chain disruptions. In 2022, inflation is expected to remain relatively high, at close to 6%. So far, wage pressures have remained contained. However, the risk of price and cost pressures has increased and poses downside risks to growth and employment.

The impact of Russia's invasion of Ukraine on the economy will be mostly indirect. Direct trade and financial relations with both Russia and Ukraine are limited. Swedish energy is mostly produced from renewable resources and nuclear energy. Fossil fuel imports are mostly used for transport and for re-exports.

The impact has, so far, been mostly visible in economic growth, inflation, and the exchange rate. The economic growth outlook has weakened as for Sweden's main trading partners. The Swedish krona initially depreciated against the euro. Although the krona recovered subsequently, its value against the euro has been relatively volatile. Overall, increases in energy and food prices are the main upward risk for inflation. To stem inflationary pressures, the Riksbank increased the repo rate by 25 bps on 28 April 2022 and indicated two or three more interest increases in 2022.

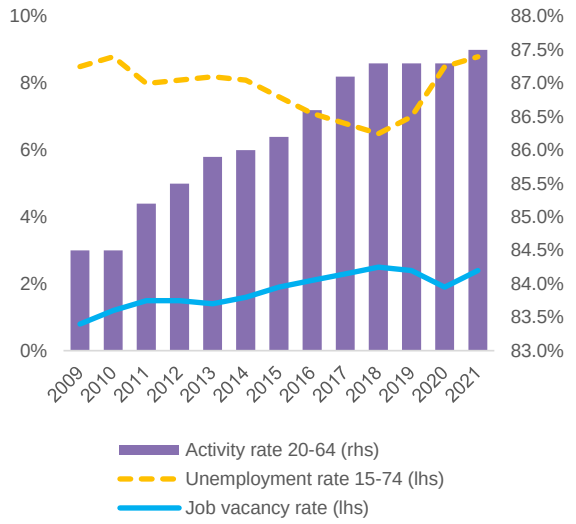
Sweden is well placed to further advance the green and digital transition. The country's carbon neutrality ambitions surpass those of the EU, and according to the EU innovation scoreboard 2021, Sweden has remained the best performing EU Member State, a position it has held since 2017 (see Annex 5). The country remains a leader in digital innovation according to the European Commission's Digital Economy and Society Index (DESI) (see Annex 8). The high degree of internet penetration and digital skills have helped protect value chains and enable remote

working during the COVID-19 crisis, supporting the recovery. While more remote areas of the country lag behind metropolitan areas, the northern part of the country is becoming a centre for green and digital transformation and innovation including through large-scale investment in fossil-free steel and car battery production. Sweden invests in green innovation and strengthening sustainable transport while retaining a significant price on carbon (see Annex 5). Sweden's energy-intensive industry provides jobs for 3% of the total employed workforce, for which up- and reskilling could be particularly important (see Annex 6).

Sweden is a top performer on many of the UN's Sustainable Development Goals (SDGs), but more could be done to progress on reducing poverty and inequality (see Annex 1). Sweden's green transition is relatively well advanced. It is already among the Member States with the lowest greenhouse gas emissions per capita and a high proportion of energy from renewable sources (SDG 7, Affordable and clean energy, and 13, Climate action). However, the country's progress on SDGs 1 (no poverty) and 10 (reduced inequalities) is slowing. Sweden also shows favourable rankings on indicators assessing the digital transition (SDG 9, Industry, innovation and infrastructure). The country scores well on decent work and economic growth (SDG 8). On the stability axis, Sweden scores very well on indicators related to SDG 16, (Peace, justice, and strong institutions). Overall, Sweden ranks second in the global SDG rankings and scores highly in terms of competitive sustainability, in particular for environmental sustainability and productivity.

Conditions are in place to allow progress towards improved social fairness. The Social Scoreboard supporting the European Pillar of Social Rights indicates a well-performing labour market and overall good social outcomes in Sweden (see Annex 12). Educational outcomes are overall good, but inequalities persist. These inequalities negatively affect pupils from disadvantaged backgrounds in particular, and contribute to persistent labour participation gaps.

Graph 1.1: **Activity, unemployment and job vacancy rate**



Source: European Commission

Bottlenecks in several areas may slow progress towards competitive sustainability. The ongoing economic recovery has gone hand-in-hand with increasing labour shortages, especially for high-skilled professions. However, at the same time, vulnerable groups on the labour market find it difficult to reduce the skills gap. Overall, labour shortages may become a constraining factor in realising planned investment to support the transition to a greener, increasingly digitalised economy and further boost Sweden's productivity.

The pre-existing macroeconomic imbalances in the housing market have been exacerbated, with house prices and private debt increasing further (see Annex 17). Groups who are new to the housing market find it especially difficult to meet their housing needs, despite an increase in the number of newly built homes in recent years. There is a particular lack of affordable housing, including in the rental sector.

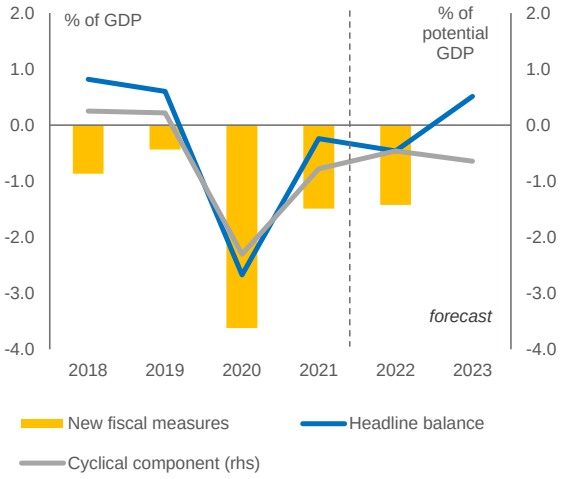
Solid government finances served as a bulwark against the pandemic fall-out

Sweden entered the pandemic with strong finances. The outlook at the beginning of 2020 for Sweden's public finances was one of continued resilience and few challenges to fiscal sustainability. The general government balance was expected to remain in surplus in 2020 and 2021, while general government debt was expected to continue falling to 32% of GDP by 2021. Public finances deteriorated markedly in 2020 as a result of the COVID-19 crisis. The general government balance moved into a deficit of 2.8% of GDP, while the debt ratio increased by some 5 percentage points to just below 40% of GDP.

As of mid-March 2020, the government introduced several extraordinary budget amendments to mitigate the impact of the pandemic. The 2021 budget already included measures that were to be funded through the Recovery and Resilience Facility (RRF). The support measures had broad coverage, focusing on households, businesses and the health care sector. They included, for example, the short-time work scheme to avoid wide-spread redundancies and support to compensate businesses and the sports and cultural sectors for incurred turnover losses as a result of the pandemic restrictions. Substantial support was also provided to regions and municipalities that had increased healthcare and social protection costs.

Beyond fiscal measures, the Swedish central bank acted decisively to ensure financing for to commercial banks and businesses. Notably, the bond purchase program was expanded, banks benefited from a lower overnight interest rate, expanded opportunities to borrow from the central bank and expanded use of collateral to finance businesses. The financial supervisor temporarily eased amortisation requirements for housing loans, supporting households and the housing market during a period of considerable uncertainty and falling GDP growth.

Graph 1.2: **Key fiscal indicators**



Source: European Commission

Public finances are expected to remain solid in 2022, while addressing geopolitical effects. The general government deficit is set to increase from 0.2% of GDP in 2021 to 0.5% of GDP in 2022, turning into a surplus of 0.5% of GDP in 2023. The 2022 budget includes stimulus measures of around 1½% of GDP. Taken together with a number of other initiatives to address the impact of rising energy prices on purchasing power and the arrival of people fleeing Ukraine, fiscal policy is expected to continue to support the recovery.

The expected improvement in the general government balance will further improve fiscal sustainability. Despite a generalised income tax cut in 2022, tax receipts are expected to be relatively strong, in line with economic growth. The general government debt-to-GDP ratio is set to resume its downward path and fall to just above 30% of GDP in 2023.

Further bolstering competitive sustainability post-COVID

Looking forward, Sweden aims to strengthen competitive sustainability in several policy areas. This will entail initiatives to strengthen its health system, and a further shift towards digitalising and

greening the economy, while enhancing social fairness. The 2022 budget, as amended by the parliamentary opposition, aims to strengthen active labour market policies, i.e. policies to encourage people into work, with a focus on young people and the long-term unemployed, as well as measures to support law enforcement. Higher retirement age limits are to be introduced in 2023 and 2026, in line with ambitious national targets for fiscal sustainability.

Sweden's objective of achieving carbon neutrality by 2045 guides its strategic direction on climate policy. This is reflected in the significant spending on green measures that will be financed by grants from the RRF. Linked to this, Sweden recently adopted a national strategy for the sustainable electrification of society, which calls for large investments e.g. in transmission infrastructure.

Sweden will continue its work on improving digitalisation. This includes ensuring broadband access throughout the entire country, supported inter alia by RRF funding.

THE RECOVERY AND RESILIENCE PLAN IS UNDERWAY

The Swedish recovery and resilience plan (RRP) includes a comprehensive set of mutually supporting reforms and investments that will support economic recovery and growth, and improve social, economic and institutional resilience. The plan has a total allocation of EUR 3.3 billion in grants (representing 0.7% of GDP in 2019) and focuses on addressing challenges in relation to the green and digital transition and human capital (see Annex 2). The plan also includes reforms and investments to increase the resilience of the Swedish economy, through tackling demographic challenges, bolstering the integrity of the financial system and improving the functioning of the housing market. The plan is part of a larger national restart package to support socio-economic recovery and long-term development after the COVID-19 pandemic.

The RRP supports a swift recovery by frontloading the implementation of key investments and reforms. Over 80% of the plan's 56 milestones and targets are due by the end of 2023. The expected first payment request will contain around 40% of the plan's milestones and targets. The frontloading of measures will not only result in rapid impact but will also lead to a greater overall impact, given that the plan's direct positive effects on growth are expected to be strongest during 2021-2023.

Measures in the RRP will help accelerate the green and digital transition, with lasting impacts on the Swedish economy. Wide-ranging investment schemes supporting the decarbonisation of emission-intensive industries and promote local and regional initiatives to reduce greenhouse gas emissions are expected to boost the green transition. The green transition will be further supported by measures to protect valuable natural habitats and to preserve biodiversity, as well as ambitious tax reforms that discourage the use of fossil fuels. Progress on the digital transition will be made with significant investments to expand high-speed and reliable broadband connectivity, especially in less populated areas, which will also help support territorial cohesion. The plan will accelerate the deployment of e-government solutions by allocating substantial funds for the development of a joint digital infrastructure for public administration, improving interoperability and data exchange. The development and application of new technologies in the digital and green domains is expected to help the Swedish economy grow in a smart and sustainable way, reduce its energy dependence and improve resilience against external disruptions, for instance related to cybersecurity.

The RRP includes measures to tackle education and skills gaps, but specific challenges remain. Additional study places in vocational education across the country will particularly serve those with a disadvantaged labour market position, a group to which a relatively large proportion of the non-EU born population belongs. In addition, higher education and vocational education measures place a strong emphasis on digital skills, with the aim of alleviating shortages and improving employment opportunities for the unemployed people. Coupled with reforms to modernise employment protection legislation, these investments help equip the labour force with the necessary skills for the future. This in turn will help improve the labour market transition and contribute towards enabling people to make best use of the opportunities provided by the twin transition, contributing to the implementation of the European Pillar of Social Rights. Despite this work, more needs to be done to close the education and skills gaps. In particular, the plan does not entirely address the lack of highly skilled talent in science, technology and engineering, and general education (educational inequalities

and teacher shortages). A strong and competitive labour force and a sufficient supply of skilled personnel in these areas lays the foundation for future technological advances and is therefore fundamental to ensuring productivity growth in the long run.

The RRP also includes measures to increase the accessibility, capacity and resilience of the health and long-term care system. The strengthening of healthcare resilience is embedded in a broad plan to upgrade the Swedish health care system through training care providers for the elderly, a greater number of study places in vocational education and training focused on health and social care, and the introduction of a protected title for assistant nurses to make this profession more attractive for job seekers. These measures are expected to address structural weaknesses that have been highlighted by the COVID-19 pandemic, such as shortages of healthcare workers and geographical imbalances in the distribution of health care.

The RRP is expected to reduce the risk of money laundering in the financial system. The plan includes a measure to create a database of holders of accounts and safe deposit boxes of financial undertakings, which can be checked directly by the competent authorities. The information that financial undertakings are obliged to make in the system will improve the effectiveness of the system for combatting money laundering and terrorist financing, which will help safeguard the legitimacy of the Swedish welfare system.

The RRP only partially addresses existing macroeconomic imbalances in the housing market and private debt. The plan focuses mainly on the supply side of the market through investment subsidies for rental and student housing and reforms with the objective of shortening planning periods for zoning, making it easier to obtain building permits and increase predictability and efficiency in the construction process. Although the plan does also include reforms that affect the demand-side, such as lowering taxes on deferred capital gains, these reforms are expected to have a limited impact on the dynamics of the housing market and private debt levels.

Box 1:

Key deliverables under the recovery and resilience plan for 2022-2023

- Entry into force of a law abolishing the reduction of energy tax on fuel in certain sectors.
- At least 7 900 new study places created in vocational training and adult education.
- Entry into force of a law providing greater employee protection and transition possibilities.
- At least 18 400 buildings newly connected to broadband access.
- Implementation of a new bank account and safe deposit box system.
- Entry into force of a law setting better standards for housing construction.

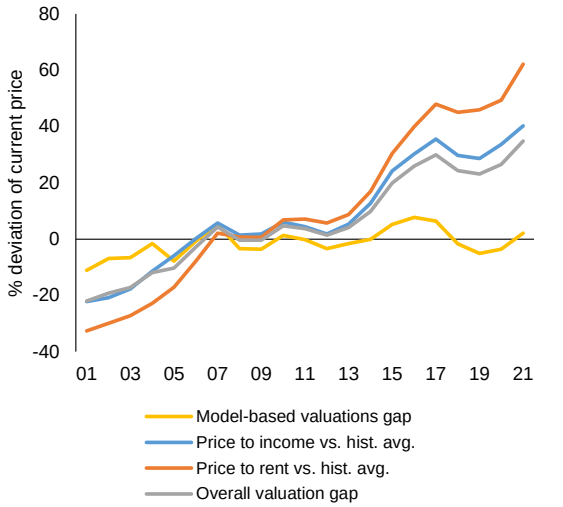
FURTHER PRIORITIES AHEAD

Beyond the challenges addressed by the RRP Sweden faces additional challenges not sufficiently covered by the plan. These relate in particular to challenges emanating from high level of household debt and a poorly functioning housing market, as well as educational gaps and labour market integration, and reducing energy dependence (covered in the next two sections). Addressing these challenges will also help to make further sustainable progress towards SDG 8 (Decent work and economic growth), particularly as regards stability and productivity, but also regarding SDG 4 (Quality education) and SDG 7 (Affordable and clean energy).

Tackling deeper imbalances on the housing market

Sweden faces macroeconomic imbalances in the form of high levels of household debt associated with elevated house prices ([1]). Lending to households grew by 7 % per year on average in nominal terms over the past two decades. Household debt is likely to continue increasing both in nominal terms and as a proportion of disposable income and GDP. After the correction and stabilisation over 2017-2019, house prices increased in 2021, appearing significantly overvalued (see Graph 3.1). These imbalances expose Sweden to a risk of diverting investments from productive and innovative assets and potential adverse shocks and a possible disorderly correction harming the economy and the banking sector, and possible spillover effects to countries where Swedish banks have a strong presence.

Graph 3.1: **House price overvaluation gap**



Source: European Commission

House price growth accelerated during 2021, while housing construction continued apace. House prices grew by 11% year-on-year nominally in the fourth quarter of 2021. Corrected for the general rise in the price level, house prices stood 10% higher at the end of 2021 in comparison with the previous high in 2017. Investment in housing has recovered from the slump during and following the global financial and economic crisis. Construction permits were handed out between 2015 and 2021 at almost double the rate of 2009–2014. However, even at this higher rate, the supply of new housing is still falling short of the current needs ([2]).

The treatment of housing taxation puts a dent in fiscal revenues. Relatively low recurrent property taxation and the deductibility of 30% of interest payments on income taxes (up to a value of SEK 100 000 and 21% thereafter) are sizeable tax expenditures. The tax expenditures associated with interest deductibility alone amounts to

([1]) See European Commission (2022), In-Depth Review for Sweden

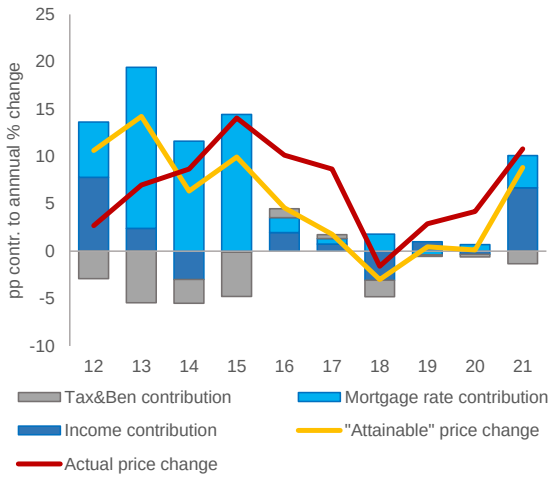
([2]) See Boverket (2021), "Building projections for 2021 and 2022", December 2021

around ½% of GDP, subsidising home ownership. Alongside low amortisation rates and the low rate of recurrent property taxation, mortgage interest deductibility has been an important factor driving up house price growth and household debt. Higher debt, in particular for first-time buyers, increases risks of negative net wealth. It could also make reforms more difficult if interest rates increase substantially.

The tax advantage of mortgage interest deductibility (MID) and, with it, the foregone revenues of the government varies with the interest rate. For existing homeowners, declining mortgage interest rates lower their mortgage interest payments and the amount that can be deducted from taxes ([3]). The opposite is true when interest rates rise. However, MID always relaxes the budget constraint of first-time buyers, which can take on larger loans and compete for limited housing supply, bidding-up prices and ultimately debt. This is also visible in the data: house prices have increased by more over the past eight years than the net positive impact of 'after-tax' mortgage interest payments and other factors affecting housing affordability can explain (see Graph 3.2). Data on new mortgagors also suggest increased indebtedness of this group ([4]). With the recent interest rate increases and the likelihood of further, the impact on 'after-tax' interest payments will be reduced by the deductibility at the expense of higher foregone tax revenues and higher overall debt levels.

The poorly functioning rental market hardly is an alternative to purchasing property ([5]). The vacancy rate for rental properties is among the lowest in the EU and when compared to neighbouring countries (0.6% in 2019 vs 5.2% in Denmark in 2018 and 10.2% in Finland in 2015). The rental market is characterised by long queues for tenants seeking properties and below-market rents. Those depending more on public housing, i.e. those with lower incomes, face ever-tighter gridlock in the rental market. The proportion of social housing for rent out of the total housing stock has declined from 23% in 2001 to 18% in 2018.

Graph 3.2: **Sweden national average: actual vs 'attainable' house price change**



(1) The attainable price level indicates the development in maximum price households can pay as the indicated factors change.
Source: European Commission

Policy measures have still not sufficiently addressed housing debt and house price imbalances. Some policy action has been taken, like reducing capital gains tax, and other policy actions are planned, in particular measures to ease building restrictions, but the overall policy framework still incentivises debt accumulation feeding into house price increases while the rental market has not been deregulated.

Labour market integration and education gaps

In Sweden, demand for labour is tilted towards skilled labour. Skilled labour is more in demand than in some other Member States. For instance, one third of employees are categorised as professionals in Sweden ([6]),

([3]) Sweden's mortgages are mostly with variable interest rates or interest rates fixed for a short period.

([4]) Finansinspektionen (2022), The Swedish Mortgage Market 2022

([5]) European Commission (2022), In-Depth Review of Sweden 2022

([6]) The category of professionals includes occupations whose main tasks require a high level of professional knowledge and experience in the fields of physical and

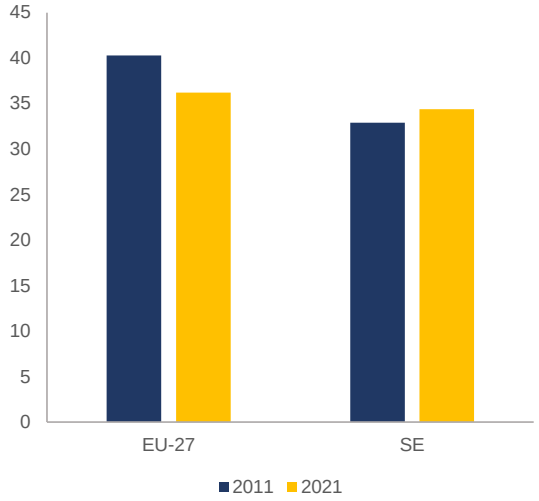
compared to one fifth of employees on average in the EU. In the information and communication technology sector, 49% of employers report a shortage of staff that affects their growth ([7]).

A sizeable group of workers lacks the skills to grasp the opportunities the Swedish labour market offers. The flipside of the high demand for skilled labour is one of the lowest demand for low-skilled workers among EU Member States. Only 5% of employees in Sweden work in 'elementary occupations' (occupations usually involving simple and routine tasks, often requiring significant physical effort), which is about half the EU average (9%). In addition, a significant group of people, such as people with disabilities and women born outside of Sweden, find it difficult to become and remain employed. The COVID-19 crisis has aggravated their situation and the number of long-term unemployed has risen (see Annex 12). Labour shortages linked to the transition to a climate-neutral economy have been identified in the manufacturing sector in particular (see Annex 6). Tackling these challenges is key for Sweden to contribute to reaching the 2030 EU headline targets on employment and skills.

Unemployment is highest among those with low levels of education. The disparity between the employment rates for low-, medium-, and high-skilled workers remains high. Low-skilled workers face far greater uncertainty in the labour market than more skilled workers. And within the low-skilled group, those born outside the EU face far greater difficulties in finding employment than those born in the EU. At the same time, labour participation for the non-EU born labour force is high in comparison with the EU average.

Higher educational attainment improves the chances of finding employment. People born in Sweden have, overall, increased their educational attainment level between 2011 and 2021 and, thereby improved their chances on the labour market. People born in the rest of the EU who work in Sweden tend to be highly educated as well but people working in Sweden who were born outside of the EU bring the average educational attainment level for workers born outside of Sweden below that of Swedes (see Annex 13). With the non-EU-born labour force growing relatively fast, the proportion of people with lower educational level has increased. By contrast, in the EU as a whole the proportion of people with lower educational levels decreased between 2011 and 2021 (Graph 3.3).

Graph 3.3: **Proportion of people born outside Sweden with low levels of education**



Source: European Commission

A high number of pupils from diverse socio-economic and migrant backgrounds do not manage to achieve their full learning potential. An educational gap between students born in Sweden and those who were not and a shortage of teachers are long standing challenges (see Annex 13). Despite improved results in the latest OECD Programme for International Skills Assessment (PISA), the performance gap between pupils born in Sweden and those born elsewhere had increased markedly in earlier editions and is still significant. This reflects a lack of equal opportunities in the schooling system and is especially challenging as the number of pupils with a migrant background nearly doubled between 2009 (11.7% of total number of

life sciences, or social sciences and humanities. The main tasks consist of increasing the existing stock of knowledge, applying scientific and artistic concepts and theories to the solution of problems, and teaching about these in a systematic manner or any combination of these activities.

([7]) See e.g. Arbetsförmedlingen, 2021.

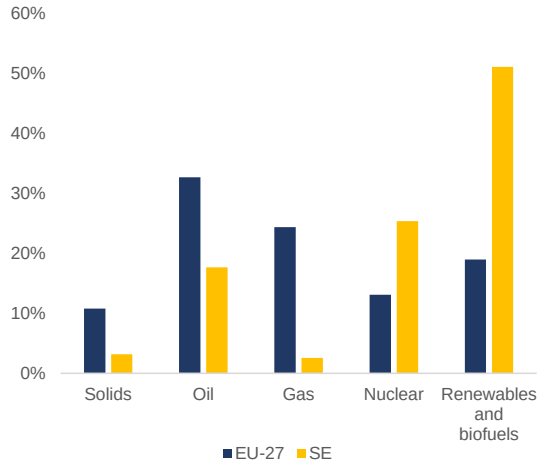
pupils) and 2018 (20.5% of total). These pupils' chances came under further pressure with distance learning and limited personal interactions during the pandemic.

Policy actions beyond those in the RRP could further improve labour market integration and reduce educational gaps. There is room to improve the set-up and governance of the education system, its evaluation tools and the availability of qualified teachers to promote the quality and equity on both the formal and non-formal sides of the educational system. One such action could be to offer more education and training for specific groups with low levels of education. Reducing inequalities in general education and raising the educational outcomes for pupils born outside of Sweden would improve their chances on the labour market and help reduce the existing employment gap. For people beyond school age, incentives to increase skills can be put in place by adapting resources and methods to the needs of disadvantaged groups and are best supported by active labour market policy and financial incentives through social benefits and increased net wage levels (see Annex 18). These incentives could be specifically aimed at the most disadvantaged groups through, for instance, earned income tax credits. Over time, a range of such policy actions could help the distribution of human capital among newcomers to better mirror those in the broader population, increasing their job chances and benefiting the wider economy.

Reducing further the dependence on fossil fuels

In line with the overall EU aim, also Sweden needs to even further reduce dependence on Russian fossil fuels. Recent geopolitical developments have brought even greater urgency for the EU to ensure the security of its energy supplies, in particular by phasing out its dependency on Russian fossil fuels. For its limited share of gas in the energy consumption (3%), the dependency on Russia is limited (13% of imports). The share of oil in energy consumption is higher (18%) but the dependency on Russia is limited as well (20% of refined oil imports and 8% of crude oil imports are from Russia) ([8]). Oil is mainly used in the transport sector and for re-export after refining. Despite Sweden's already limited direct exposure to Russian fossil fuels, it still stands to benefit from further decarbonisation efforts and reduced reliance on fossil fuels. In addition, in the context of recent geopolitical events, Sweden could increase its security of energy supply and adaptability to regional variances by advancing interconnection projects with neighbouring countries.

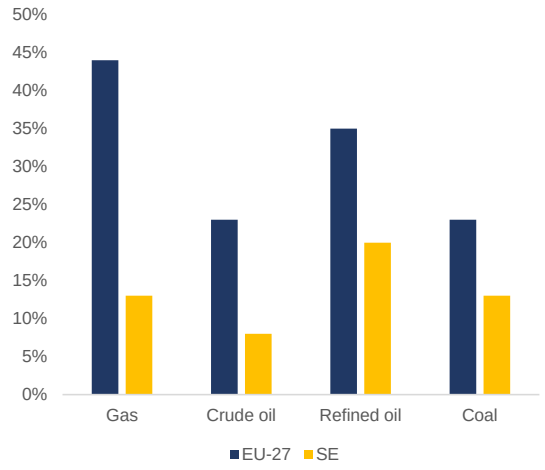
Graph 3.4: **Energy mix (% of gross inland consumption in 2020)**



Source: European Commission

([8]) Eurostat (2020), share of Russian imports over total imports of natural gas, not included refined oil products

Graph 3.5: **Dependence on Russian fossil fuels (% of total imports in 2020)**



Source: European Commission

Additional renewable energy resources and energy efficiency can further lower Sweden's use of fossil fuels. Sweden has the highest proportion of its energy consumption provided by renewable sources in the EU, but is also amongst the Member States with the highest energy consumption per capita. Increasing energy efficiency is the first objective to reduce energy consumption. Extended permitting procedures, in particular for the development of wind energy, is a bottleneck for the deployment of renewables. Shortening the time it takes to get a permit would accelerate additional investments in renewable energy. Transport is the prime target for reducing dependence on oil. The transport sector, in particular road transport, accounts for three quarters of energy demand for oil and petroleum products. Consequently, increasing energy efficiency and reducing fossil fuel usage in transport will both reduce energy dependence as well as the climate footprint of the Swedish economy.

Sweden has an ambitious national climate strategy. Sweden aims to reach 100% renewable energy generation by 2040 and net zero carbon emissions by 2045. To reach this goal efforts need to be stepped up (see Annex 5) including investments to decarbonise industry and the transport sector as well as raising the effective price on carbon emissions. Sweden's high carbon price is applied to a limited share of carbon emissions. As a consequence, its effective carbon price is comparatively low ([9]). While the currently high energy prices might entice some energy consumers to change their behaviour a more structural approach would be to broaden the tax base of the carbon tax, increasing energy taxes and reducing fossil fuel subsidies. In addition, scaling up production of renewable energy will allow other sectors to follow the example of the paper and pulp industry, representing 40% of Sweden's energy consumption in industry and 80% of industry's consumption of bioenergy, to move towards renewable energy usage. Recently, the Climate Policy Council of Sweden has also found that further strengthening of policies is needed to achieve Sweden's high ambition of becoming carbon neutral by 2045 ([10]).

Constraints on the capacity of the power grid hinder electrification. Increased electrification will necessitate expanded grid capacity. Sweden's electricity consumption has been relatively constant since the 1980s at 140 TWh (maximum of 150 TWh in 2001). Its grid was expanded in 1980s to include nuclear power but now has to adapt to both new sources of energy, in different locations, and higher demand through the electrification of industry and transport ([11]). Current capacity constraints of the power grid spill over not only into increased costs for households, business and industry, but there are signs that a lack of guaranteed capacity hinders even the establishment of energy-intensive activities. Moreover, shortage of supply in the south cannot be alleviated by transmission from the north, where power capacity is higher thanks to hydroelectric power, since transmission capacity is insufficient.

([9]) OECD (2021), "Effective Carbon Rates 2021 – Pricing Carbon Emissions through Taxes and Emissions Trading".

([10]) Swedish Climate Policy Council, "Report of the Swedish Policy Council 2022", 16 March 2022.

([11]) For instance, The Royal Swedish Academy of Engineering Sciences estimated in 2016 that power grid capacity would need to be between 140 and 180 TWh by 2030; In January 2020, Swedenergy estimated a capacity need of 190TWh in its "Roadmap Electricity for a fossil-free society".

KEY FINDINGS

Sweden's recovery and resilience plan includes measures to address a series of its structural challenges through:

- Increasing investment in the decarbonisation of industries and promoting local and regional initiatives to reduce GHG emissions.
- Improving the availability of broadband connectivity and the development of a joint digital infrastructure for public administration.
- Alleviating limitations in the accessibility, capacity and resilience of the health and long-term care system.
- Improving the effectiveness of system for combatting money laundering and terrorist financing.

Beyond the reforms and investments in the plan, Sweden would benefit from:

- Alleviating macro-economic imbalances emanating from the housing market and household debt, which are compounded by bottlenecks in building and rental regulation and fiscal incentives.
- Reducing the persistent education gaps for disadvantaged groups and providing targeted active labour market policies and re- and up-skilling to strengthen the integration of these groups on the labour market.
- Further reducing the overall reliance on fossil fuels by increasing investment in renewables and electrification, addressing infrastructure bottlenecks, within Sweden and with neighbouring countries, simplifying permitting procedures, boosting energy efficiency and lowering fossil fuel consumption in transport.

ANNEXES

LIST OF ANNEXES

Cross-cutting progress indicators 21

Annex 1: Sustainable Development Goals 21

Annex 2: Recovery and Resilience Plan – implementation 23

Annex 3: Other EU instruments for recovery and growth 24

Annex 4: Progress in the implementation of country-specific recommendations 26

Environmental sustainability 28

Annex 5: Green Deal 28

Annex 6: Employment and social impact of the green transition 32

Productivity 34

Annex 7: Resource efficiency and productivity 34

Annex 8: Digital transition 36

Annex 9: Innovation 38

Annex 10: Industry and single market 40

Annex 11: Public administration 42

Fairness 44

Annex 12: Employment, skills and social policy challenges in light of the European Pillar of Social Rights 44

Annex 13: Education and skills 46

Annex 14: Health and health systems 48

Annex 15: Economic and social performance at regional level 50

Macroeconomic stability 53

Annex 16: Key financial sector developments 53

Annex 17: Macroeconomic Imbalance Procedure assessment matrix 55

Annex 18: Taxation 58

Annex 19: Key economic and financial indicators 60

Annex 20: Debt sustainability analysis 61

LIST OF TABLES

Table A2.1: Key elements of the Swedish RRP 23

Table A4.1: Summary table on 2019,2020 and 2021 CSRs 27

Table A5.1: Indicators underpinning progress on the European Green Deal from a macroeconomic perspective 31

Table A7.1: Selected resource efficiency indicators 35

Table A8.1: Key Digital Economy and Society Index indicators 37

Table A9.1: Key research, development and innovation indicators 39
Table A10.1: Key Single Market and Industry indicators 41
Table A11.1: Public administration indicators – Sweden 43
Table A13.1: EU-level targets and other contextual indicators under the European Education Area strategic framework 47
Table A14.1: Key health indicators 49
Table A15.1: Selected indicators at regional level – Sweden 52
Table A16.1: Financial soundness indicators 54
Table A17.1: Assessment of Macroeconomic Imbalances matrix 56
Table A18.1: Taxation indicators 59
Table A19.1: Key economic and financial indicators 60
Table A20.1: Debt sustainability analysis for Sweden 61
Table A20.2: Heat map of fiscal sustainability risks for Sweden 62

LIST OF GRAPHS

Graph A1.1: Progress towards SDGs in Sweden in the last five years 22
Graph A2.1: Share of RRF funds contributing to each policy pillar 23
Graph A3.1: 2014-2020 European Structural and Investment Funds – total budget by fund 24
Graph A3.2: Cohesion policy contribution to the SDGs 25
Graph A4.1: Sweden's progress on the 2019-2020 CSRs (2022 European Semester cycle) 26
Graph A5.1: Fiscal aspects of the green transition – taxation and government expenditure on environmental protection 28
Graph A5.2: Thematic – Energy Share in energy mix (solids, oil, gas, nuclear, renewables) 29
Graph A5.3: Thematic – Biodiversity Terrestrial protected areas and organic farming 29
Graph A5.4: Thematic – Mobility Share of zero emission vehicles 30
Graph A6.1: Fair green transition challenges 33
Graph A6.2: Energy poverty by income decile 33
Graph A7.1: Economic importance and expansion of the circular economy – employment and value added in the circular economy sectors 34
Graph A11.1: Performance on evidence-based policy making indicators 42
Graph A13.1: Gap in reading performance between native students and students with migrant background 46
Graph A14.1: Life expectancy at birth, years 48
Graph A14.2: Projected increase in public expenditure on health care over 2019-2070 (reference scenario) 48
Graph A15.1: Changes to labour productivity across Swedish regions 50
Graph A15.2: CO2 emissions from fossil fuels per head, 2018 in Sweden 51
Graph A15.3: Regional performance groups, 2021 in Sweden 51
Graph A15.4: Territories most affected by the climate transition in Sweden 51
Graph A18.1: Tax wedge indicators 2021 58

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, 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 SDGs in an EU context.

Sweden performs very well or well on several SDG indicators related to environmental sustainability (SDG 2, 7, 6, 9, 11, 13, 15) and is improving on others (SDG 12). On climate action (SDG 13), the amount of net greenhouse gas emissions has decreased from 2.2 tonnes per capita in 2015 to 1.2 tonnes in 2020, which is well below the EU average (7 tonnes in 2020). The rate of road traffic deaths has also decreased from 2.6 per 100 000 persons in 2015 to 2.0 in 2020, which means Sweden now has the lowest rate in the EU (EU average: 4.4 in 2020) (SDG 11). Regarding waste generation and management, the 'circular material use rate' slightly improved, from 6.7% in 2015 to 7.1% in 2020, although it is well below the EU average (12.8%) (SDG 12). Measures in the RRP aim to accelerate the green transition in carbon-intensive sectors, such as transport and industry, while ensuring competitiveness of the Swedish economy.

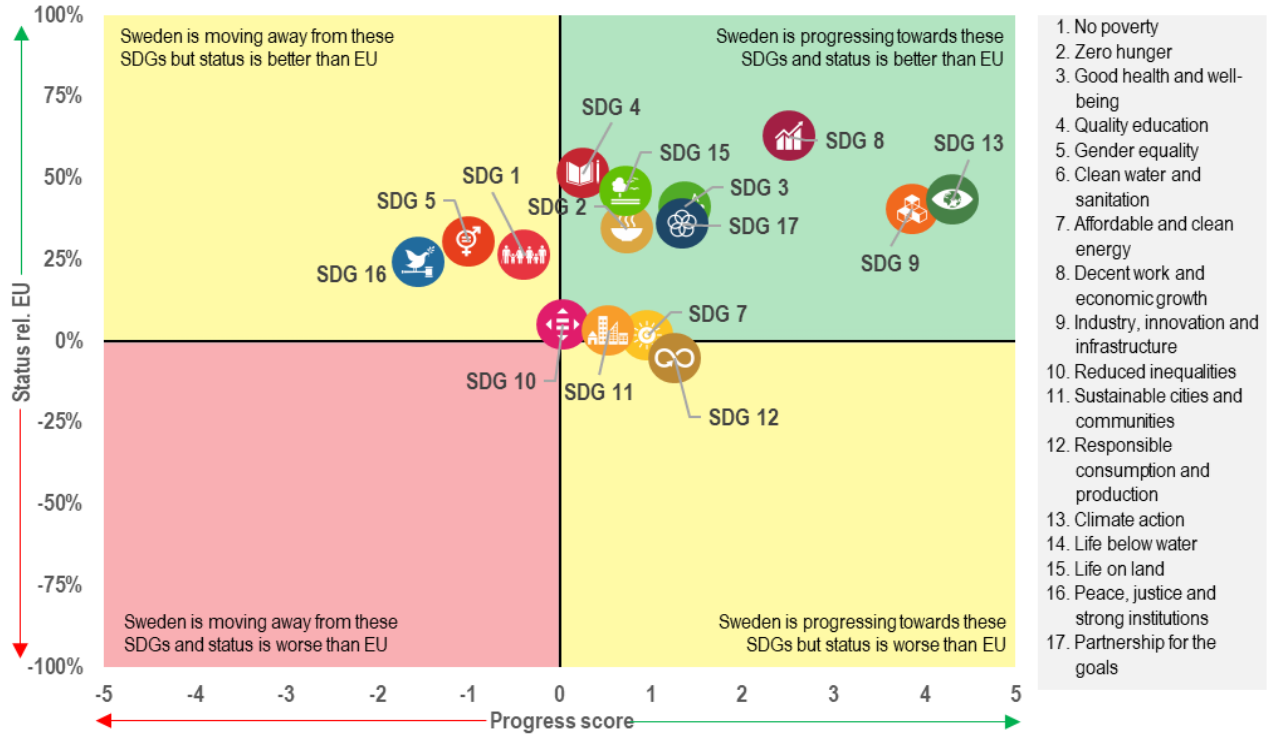
Sweden generally performs very well or well on most SDG indicators assessing the fairness of society and economy (SDG 1, 2, 3, 4, 5, 8, 10). Sweden has historically performed very well on economic growth and employment (SDG 8). With an employment rate of 80.7% in 2021, Sweden has one of the highest rates in the EU (EU average: 73.1% in 2021). ([12]) Sweden is also among the Member States who perform best on 'Good health and well-being' (SDG 3), although its performance has not improved recently on 'Reduced inequalities' (SDG 10). The gap between non-EU citizens and Swedish nationals in terms of employment rates has decreased from 30.1% in 2016 to 29.5% in 2021, which is high in comparison to the EU average (14.9% in 2021). On 'Quality education' (SDG 4), the proportion of adult participation in education increased significantly from 29.6% in 2016 to 34.7% in 2021 and Sweden continues to have the highest rate in the EU (EU average in 2021: 10.8%). Measures in the Swedish RRP aim to increase the number of study places, and to provide more training opportunities, with a focus on vocational training and adult education.

Sweden performs very well or well on SDG indicators related to productivity (SDG 4, 8, 9). Notably, Sweden has the highest R&D intensity, with 3.53% of GDP on R&D in 2020 (SDG 9). In Sweden, the percentage of households with very high capacity network coverage in 2021 (83%) is well above the EU average (70%), representing significant progress on this indicator since 2015 (60.8% in 2016) (SDG 9). Compared to the EU average (54%), Sweden performs relatively well on digital skills with 67% of adults having at least basic digital skills in 2021 (SDG 4). The RRP supports digital skills and the consequent increase in human capital with measures to increase the number of study places in higher vocational education and the necessary resources for universities and other higher education institutions.

Sweden performs very well or well on SDG indicators related to macroeconomic stability (8, 16). Sweden performs very well on SDG 8 and notably increased its proportion of GDP dedicated to investment from 23.8% in 2015 to 24.8% in 2020 (EU average: 22.3% in 2020). Sweden achieves good scores on indicators measuring 'Peace, justice, and strong institutions' (SDG 16), although the overall indicator showed the largest decline of all SDG indicators with indicators related to 'peace and personal security' and 'access to justice' having declined. For example, the percentage of the population reporting crime, violence or vandalism has increased from 10.9% in 2015 to 13.8% in 2020 and, in contrast to 2015, is now above the European average (11% in 2019) (SDG 16). At the same time, the Swedish people's trust in institutions is clear with 64% having confidence in the EU Parliament in 2021 (EU: 50% in 2021). The RRP helps preserve the sustainability of the Swedish economic model and

([12]) See 'Annex 12 – Employment, skills and social policy challenges in light of the European Pillar of Social Rights' for further information.

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



For detailed datasets on the various SDGs see the annual ESTAT report 'Sustainable development in the European Union', https://ec.europa.eu/eurostat/web/products-statistical-books/-/KS-03-21-096; Extensive country specific data on the short-term progress of Member States can be found here: Key findings - Sustainable development indicators - Eurostat (europa.eu).
Source: Eurostat, latest update of 28 April 2022. Data mainly refer to 2015-2020 and 2016-2021.

thus macroeconomic stability as a whole through reforms to tackle demographic challenges. In particular, these reforms cover the pension age limit and social security and tax systems.

The Recovery and Resilience Facility (RRF) is the centrepiece of the EU's efforts to support its recovery from the COVID-19 pandemic, fast forward the twin transition and strengthen resilience against future shocks. Sweden submitted its recovery and resilience plan (RRP) on 28 May 2021. The Commission's positive assessment on 29 March 2022 and the Council's approval on 4 May paved the way for disbursing EUR 3.3 billion in grants under the RRF over the period 2022-2026. Table A2.1 sets out the key elements of the Swedish RRP.

The share of funds contributing to each of the RRF's six policy pillars is outlined in the graph below.

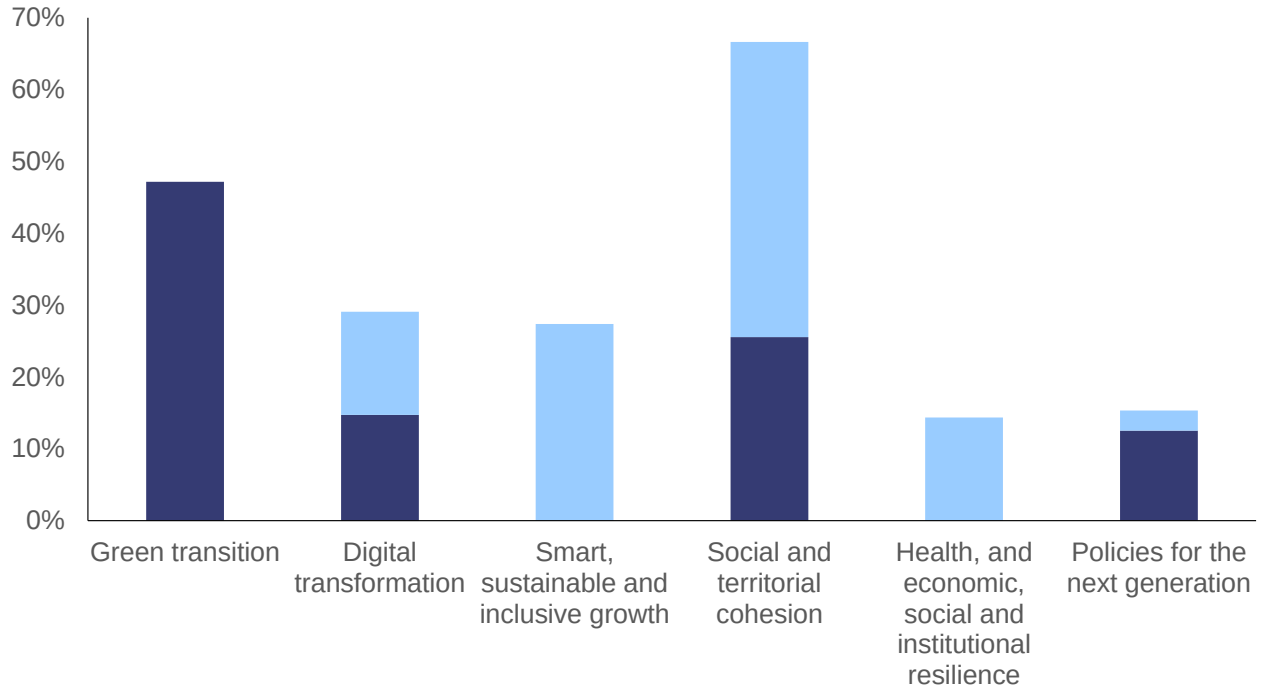
Total allocation	EUR 3.3 billion in grants (0.7% of 2019 GDP)
Investments and Reforms	12 investments and 15 reforms
Total number of Milestones and Targets	56
Estimated macroeconomic impact (1)	Raise GDP by 0.2%-0.3% by 2026 (0.1% in spillover effects)
First instalment	Sweden did not yet submit a first payment request

(1) See Pfeiffer P., Varga J. and in 't Veld J. (2021), "Quantifying Spillovers of NGEU investment", European Economy Discussion Papers, No. 144 and Afman et al. (2021), "An overview of the economics of the Recovery and Resilience Facility", Quarterly Report on the Euro Area (QREA), Vol. 20, No. 3 pp. 7-16.
Source: European Commission 2022

Sweden's progress in implementing its plan is published in the recovery and resilience scoreboard. The scoreboard also gives a transparent overview of progress on implementing the RRF as a whole.

Table A2.1: **Key elements of the Swedish RRP**

Graph A2.1: **Share of RRF funds contributing to each policy pillar**



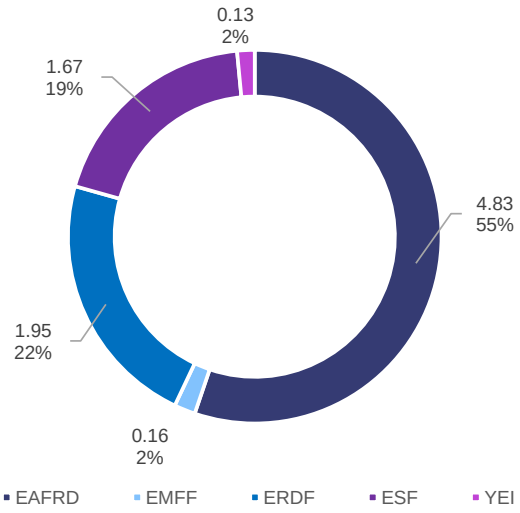
(1) Each measure contributes towards two policy areas of the six pillars, therefore the total contribution to all pillars displayed on this chart amounts to 200% of the estimated cost of the Sweden's RRP approved in 2022. The bottom part represents the amount for the primary pillar, the top part the amount for the secondary pillar.
Source: RRF Scoreboard https://ec.europa.eu/economy_finance/recovery-and-resilience-scoreboard/country_overview.html

The EU's budget of more than EUR 1.2 trillion for 2021-2027 is the investment lever to help implement EU priorities. Underpinned by an additional amount of about EUR 800 billion through NextGenerationEU and its largest instrument, the Recovery and Resilience Facility, it represents significant firepower to support the recovery and sustainable growth.

In 2021-2027, EU cohesion policy funds ([13]) will support Sweden's long-term development objectives by investing EUR 2.08 billion ([14]). This amount includes EUR 155.7 million from the Just Transition Fund directed to alleviate the socio-economic impacts of the green transition in the most vulnerable regions. The 2021-2027 cohesion policy funds partnership agreements and programmes are designed taking into account the 2019-2020 CSRs and investment guidance provided within the context of the European Semester, ensuring synergies and complementarities with other EU funding. In addition, Sweden will benefit from EUR 4.5 billion support for the 2023-27 period from the Common Agricultural Policy, which supports social, environmental, and economic sustainability and innovation in agriculture and rural areas, contributing to the European Green Deal, and ensuring long-term food security.

In 2014-2020, the European Structural and Investment Funds (ESIF) for Sweden are set to invest EUR 4.54 billion ([15]) from the EU budget. Total investment including national financing amounts to EUR 8.74 billion (Graph A3.1**)**, representing around 0.27% of GDP for 2014-2020 and 5.55% of public sector investment ([16]). By 31 December 2021, 91% of the total was allocated to specific projects and 65% was reported as spent, leaving EUR 3.07 billion to be spent by the end of 2023 ([17]). Among the 11 objectives the most relevant for cohesion policy funding in Sweden are research and innovation, competitiveness of SMEs, low-carbon economy, quality employment, training and lifelong learning, social inclusion. By the end of 2020, cohesion policy investments had supported 43400 enterprises, 95000 migrants or people from migrant backgrounds, 33000 long-term unemployed and more than 40000 people with disabilities.

Graph A3.1: **2014-2020 European Structural and Investment Funds – total budget by fund**



(1) EUR billion in current prices, % of total
(2) The data for the EAFRD and REACT-EU refer to the period 2014-2022.
Source: European Commission, Cohesion Open Data

Cohesion policy funds are already substantially contributing to the Sustainable Development Goals (SDGs) objectives. In Sweden, Cohesion policy funds are supporting 8 of the 17 SDGs with up to 95% of the expenditure contributing to meeting the goals.

([13]) European Regional Development Fund (ERDF), European Social Fund+ (ESF+), Cohesion Fund (CF), Just Transition Fund (JTF), Interreg.

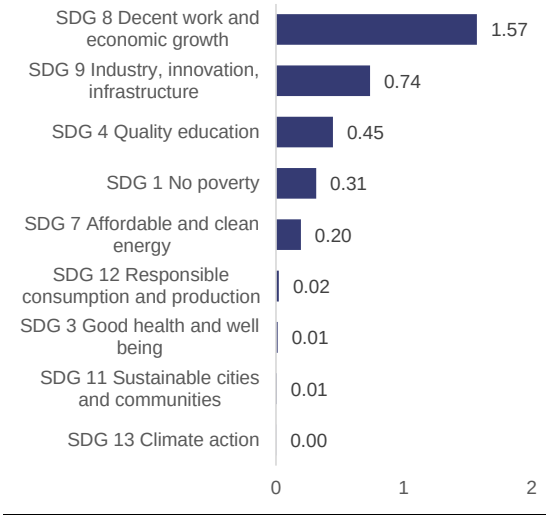
([14]) Current prices, source: Cohesion Open Data

([15]) ESIF includes cohesion policy funds (ERDF, ESF+, CF, Interreg) and European Agricultural Fund for Rural Development (EAFRD) and European Maritime and Fisheries Fund (EMFF). According to the 'N+3 rule', the funds committed for the years 2014-2020 must be spent by 2023 at latest (by 2025 for EAFRD). Data source: Cohesion Open data cut-off date 31.12.2021 for ERDF, ESF+, CF, Interreg; cut-off date 31.12.2020 for EAFRD and EMFF

([16]) Public investment is gross fixed capital formation plus capital transfers, general government.

([17]) Including REACT-EU. ESIF data on https://cohesiondata.ec.europa.eu/countries/SE

Graph A3.2: **Cohesion policy contribution to the SDGs**



EUR billion in current prices
Source: European Commission

The REACT-EU instrument (Recovery Assistance under Cohesion and the Territories of Europe), under NextGenerationEU, provided EUR 366 million of additional funding in 2014-2020 cohesion policy allocations to Sweden to ensure a balanced recovery, support convergence and provide vital support for regions following the coronavirus outbreak. REACT-EU provided support in Sweden for unemployed people, strengthened national labour market policies, and promoted the sustainable transition of Swedish businesses particularly affected by the pandemic – through the digital transformation, the green transition, and the transition to a circular economy.

The Coronavirus Response Investment Initiative ([18]) provided initial EU emergency support to Sweden in relation to the COVID-19 pandemic. It introduced extraordinary flexibility enabling Sweden to re-allocate resources to support enterprises (20.5 million). This included support for the enterprises in the sectors that were most affected by the COVID-19 crisis, notably the tourism and hospitality sectors.

The Commission provides tailor-made expertise via the Technical Support Instrument to support Sweden in designing and implementing growth-enhancing reforms, including implementing its RRP. Since 2018, Sweden has received assistance through 11 technical support projects. Projects delivered in 2021 aimed, for example, to increase the effectiveness of employment measures and the accessibility of employment services across Sweden for all target groups. The Commission also assisted Sweden for municipal staff and construction market stakeholders on planning and building legislation. In 2022, new projects will begin to support the transition of heavy industries located in the Norrbotten and Västerbotten regions towards carbon neutrality.

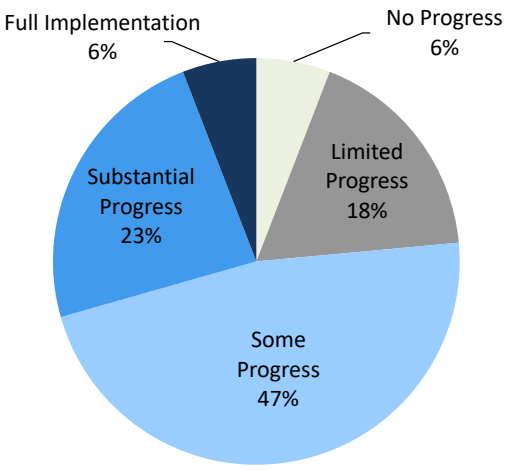
Sweden benefits also from other EU programmes. These include the Connecting Europe Facility, which allocated EU funding of EUR 412.7 million to specific projects on strategic transport networks, and Horizon 2020, which allocated EU funding of EUR 2 290 million.

([18]) Re-allocating ESIF resources according to Regulation (EU) 2020/460 of the European Parliament and of the Council of 30 March 2020, and Regulation (EU) 2020/558 of the European Parliament and of the Council of 23 April 2020.

ANNEX 4: PROGRESS IN THE IMPLEMENTATION OF COUNTRY-SPECIFIC RECOMMENDATIONS

The Commission assessed the 2019-2021 country-specific recommendations (CSRs) ([19]) addressed to Sweden in the context of the European Semester. The assessment takes into account the policy action taken by Sweden to date ([20]), as well as the commitments in the Recovery and Resilience Plan (RRP) ([21]). At this early stage of the RRP implementation, overall 76% of the CSRs focusing on structural issues in 2019 and 2020 have recorded at least "some progress", while 24% recorded "limited" or "no progress" (see Graph A4.1). Considerable additional progress in addressing structural CSRs is expected in the years to come with the further implementation of the RRP.

Graph A4.1: **Sweden's progress on the 2019-2020 CSRs (2022 European Semester cycle)**



Source: European Commission

([19]) 2021 CSRs: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32021H0729%2828%29&qid=1627675454457
2020 CSRs: EUR-Lex - 32020H0826(27) - EN - EUR-Lex (europa.eu)
2019 CSRs: EUR-Lex - 32021H0729(28) - EN - EUR-Lex (europa.eu)

([20]) Incl. policy action reported in the National Reform Programme, as well as in the RRF reporting (bi-annual reporting on the progress with implementation of milestones and targets and resulting from the payment request assessment).

([21]) Member States were asked to effectively address all or a significant subset of the relevant country-specific recommendations issued by the Council in 2019 and 2020 in their RRPs. The CSR assessment presented here takes into account the degree of implementation of the measures included in the RRP and of those done outside of the RRP at the time of assessment. Measures foreseen in the annex of the adopted Council Implementing Decision on the approval of the assessment of the RRP which are not yet adopted nor implemented but considered as 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 A4.1: **Summary table on 2019,2020 and 2021 CSRs**

Sweden	Assessment in May 2022*	RRP coverage of CSRs until 2026
2019 CSR1	**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	
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
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	
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
, 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
, and research and innovation, taking into account regional disparities.	Some Progress	Relevant RRP measures planned as of 2021, 2022, 2023 and 2024
2019 CSR 3	**Some Progress**	
Ensure effective supervision and the enforcement of the anti-money laundering framework.	Some Progress	Relevant RRP measures planned as of 2020, 2021, 2022 and 2023
2020 CSR1	**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
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
2020 CSR2	**Some Progress**	
Foster innovation		Relevant RRP measures planned as of 2025
and support education and skills development.	Some Progress	Relevant RRP measures planned as of 2021, 2022, 2023 and 2024
Front-load mature public investment projects and	Limited Progress	Relevant RRP measures planned as of 2021, 2022, 2023, 2024 and 2025
promote private investment to foster the economic recovery.	Some Progress	
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
high-tech and innovative sectors,	Some Progress	
5G networks	Full Implementation	
and sustainable transport.	Some Progress	Relevant RRP measures planned as of 2021, 2022, 2023, 2024 and 2025
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
2021 CSR1	**Substantial Progress**	
In 2022, maintain a supportive fiscal stance, including the impulse provided by the Recovery and Resilience Facility, and preserve nationally financed investment.	Substantial Progress	Not applicable
When economic conditions allow, pursue a fiscal policy aimed at achieving prudent medium-term fiscal positions and ensuring fiscal sustainability in the medium term.	Full Implementation	Not applicable
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.	Substantial Progress	Not applicable
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.	Substantial Progress	Not applicable

* See footnote 21

Source: European Commission

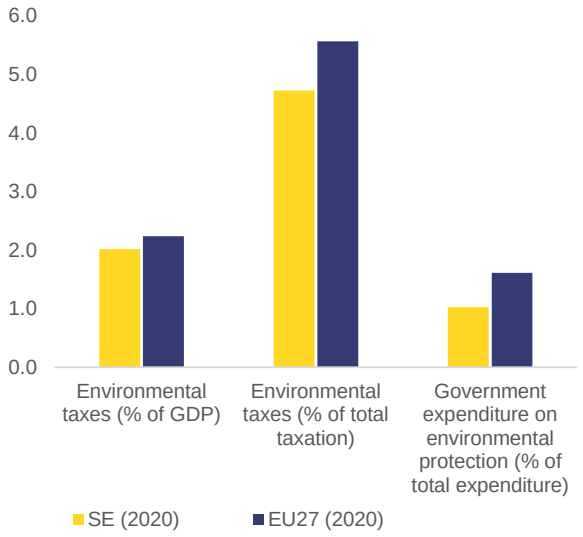
The European Green Deal intends to transform the EU into a fair and prosperous society, with a modern, resource-efficient and competitive economy where there are no net emissions of greenhouse gases in 2050 and where economic growth is decoupled from resource use. This Annex offers a snapshot of the most significant and economically relevant developments in Sweden in the respective building blocks of the European Green Deal. It is complemented by Annex 6 on the employment and social impact of the green transition and Annex 7 for circular economy aspects of the Green Deal.

Sweden has combined sustained economic growth with falling greenhouse gas (GHG) emissions over a long period. It is among the EU Member States with the lowest GHG emissions per capita. Its national target for sectors outside the EU's emissions trading system translates into a reduction of GHG emissions by around 51% in 2030 compared to 2005 levels. This target is more ambitious than that currently required by EU legislation. The Swedish Climate Act, adopted in 2017, requires Sweden to reach carbon neutrality by 2045.

Sweden expects to meet its current EU climate targets, but will need to take additional policy action to achieve its own objectives. Industry and transport are considered priority sectors for climate mitigation and the green transition. Planned measures include decreasing process-related emissions in steel industry and other key sectors, which are relatively expensive to reduce since the technology is not readily available on the market today. Due its large forest area, Sweden considers forestry an integral part of its climate strategy and a key contributor to the economy, providing sustainable energy resources, paper and wood product.

Sweden's environmental taxes have decreased in the past 5 years while government spending on environmental protection is below the EU average. Environmental tax revenues, both as a proportion of total tax revenues and as a proportion of GDP are slightly below the EU average, with energy taxes largely driving environmental taxation The Swedish government spends a lower proportion of its expenditure on environmental protection than the average for the EU. Fossil fuel subsidies have decreased in the past year. Budgetary exposure to climate hazards is considered low. For more indicators on taxation, see Annex 18.

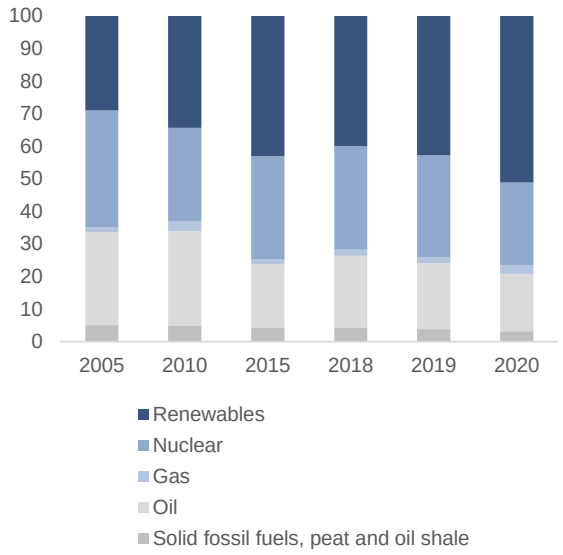
Graph A5.1: **Fiscal aspects of the green transition – taxation and government expenditure on environmental protection**



Source: Eurostat

Few countries consume more energy per capita than Sweden, but Swedish GHG emissions are low compared with those of other countries. The reason for Sweden's low emissions rate is that most of the electricity supply comes from hydropower and nuclear energy, along with a growing contribution from wind power. Almost 70% of electricity comes from renewable sources (data for 2020). Heating is supplied mainly through bioenergy-based district heating and heat pumps.

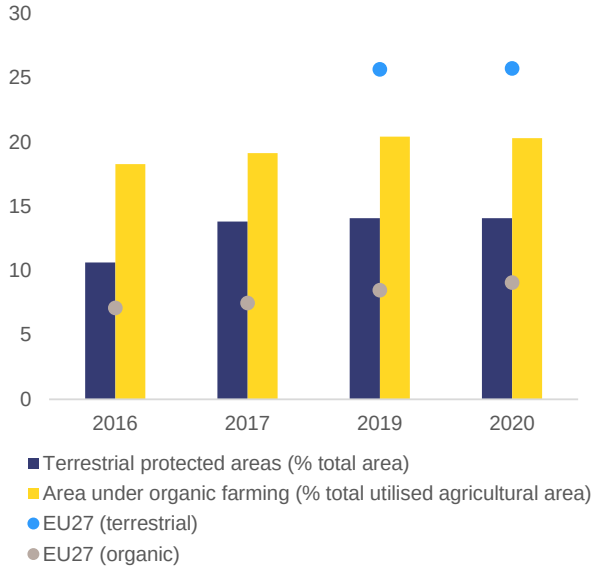
Graph A5.2: **Thematic – Energy**
Share in energy mix (solids, oil, gas, nuclear, renewables)



(1) The share of renewables includes waste
The energy mix is based on gross inland consumption, and excludes heat and electricity. The share of renewables includes biofuels and non-renewable waste
Source: Eurostat

In terms of biodiversity and ecosystem health, there is still a lot of room for improvement. With 14% of its territory classed as protected areas, the proportion of these areas that are considered to be in a good conservation state fell to 23% in 2018 compared to the 26% reported in 2012. The proportion of protected species considered to be in a good conservation state in 2018 has increased to 48% compared to the 46 % reported in 2012. However, conservation states are uneven across groups: of the 33 assessments of 16 EU forest habitat types protected under the EU nature directives, only 6.1% of the assessments (2 habitats in the alpine region) are in a favourable conservation state in Sweden while the rest are classed as being in an unfavourable state. The proportion of habitats in bad or poor conservation state has increased to 77% while the share of assessments for species in bad or poor conservation status has decreased to 51%. The main pressures are agricultural, forestry, industrial and urban pollution and changes in land use. Close to 58% of the breeding species of birds showed short-term increases or stable population trends (for wintering species this figure was close to 55 %). Bird species that are dependent on forests have are more likely to be in decline. This is true in particular of breeding species, of which 1/3 are in a bad state. Birds that require undisturbed forests with old growth characteristics are most at risk. This indicates that the existing forest ecosystems no longer meet their needs.

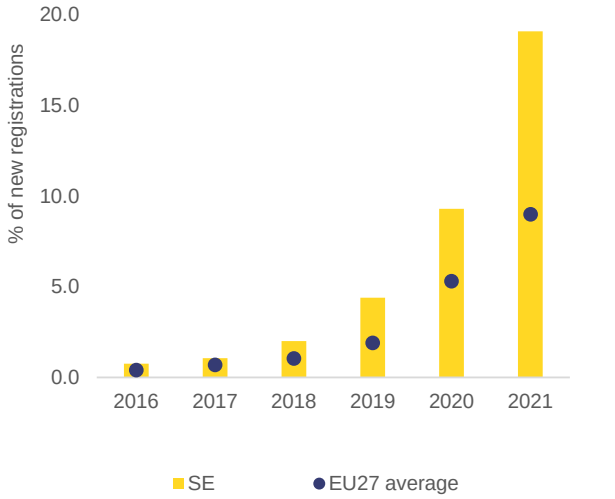
Graph A5.3: **Thematic – Biodiversity**
Terrestrial protected areas and organic farming



(1) For terrestrial protected areas data for 2018, and data for the EU average (2016, 2017) is lacking.
Source: EEA (terrestrial protected areas) and Eurostat (organic farming)

In terms of pollution, air quality in Sweden continues to give cause for concern. The latest available annual estimates by the European Environment Agency suggests about 2 800 premature deaths (or 26 400 years of life lost (YLL)) attributable to fine particulate matter concentrations and 220 premature deaths (2 200 YLL) as a result of ozone concentration. These projections do not comply with the 2030 onwards emission reduction commitment for nitrogen oxides or the 2020-2029 and 2030 onwards emission reduction commitments for ammonia (NH3).

Graph A5.4: **Thematic – Mobility**
Share of zero emission vehicles



(1) Zero emission vehicles include battery and fuel cell electric vehicles (BEV, FCEV)
Source: European Alternative Fuels Observatory

Sweden is one of the frontrunners in the EU in terms of uptake of zero emission vehicles. However, the charging infrastructure appears less developed as the demand per charging point is very high. The largest proportion of Sweden's greenhouse gas emissions come from the transport sector, and road transport in particular, which remains reliant on oil. The national goal to aim for 100% renewable electricity by 2040, to achieve net zero emissions of greenhouse gases by 2045, and the target to cut 70% of transport emissions by 2030 will require even more investments in renewable energy in general, also in the transport sector. Further streamlining of permit procedures could be beneficial in this regard.

Table A5.1: **Indicators underpinning progress on the European Green Deal from a macroeconomic perspective**

						Target	Distance		'Fit for 55' Target	'Fit for 55' Distance	
			2005	2019	2020	2030	WEM	WAM	2030	WEM	WAM
Progress to policy targets	Non-ETS GHG emission reduction target (1)	MTCO2 eq; %; pp (2)	43.2	-27%	-29%	-40%	-1	-1	-50%	-11	-11
			2005	2016	2017	2018	2019	2020	National contribution to 2030 EU target		
	Share of energy from renewable sources in gross final consumption of energy (1)	%	40%	53%	53%	54%	56%	60%	65%		
	Energy efficiency: primary energy consumption (1)	Mtoe	49.0	45.4	46.3	47.3	45.8	41.7	40.2		
	Energy efficiency: final energy consumption (1)	Mtoe	33.2	32.3	32.1	31.9	31.5	30.9	29.7		
			SWEDEN						EU		
			2015	2016	2017	2018	2019	2020	2018	2019	2020
Fiscal and financial indicators	Environmental taxes (% of GDP)	% of GDP	2.2	2.2	2.1	2.1	2.1	2.0	2.4	2.4	2.2
	Environmental taxes (% of total taxation)	% of taxation (3)	5.05	5.03	4.80	4.76	4.79	4.73	5.99	5.89	5.57
	Government expenditure on environmental protection	% of total exp.	0.86	0.88	0.95	1.01	1.00	1.03	1.66	1.70	1.61
	Investment in environmental protection	% of GDP (4)	0.39	0.42	0.42	0.49	-	-	0.42	0.38	0.41
	Fossil fuel subsidies	EUR2020bn	3.02	3.34	3.01	3.07	2.28	-	56.87	55.70	-
	Climate protection gap (5)	score 1-4	0.4 out of 4 (decrease from historical level of 1). This is a no risk category (4 being a high risk).								
Climate	Net GHG emissions	1990 = 100	75	74	77	76	74	67	79	76	69
	GHG emissions intensity of the economy	kg/EUR'10	0.14	0.14	0.13	0.13	0.12	0.11	0.32	0.31	0.30
	Energy intensity of the economy	kgoe/EUR'10	0.11	0.11	0.11	0.11	0.11	0.10	0.12	0.11	0.11
Energy	Final energy consumption (FEC)	2015=100	100.0	101.4	101.0	100.4	99.2	97.3	103.5	102.9	94.6
	FEC in residential building sector	2015=100	100.0	103.3	103.9	101.1	99.4	97.2	101.9	101.3	101.3
	FEC in services building sector	2015=100	100.0	104.8	99.2	102.5	100.1	99.6	102.4	100.1	94.4
Pollution	Smog-precursor emission intensity (to GDP) (4)	tonne/EUR'10 (6)	0.56	0.58	0.54	0.49	0.44	0.42	0.99	0.93	-
	Years of life lost caused due to air pollution by PM2.5	per 100.000 inh.	290	254	234	304	258	-	863	762	-
	Years of life lost due to air pollution by NO2	per 100.000 inh.	10	2	< 1	< 1	< 1	-	120	99	-
	Nitrate in ground water	mg NO3/litre	-	-	-	-	-	-	21.7	20.7	-
Biodiversity	Terrestrial protected areas	% of total	-	10.6	13.8	-	14.1	14.1	-	25.7	25.7
	Marine protected areas	% of total	-	15.3	-	-	15.5	-	-	10.7	-
	Organic farming	% of total utilised agricultural area	17.1	18.3	19.2	20.3	20.4	20.3	8.0	8.5	9.1
			2000-2006		2006-2012		2012-2018		00-06	06-12	12-18
	Net land take	per 10,000 km2	4.0		2.6		1.7		13.0	11.0	5.0
			2015	2016	2017	2018	2019	2020	2018	2019	2020
Mobility	GHG emissions intensity of transport (to GVA) (7)	kg/EUR'10	0.52	0.52	0.45	0.40	0.38	0.29	0.89	0.87	0.83
	Share of zero emission vehicles (8)	% in new registrations	0.9	0.8	1.1	2.0	4.4	9.6	1.0	1.9	5.4
	Number of plug-in electric vehicles per charging point		9	12	10	12	13	16	8	8	12
	Share of electrified railways	%	75.5	75.2	75.3	75.3	75.1	-	55.6	56.0	-
	Congestion (average number of hours spent in road congestion per year by a representative commuting driver)		21.4	21.3	21.6	21.8	22.0	-	28.9	28.8	-
			Year	SE	EU						
Digital	Share of smart meters in total metering points (9) - electricity	% of total	2018	100.0	35.8						
	Share of smart meters in total metering points (9) - gas	% of total	2018	0.0	13.1						
	ICT used for environmental sustainability (10)	%	2021	73.4	65.9						

(1) The 2030 non-ETS GHG target is based on the Effort Sharing Regulation. The FF55 targets are based on the COM proposal to increase EU's climate ambition by 2030. Renewables and Energy Efficiency targets and national contributions under the Governance Regulation (Regulation (EU) 2018/1999). (2) Distance to target is the gap between Member States' 2030 target under the Effort Sharing Regulation and projected emissions, with existing measures (WEM) and with additional measures (WAM) respectively, as a percentage of 2005 base year emissions. (3) Percentage of total revenues from taxes and social contributions (excluding imputed social contributions). Revenues from the ETS are included in environmental tax revenues (in 2017 they amounted to 1.5% of total environmental tax revenues at the EU level). (4) Covers expenditure on gross fixed capital formation to be used for the production of environmental protection services (i.e. abatement and prevention of pollution) covering all sectors, i.e. government, industry and specialised providers. (5) The climate protection gap indicator is part of the European adaptation strategy (February 2021), and is defined as the share of non-insured economic losses caused by climate-related disasters. (6) Sulphur oxides (SO2 equivalent), Ammonia, Particulates < 10µm, Nitrogen oxides in total economy (divided by GDP). (7) Transportation and storage (NACE Section H). (8) Zero emission vehicles include battery electric vehicles (BEV) and fuel cell electric vehicles (FCEV). (9) European Commission Report (2019) 'Benchmarking smart metering deployment in the EU-28'. (10) European Commission (2021). Each year the DESI is re-calculated for all countries for previous years to reflect any possible change in the choice of indicators and corrections to the underlying data. Country scores and rankings may thus differ compared with previous publications.

Source: Eurostat, JRC, European Commission, EEA, EAFO

The green transition not only encompasses improvements to environmental sustainability, but also includes a significant social dimension. While measures in this regard include the opportunity for sustainable growth and job creation, it must also be ensured that no one is left behind and all groups in society benefit from the transition. Sweden's green transition offers opportunities as the country benefits from a comparatively strong green economy with a strong potential for job creation; at the same time, the transitioning sectors are sizeable and lower-income groups are more likely to face challenges.

Sweden's recovery and resilience plan (RRP) includes several crucial reforms and investments to support the green transition. The green measures in the RRP promote a sustainable and inclusive recovery for instance through investments to decarbonise the industrial sector and in local and regional projects to reduce GHG emissions. Other examples include investments in sustainable transport and energy efficiency of apartment buildings. In synergy with the Recovery and Resilience Facility, the European Social Fund (ESF+) will help unlock the potential for 'green jobs' in Sweden; and the Just Transition Fund (EUR 156 million) will help reskill and upskill those who have been impacted by the transition in two Swedish regions (see Annex 3). Sweden's national energy and climate plan from 16 January 2020 provides only limited information and analysis on the employment impacts of the transition to a climate-neutral economy, and makes no mention of the social and skills impact. Sweden does not report the number of households in energy poverty, as it is considered to be an integrated part of its broader social policy. ([22])

The economy has slightly reduced its carbon footprint and though transforming sectors remain sizeable, the green economy provides strong potential for job creation. The greenhouse gas (GHG) emissions intensity of the Swedish economy decreased slightly between 2015 and 2020 (in terms of gross value added) and stands at 43% below the EU average, with the average carbon footprint per worker at 8.15 tonnes of GHG emissions (EU average of 13.61 tonnes) (see Figure 1). Metals have been identified as a transforming sector ([23]), with a risk of a direct negative impact on around 4 000 jobs and further impacts on subcontractors and the regional economy. Sweden's energy-intensive industry, including the steel industry ([24]), provides jobs for 3% of the total employed workforce, for whom up- and reskilling could be particularly important (see Annex 15). The environmental goods and services sector provides jobs to 2.9% of the employed population (EU average: 2.2%) ([25]). Wind and solar energy expansion and energy efficiency improvements can create more green jobs. ([26]). Labour shortages linked to the transition to a climate-neutral economy have been identified in the manufacturing sector ([27]).

As for the social dimension of the green transition, ensuring access to essential transport and energy services is overall minor but increasing challenge in Sweden. Since 2010, an increasing proportion of the population in rural areas is at risk of poverty (18.2% vs an EU average of 18%) ([28]). The proportion of the population unable to keep their homes adequately warm more than doubled from 1.2% in 2015 to 2.7% in 2020, although this remains well below the EU average (8.2%). While lower-income groups are most affected, middle-income groups are also affected (see Figure 2). Consumption patterns vary across the population: the average carbon footprint of the top 10% of emitters is about 5.2 times (compared to an EU average of 5.3 times) higher than that of the bottom 50% of the population.

Tax systems are key to ensuring a fair transition towards climate neutrality ([29]). Sweden's revenues from total environmental taxes

([22]) SWD(2020) 926 final

([23]) SWD(2021) 275 final.

([24]) 2020 European Semester: Overview of Investment Guidance on the Just Transition Fund 2021-2027 per Member State (Annex D).

([25]) There is currently no common EU-wide definition of green jobs. The environmental goods and services sector (EGSS) accounts only report on an economic sector that generates environmental products, i.e. goods and services produced for environmental protection or resource management.

([26]) https://publications.jrc.ec.europa.eu/repository/handle/JRC126047.

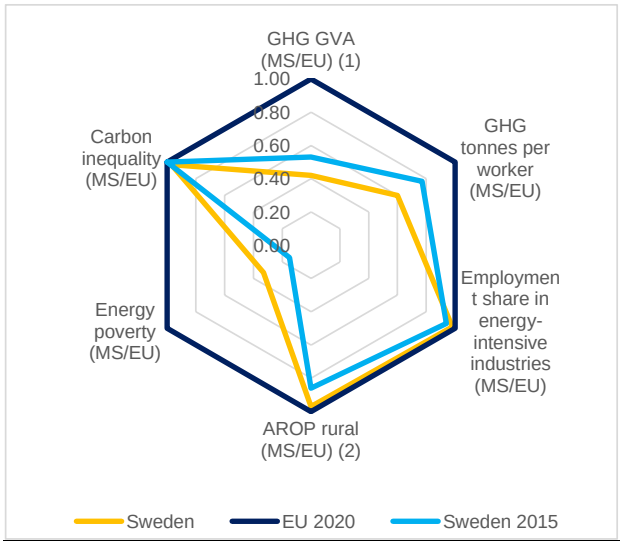
([27]) Eurofound (2021), Tackling labour shortages in EU Member States, Publications Office of the European Union, Luxembourg.

([28]) Based on COM(2021) 568 final (Annex I) as a proxy for potential transport challenges in the context of the green transition (e.g. due to vulnerability to fuel prices).

([29]) COM(2021) 801 final.

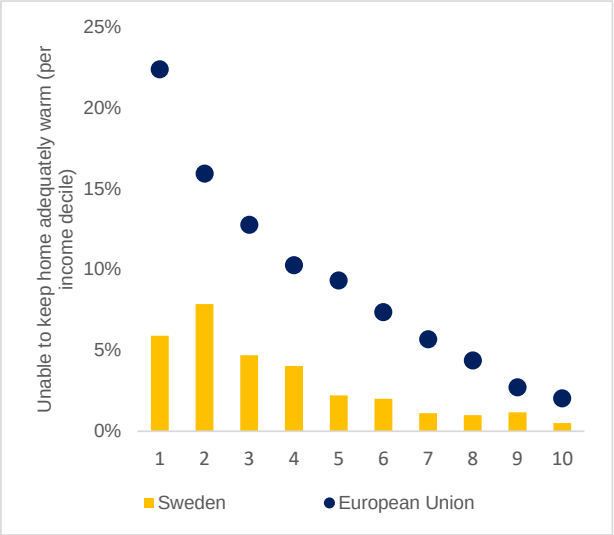
decreased from 2.15% of GDP in 2015 to 2.05% in 2019, and remained relatively stable in 2020 (compared to an EU average of 2.24% in 2020). The labour tax wedge for low-income earners ([30]) decreased marginally from 39% in 2015 to 38.8% in 2019 (38.0% in 2021), compared to an EU average of 31.9% in 2021 (see Annex 18). Redistributive measures accompanying environmental taxation could potentially encourage progressive measures and have a positive impact on the disposable income of households in the bottom 20% of the income distribution ([31]).

Graph A6.1: **Fair green transition challenges**



Numbers are the normalised indicator performance relative to the EU27 average.
(1) GHG tonnes per Euro of gross added value (MS/EU)average
(2) Share of population in rural areas at risk of poverty (MS/EU)
Source: Eurostat, World inequality database

Graph A6.2: **Energy poverty by income decile**



Source: Eurostat EU SILC survey

([30]) Tax wedge for a single earner at 50% of the national average wage (Tax and benefits database, European Commission/OECD).

([31]) SWD(2021) 641 final PART 3/3.

ANNEX 7: RESOURCE EFFICIENCY AND PRODUCTIVITY

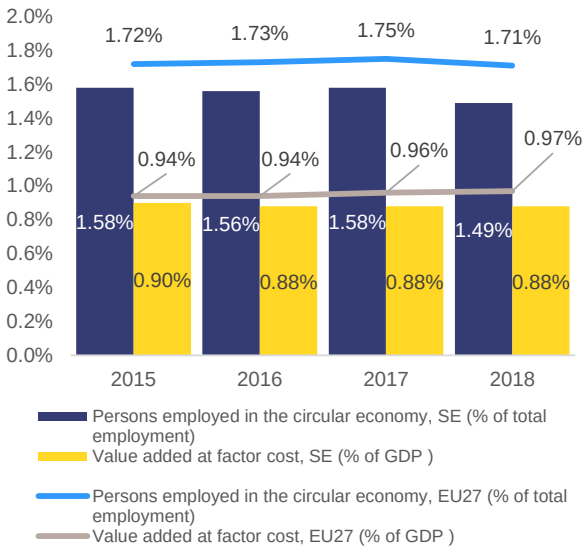
The efficient use of resources is key to ensuring competitiveness and open strategic autonomy, while minimising the environmental impact. The green transition presents a major opportunity for European industry by creating markets for clean technologies and products. It will have an impact across the entire value chains in sectors such as energy and transport, construction and renovation and food and electronics, helping create sustainable, local and well-paid jobs across Europe.

Sweden has made some progress on circular secondary material usage over the past decade. Sweden managed to reduce its gap with the EU average but is still far behind the EU's best performers. The circular (secondary) use of material in Sweden was 6.8% in 2016 and 7.1% in 2020, compared to the EU average of 12.8%. There is room for improvement in this area. In January 2021, the country has adopted a new action plan to follow up on its 2020 strategy. The action plan sets out more than 100 different activities along the entire lifecycle of products.

Resource productivity is below the EU average. Resource productivity expresses how efficiently the economy uses material resources to produce wealth. Improving resource productivity can help to minimise negative impacts on the environment and reduce dependency on volatile raw material markets. Resource productivity in Sweden is 1.47 purchasing power standards (PPS) generated per kg of material consumed in 2020, while the EU average is 2.23 PPS per kg. The latest figures show a decrease in Sweden's resource productivity.

Sweden's economic growth has not yet been decoupled from the generation of waste. Total waste generation remains high (13.628 kg/capita in 2018, down from 14.272 kg/capita in 2016), above the EU average of 5.234 kg/capita annually. Sweden's municipal waste recycling rate is around 38%, below the EU average of around 48 %, and below the 2020 and 2025 EU targets of 50% and 55% respectively. Incineration including energy recovery accounts for 52% and remains the dominant for of waste treatment in Sweden, while landfilling accounts for less than 1%.

Graph A7.1: **Economic importance and expansion of the circular economy – employment and value added in the circular economy sectors**



Source: Eurostat

Environmental technology is important for the transition to a circular economy. A successful transition to a circular economy requires social and technological innovation to reach its full potential when implemented across all value chains. Therefore, eco-innovation is an important enabling factor for the circular economy. New product design approaches and business models can help to produce systemic circularity innovations, creating new business opportunities. In 2021, Sweden ranked 5th on the 2021 Eco-Innovation Index, with a total score of 142, indicating that the country is a leader in eco-innovation. Further work to help Sweden maintain its leading position in environmental technology could include sustainable product design, resource efficient production processes, digital solutions, industrial symbiosis, remanufacturing in key value chains, and alternatives to unsustainable extraction of raw materials, and new circular business models. There also appears to be scope to shift reusable and recyclable waste away from incineration, including through economic instruments, to ensure that the post-2020 recycling targets, in particular for plastics, are met.

Table A7.1: **Selected resource efficiency indicators**

SUB-POLICY AREA	2015	2016	2017	2018	2019	2020	EU27	Latest year EU27
Circularity								
Resource Productivity (Purchasing power standard (PPS) per kilogram)	1.5	1.5	1.5	1.5	1.4	1.5	2.2	2020
Material Intensity (kg/EUR)	0.7	0.7	0.7	0.7	0.7	0.7	0.4	2020
Circular Material Use Rate (%)	6.7	6.8	6.7	6.6	6.5	7.1	12.8	2020
Material footprint (Tonnes/capita)	22.8	23.7	22.6	23.6	24.2	-	14.6	2019
Waste								
Waste generation (kg/capita, total waste)	-	14 272	-	13 628	-	-	5 234	2018
Landfilling (% of total waste treated)	-	39.3	-	41	-	-	38.5	2018
Recycling rate (% of municipal waste)	47.5	48.4	46.8	45.8	46.6	38.3	47.8	2020
Hazardous waste (% of municipal waste)	-	1.7	-	2.1	-	-	4.3	2018
Competitiveness								
Gross value added in environmental goods and services sector (% of GDP)	3.3	3.3	3.4	3.4	3.5	-	2.3	2019
Private investment in circular economy (% of GDP)	0.1	0.1	0.1	0.1	-	-	0.1	2018

Source: Eurostat

The Digital Economy and Society Index (DESI) monitors EU Member States' digital progress. The areas of human capital, digital connectivity, the integration of digital technologies by businesses and digital public services reflect the Digital Decade four cardinal points ([32]). This Annex describes Sweden's DESI performance.

Sweden's contribution to the digital objectives represents 20.5% of its Recovery and Resilience Plan allocation. The most prominent digital investments support the roll out of high-speed broadband, increasing the number of study places in higher education and vocational training and further digitalisation of the Swedish public administration.

Sweden is one of the top performers on the human capital aspects of the DESI. The country performs above the EU average for basic and advanced digital skills. To ensure that there is no shortage of skilled digital workers, Sweden considers and focuses on digital skills as a central component of all relevant strategies and measures (both higher-level education and vocational training).

Sweden scores high on connectivity. The very high capacity network coverage is well above the EU average and announced in its broadband plan ([33]) that it aims to cover the entire country with access to high-speed connectivity, mainly using fibre. In areas where the costs of using fibre are prohibitive (affecting 2% of the population) mobile technologies are being assessed. On 5G coverage in populated areas, Sweden fell during 2021 considerably behind the EU average.

Sweden is an EU forerunner in integrating digital technologies. The country scores well above the EU average for SMEs with at least a basic level of digital skills and the companies' use of advanced technologies like cloud. There are new or recent strategies on AI and the provision and use of data. Sweden usually involves academia and the private sector in joint partnerships to ensure a rapid transfer of knowledge.

Sweden performs well on digital public services, but its decentralised model of governance leaves some room for improving coordination. The country scores above the EU average in digital public services for people and businesses, but interoperability and data exchange between different authorities could be improved. This is the task of the Agency for Digital Government (DIGG), which acts as a central hub in this area.

([32]) 2030 Digital Compass: the European Way for the Digital Decade Communication, COM (2021) 118 final

([33]) Source: Government Offices of Sweden, A Completely Connected Sweden by 2025 – a Broadband Strategy (https://www.government.se/496173/contentassets/afe9f1cfeaac4e39abcdd3b82d9bee5d/sweden-completely-connected-by-2025-eng.pdf)https://www.government.se/496173/contentassets/afe9f1cfeaac4e39abcdd3b82d9bee5d/sweden-completely-connected-by-2025-eng.pdf

Table A8.1: **Key Digital Economy and Society Index indicators**

	Sweden			EU	EU-top performance
Human capital	**DESI 2020**	**DESI 2021**	**DESI 2022**	**DESI 2022**	**DESI 2022**
At least basic digital skills	**NA**	**NA**	**67%**	**54%**	**79%**
% individuals			2021	2021	2021
ICT specialists	**7.0%**	**7.5%**	**8.0%**	**4.5%**	**8.0%**
% individuals in employment aged 15-74	2019	2020	2021	2021	2021
Female ICT specialists	**21%**	**21%**	**22%**	**19%**	**28%**
% ICT specialists	2019	2020	2021	2021	2021
Connectivity					
Fixed Very High Capacity Network (VHCN) coverage	**77%**	**81%**	**83%**	**70%**	**100%**
% households	2019	2020	2021	2021	2021
5G coverage (*)	**NA**	**14%**	**18%**	**66%**	**99.7%**
% populated areas		2020	2021	2021	2021
Integration of digital technology					
SMEs with at least a basic level of digital intensity	**NA**	**NA**	**86%**	**55%**	**86%**
% SMEs			2021	2021	2021
Big data	**10%**	**19%**	**19%**	**14%**	**31%**
% enterprises	2018	2020	2020	2020	2020
Cloud	**NA**	**NA**	**69%**	**34%**	**69%**
% enterprises			2021	2021	2021
Artificial Intelligence	**NA**	**NA**	**10%**	**8%**	**24%**
% enterprises			2021	2021	2021
Digital public services					
Digital public services for citizens	**NA**	**NA**	**85**	**75**	**100**
Score (0 to 100)			2021	2021	2021
Digital public services for businesses	**NA**	**NA**	**88**	**82**	**100**
Score (0 to 100)			2021	2021	2021

(*) The 5G coverage indicator does not measure users' experience, which may be affected by a variety of factors such as the type of device used, environmental conditions, number of concurrent users and network capacity. 5G coverage refers to the percentage of populated areas as reported by operators and national regulatory authorities.

Source: Digital Economy and Society Index

This Annex provides a general overview of the performance of Sweden's research and innovation system.

Sweden continues to be the EU innovation leader, a position it has held for many years, although its lead on the EU average has decreased slightly over time. ([34]) Sweden invests considerable resources in R&D and is one of the most innovative economies in the EU. With 3.5% of GDP allocated to R&D in 2020, Sweden has the highest R&D spending in the EU and it is one of the top performers in terms of business investment on R&D (2.53% of GDP in 2020) and public investment on R&D (0.97% of GDP in 2020). However, R&D intensity is lower than the Swedish national goal in the Europe 2020 strategy (around 4% by 2020) and Sweden's recovery and resilience plan does not have a focus on R&D investment.

Sustaining a high-quality public research base and a sufficient pool of talent have been instrumental in keeping 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 ([35]), and the number of new doctoral graduates has fallen over the past 7 years. ([36]) A shortage of highly skilled personnel in science, technology and engineering might hamper investment in R&D. The availability of skilled staff is also a key factor among Sweden's most R&D intensive companies in decisions on where to invest in R&D, and more than 40% of companies consider it more difficult to recruit R&D personnel than 5 years ago. ([37]) The number of new graduates in science & engineering per thousand people aged 25-34 has fallen over the last 10 years, scoring about a quarter below the EU average.

The proportion of public sector support for business enterprise expenditure on R&D, both as a percentage of GDP and measured as tax incentives, is comparably low, while the size of venture capital available remains well above the EU average.

([34]) European innovation scoreboard 2021 country profile, https://ec.europa.eu/docsroom/documents/45937

([35]) Swedish Research Barometer, p. 59-64, https://www.vr.se/english/analysis/reports/our-reports/2022-01-25-the-swedish-research-barometer-2021.html and https://ec.europa.eu/info/research-and-innovation/statistics/performance-indicators/european-innovation-scoreboard_en

([36]) 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

([37]) Royal Swedish Academy of Engineering Sciences, https://www.iva.se/projekt/naringslivets-fou-investeringar/fou-barometern-2021/

Table A9.1: **Key research, development and innovation indicators**

Sweden	2010	2015	2018	2019	2020	Compound annual growth 2010-20	EU average
Key indicators							
R&D Intensity (GERD as % of GDP)	3.17	3.22	3.32	3.39	*3.5*	1.0	*2.32*
Public expenditure on R&D as % of GDP	0.99	0.97	0.96	0.95	*0.97*	-0.1	*0.78*
Business enterprise expenditure on R&D (BERD) as % of GDP	:	0.5	:	0.48	:	2.6	*0.36*
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	12.7	12.9	12.7	:	:	0.001	9.9
PCT patent applications per billion GDP (in PPS)	9.2	9.1	9.1	:	:	-0.2	3.5
Academia-business cooperation							
Public-private scientific co-publications as % of total publications	12.2	12.1	13.3	12.6	11.5	-0.6	9.05
Human capital and skills availability							
New graduates in science & engineering per thousand pop. aged 25-34	14.3	13.9	12.1	12.4	:	-1.5	16.3
Public support for business enterprise expenditure on R&D (BERD)							
Total public sector support for BERD as % of GDP	:	:	:	0.122	:	-0.6	0.196
R&D tax incentives: foregone revenues as % of GDP	:	0.012	0.013	0.015	:	6.1	0.100
Green innovation							
Share of environment-related patents in total patent applications filed under PCT (%)	13.4	12.3	12.5	:	:	-0.9	12.8
Finance for innovation and Economic renewal							
Venture Capital (market statistics) as % of GDP	0.087	0.053	0.065	0.073	0.088	0.1	0.054
Employment in fast-growing enterprises in 50% most innovative sectors	6.5	5.5	7.6	6.5	:	-0.1	5.5

Source: DG Research and Innovation - Common R&I Strategy and Foresight Service - Chief Economist Unit
Data: Eurostat, OECD, DG JRC, Science-Metrix (Scopus database and EPO's Patent Statistical database), Invest Europe

Productivity growth is a critical driver of economic prosperity, well-being and convergence over the long run. A major source of productivity for the EU economy is a well-functioning single market, where fair and effective competition and a business friendly environment are ensured, in which small and medium enterprises (SMEs) can operate and innovate without difficulty. Businesses and industry rely heavily on robust supply chains and are facing bottlenecks that bear a negative impact on firms' productivity levels, employment, turnover and entry/exit rates. This may impact the Member States' capacity to deliver on Europe's green and digital transformation.

The Swedish labour market performs comparatively well. Only 8% of firms report labour shortages in 2021, compared to an EU average of 14%. This represents an improvement from the 10% reported in 2017. Regulated professions experience lower levels of regulatory restrictions compared to the EU average, including for lawyers, accountants, civil engineers and architects, with the only exception for the profession of real estate agent where regulations in Sweden exceed the EU average. Still, labour shortages and skills mismatches persist, with shortages being particularly pronounced in education, health care, social work, ICT, industry and construction. Similar to other developed countries, Sweden's labour productivity growth rate has fallen in recent years.

Sweden performs relatively well when it comes to the business environment. Access to finance conditions remain good and above the EU average. According to the 2021 EIB Investment Survey, only 4% of firms in Sweden can be considered financially constrained in terms of external finance. This is similar to the EU average (5%). In addition, the proportion of SMEs experiencing late payments remains below EU average.

Barriers to investments in Sweden are low overall. However, private sector investment have steadily decreased since 2017, and long-term barriers to investments persist. Generally, Swedish firms are less concerned about barriers to investment than firms in the EU overall. Despite high levels of private sector investment as of 2020 (5.2% in Sweden vs. 2.6% EU average), Sweden has seen a sustained decrease in private investments of 26.4% from 2017 to 2020. Moreover, long-term barriers to investment persist. The barrier most frequently mentioned by firms is the availability of skilled staff (78%).

Overall, the Swedish economy has been relatively less affected by global supply chain disruptions than other EU countries, due to its greater reliance on intra-EU imports and its domestic production of key raw materials**. ([38])** Sweden produces 93% of all iron ore in Europe, while also leading production of other base metals (copper, zinc, lead), precious metals (silver, gold) and industrial minerals (limestone). Only 19% of companies reported a shortage in materials and equipment, below the EU average of 26%. In addition, Sweden holds mineral potential for several critical metals, including for example graphite, lithium, cobalt, tungsten, indium, phosphorus and vanadium. This high proportion of manufacturing is partially explained by the much higher levels of public sector investment in Sweden. The Swedish Government initiated a revision of the Minerals Act and the environmental code following industry complaints that the policy framework in relation to mining permits is complex, long and uncertain.

([38]) That being said, highly integrated cross-border supply such as for car manufacture, were affected by disruptions (including forced plant closures) especially in the early phase of the pandemic.

Table A10.1:**Key Single Market and Industry indicators**

SUB-POLICY AREA	INDICATOR NAME	DESCRIPTION	2021	2020	2019	2018	2017	Growth rates	EU27 average*
HEADLINE INDICATORS									
Economic structure	Value added by source (domestic)	VA that depends on domestic intermediate inputs, % [source: OECD (TiVA), 2018]				69.55			**62.6%**
	Value added by source (EU)	VA imported from the rest of the EU, % [source: OECD (TiVA), 2018]				16.11			**19.7%**
	Value added by source (extra-EU)	% VA imported from the rest of the world, % [source: OECD (TiVA), 2018]				14.3			**17.6%**
Cost competitiveness	Producer energy price (industry)	Index (2015=100) [source: Eurostat, sts_inppd_a]	132	108.2	125.3	120.9	105.9	**24.6%**	**127.3**
RESILIENCE									
Shortages / supply chain disruptions	Material Shortage using survey data	Average (across sectors) of firms facing constraints, % [source: ECFIN CBS]	19	10	17	19	19	**0%**	**26%**
	Labour Shortage using survey data	Average (across sectors) of firms facing constraints, % [source: ECFIN CBS]	8	4	7	12	10	**-20%**	**14%**
	Sectoral producer prices	Average (across sectors), 2021 compared to 2020 and 2019, index [source:Eurostat]						**6.5%**	**5.4%**
Strategic dependencies	Concentration in selected raw materials	Import concentration a basket of critical raw materials, index [source: COMEXT]	0.15	0.17	0.17	0.15	0.16	**-6%**	**17%**
	Installed renewables electricity capacity	Share of renewable electricity to total capacity, % [source:Eurostat, nrg_inf_epc]		65.0	62.4	60.7	60.6	**7%**	
Investment dynamics	Net Private investments	Change in private capital stock, net of depreciation, % GDP [source: Ameco]		5.2	5.7	6.5	6.9	**-24.6%**	**2.6%**
	Net Public investments	Change in public capital stock, net of depreciation, % GDP [source: Ameco]		1.8	1.7	1.7	1.5	**20%**	**0.4%**
SINGLE MARKET									
Single Market integration	Intra-EU trade	Ratio of Intra-EU trade to Extra-EU trade, index [source: Ameco]	1.47	1.49	1.44	1.47	1.48	**-0.4%**	**1.59**
Professional services restrictiveness	Regulatory restrictiveness indicator	Restrictiveness of access to and exercise of regulated professions (professions with above median restrictiveness, out of the 7 professions analysed in SWD (2021)185 [source: SWD (2021)185; SWD(2016)436 final])	1				1	**0.0%**	**3.37**
Professional qualifications recognition	Recognition decisions w/o compensation	Professionals qualified in another EU MS applying to host MS, % over total decisions taken by host MS [source: Regulated professions database]	26.2						**45%**
Compliance - cooperation EC and MS	Transposition - overall	5 sub-indicators, sum of scores [source: Single Market Scoreboard]		Below average	On average	Above average	Above average		
	Infringements - overall	4 sub-indicators, sum of scores [source: Single Market Scoreboard]		On average	On average	On average	Below average		
Investment protection	Confidence in investment protection	Companies confident that their investment is protected by the law and courts of MS if something goes wrong, % of all firms surveyed [source: Flash Eurobarometer 504]	77						**56%**
BUSINESS ENVIRONMENT - SMEs									
Business demography	Bankruptcies	Index (2015=100) [source: Eurostat, sts_rb_a]	n.a.	n.a.	n.a.	n.a.	n.a.	**n.a.**	**70.1 (2020)**
	Business registrations	Index (2015=100) [source: Eurostat, sts_rb_a]	n.a.	n.a.	n.a.	n.a.	n.a.	**n.a.**	**105.6**
Access to finance	Late payments	Share of SMEs experiencing late payments in past 6 months, % [source: SAFE]	35.2	29.2	32.5	n.a.	n.a.	**8.1%**	**45%**
	EIF Access to finance index - Loan	Composite: SME external financing over last 6 months, index from 0 to 1 (the higher the better) [source: EIF SME Access to Finance Index]		0.59	0.7	0.66	0.63	**-7.3%**	**0.56 (2020)**
	EIF Access to finance index - Equity	Composite: VC/GDP, IPO/GDP, SMEs using equity, index from 0 to 1 (the higher the better) [source: EIF SME Access to Finance Index]		0.94	0.87	0.73	0.97	**-2.7%**	**0.18 (2020)**
	% of rejected or refused loans	SMEs whose bank loans' applications were refused or rejected, % [source: SAFE]	5.9	9.6	2.1	16.6	3.4	**71.4%**	**12.4%**
Public procurement	SME contractors	Contractors which are SMEs, % of total [source: Single Market Scoreboard]		66	63	64	66	**0.0%**	**63%**
	SME bids	Bids from SMEs, % of total [source: Single Market Scoreboard]		47	76	78	77	**-39.0%**	**70.8%**

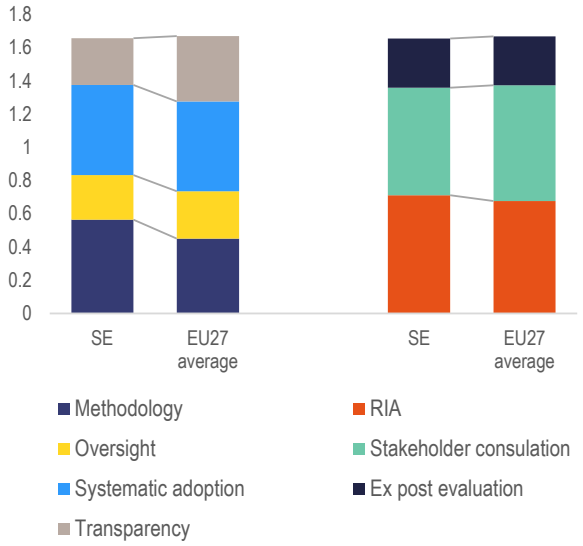
(*) latest available

Source: See above in the table the respective source for each indicator in the column "Description".

Good administrative capacity enables economic prosperity, social progress, and fairness. Public administrations at all government levels deliver crisis response, ensure the provision of public services, and contribute building the resilience needed for the sustainable development of the EU economy.

Public administration in Sweden is one of the most effective in the EU-27 ([39]). The Swedish system of checks and balances is inclusive and structured. Its public procurement system performs highly on the Single Market Scoreboard indicators and the country is relatively advanced in promoting open data. Several measures have been taken to improve the quality of legislative proposals, such as ex ante evaluations by the commission of inquiry and public consultations ([40]).The indicator on evidence-based policymaking shows performance around the average (Graph A11.1), with lower scores in terms of stakeholder engagement. Sweden´s open civil society landscape contributes actively to public consultations. However, there appears to be limited planning of public consultations, limited transparency during the consultation process and the absence of a central website to engage with the public and stakeholders on consultations. ([41]) Another potential improvement would be lengthening the consultation period. ([42])

Graph A11.1: **Performance on evidence-based policy making indicators**



(1) RIA: Regulatory impact assessment
Source: OECD (iREG indicators)

The Swedish recovery and resilience plan aims to promote digitalisation in general and the digitalisation of public administration in particular. Alongside Denmark, Sweden has the highest proportion of individuals who use the internet to interact with public authorities within the EU-27. However, the e-government benchmark score is just above the EU27 average. The Swedish recovery and resilience plan includes investment in broadband deployment within the country and the creation of a single digital management system for the whole government. By ensuring that one management system is used by all authorities, Sweden aims to simplify public engagement with the government, improve transparency and deliver a higher quality of services.

The capacity and quality of the Swedish civil service remains high. Civil servants are highly educated and are strongly encouraged to develop themselves during their career. Sweden is among the best performing countries on gender parity in senior civil service management positions. However, the proportion of public sector workers between 55 and 74 is above that of the EU-27.

([39]) Worldwide governance indicators, 2020.

([40]) Riksdag, Making laws, https://www.riksdagen.se/en/how-the-riksdag-works/what-does-the-riksdag-do/makes-laws/

([41]) OECD, Sweden: Indicators of regulatory policy and governance 2021, 2021.

([42]) Rule of law report visits to Sweden 2022.

Table A11.1:**Public administration indicators – Sweden**

SE	Indicator (1)	2017	2018	2019	2020	2021	EU27
E-government							
1	Share of individuals who used internet within the last year to interact with public authorities (2)	87.0	90.0	88.0	88.0	93.0	70.8
2	2021 e-government benchmark 's overall score (3)	na	na	na	na	73.6	70.9
Open government and independent fiscal institutions							
3	2021 open data maturity index	na	na	na	na	83.9	81.1
4	Scope Index of Fiscal Institutions	42.9	42.9	42.9	42.9	na	56.8
Educational attainment level, adult learning, gender parity and ageing							
5	Share of public administration employees with tertiary education, levels 5-8 (4)	68.4	68.9	71.5	72.8	73.4	55.3
6	Participation rate of public administration employees in adult learning (4)	36.9	39.0	43.1	34.5	40.8	18.6
7	Gender parity in senior civil service positions (5)	6.0	8.6	0.6	0.6	2.2	21.8
8	Share of public sector workers between 55 and 74 years (4)	23.8	22.4	22.0	23.7	24.2	21.3
Public Financial Management							
9	Medium term budgetary framework index	0.80	0.80	0.80	0.70	na	0.72
10	Strength of fiscal rules index	1.3	1.3	1.8	1.8	na	1.5
11	Public procurement composite indicator	3.0	6.7	7.3	8.0	na	-0.7
Evidence-based policy making							
12	Index of regulatory policy and governance practices in the areas of stakeholder engagement, Regulatory Impact Assessment (RIA) and ex post evaluation of legislation	1.66	na	na	1.66	na	1.7

(1) High values stand for good performance barring indicators # 7 and 8. (2) Break in the series in 2018. (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) Break in the series in 2018 and in 2021.(5) Defined as the absolute value of the difference between the share of men and women in senior civil service positions.
Source: ICT use survey, Eurostat (# 1); E-government benchmark report (# 2); Open data maturity report (# 3); Fiscal governance database (# 4, 9, 10); Labour Force Survey, Eurostat (# 5, 6, 8), European Institute for Gender Equality (# 7), Single Market Scoreboard public procurement composite indicator (# 11); OECD indicators of regulatory policy and governance (# 12).

The justice system performs efficiently. The time needed to resolve administrative cases at first instance in 2020 was 107 days, remaining comparatively low. The clearance rate has improved for civil and commercial litigious cases (from 97.5% in 2019 to 102.8% in 2020) and for administrative cases in 2020 (from 101.7% in 2019 to 102.3% in 2020). The quality of the justice system is overall good: digital tools are broadly used in courts. As regards judicial independence, no systemic deficiencies have been reported. ([43])

([43]) For more detailed analysis of the performance of the justice system in Sweden, see the 2022 EU Justice Scoreboard (forthcoming) and the country chapter for Sweden in the Commission's 2022 Rule of Law Report (forthcoming).

ANNEX 12: EMPLOYMENT, SKILLS AND SOCIAL POLICY CHALLENGES IN LIGHT OF THE EUROPEAN PILLAR OF SOCIAL RIGHTS

The European Pillar of Social Rights provides the compass for upward convergence towards better working and living conditions in the EU. The implementation of its 20 principles on equal opportunities and access to the labour market, fair working conditions, social protection and inclusion, supported by the 2030 EU headline targets on employment, skills and poverty reduction, will strengthen the EU's drive towards a digital, green and fair transition. This Annex provides an overview of Sweden's progress in achieving the goals under the European Pillar of Social Rights.

Social Scoreboard for SWEDEN

Equal opportunities and access to the labour market	Early leavers from education and training (% of population aged 18-24) (2021)	8.4
	Individuals' level of digital skills (% of population 16-74) (2021)	67.0
	Youth NEET (% of total population aged 15-29) (2021)	6.0
	Gender employment gap (percentage points) (2021)	5.3
	Income quintile ratio (S80/S20) (2020)	4.1
Dynamic labour markets and fair working conditions	Employment rate (% population aged 20-64) (2021)	80.7
	Unemployment rate (% population aged 15-74) (2021)	8.8
	Long term unemployment (% population aged 15-74) (2021)	1.9
	GDHI per capita growth (2008=100) (2020)	118.6
Social protection and indusion	At risk of poverty or social exclusion (in %) (2020)	17.7
	At risk of poverty or social exclusion for children (in %) (2020)	20.2
	Impact of social transfers (other than pensions) on poverty reduction (% reduction of AROP) (2020)	42.7
	Disability employment gap (ratio) (2020)	28.9
	Housing cost overburden (% of population) (2020)	8.3
	Children aged less than 3 years in formal childcare (% of under 3-years-olds) (2020)	54.1
	Self-reported unmet need for medical care (% of population 16+) (2020)	1.5

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

Update of 29 April 2022. Members States are classified on the Social Scoreboard according to a statistical methodology agreed with the EMCO and SPC Committees. It looks jointly at levels and changes of the indicators in comparison with the respective EU averages and classifies Member States in seven categories. For methodological details, please consult the Joint Employment Report 2022. Due to changes in the definition of the individuals' level of digital skills in 2021, exceptionally only levels are used in the assessment of this indicator; NEET: neither in employment nor in education and training; GDHI: gross disposable household income.

The labour market in Sweden is recovering but important challenges remain in terms of long-term unemployment. The employment rate slightly fell after the crisis, but remains among the highest in the EU at 81.3% (Q4 2021). There has been an increase in the unemployment rate of 1.9 percentage points (pps), from 7.4% in Q1-2020 to 9.3% in Q3-2020 before the unemployment levelled off and declined to 8.4% in Q4-2021. Long-term unemployment increased marginally, from 1.8% in Q1-2020 to 1.9% in Q4-2021. Even before the crisis, Sweden faced challenges in terms of integrating people with low levels of skills and those born outside Sweden, in particular women into the labour market. In Q3-2021, the unemployment rate of people with low levels of skills was 28.1% compared to 4.3% of the high-skilled, while unemployment of those born outside the EU stood at 22.5%, against 5% of those born in Sweden. The recovery and resilience plan (RRP) has measures towards addressing these challenges by investing in more places for students in vocational education in combination with courses in Swedish for immigrants. The pandemic disproportionately affected the employment participation of people with disabilities, as the disability employment gap increased by 4 pps from 2019 to reach 28.9% in 2020. EU cohesion policy funds will, among other things, support measures to facilitate upskilling and reskilling employed and unemployed people.

Educational inequalities persist, as do skills mismatches on the labour market. The proportion of early leavers from education and training is below the EU average but increased in 2020 and is significantly higher for those born outside the EU compared to those born in Sweden (16.3% vs 6.3% in 2021). Teacher shortages are a long-standing issue in Sweden (see Annex 13 for further analysis on bottlenecks for teachers and general education). The employment rate of recent higher education graduates is high (at 90.8% in 2020, above the EU average of 83.7%). Recorded 'participation in adult learning over the preceding four weeks' is high based on the latest available data for 2020 (28.6% vs 9.2% in the EU). Sweden nonetheless experiences a persistent skills mismatch, with a lack of highly skilled workers. The Swedish Public Employment Service predicts that the shortage of skilled labour will continue to be a significant obstacle to growth over the next 5 years. Reskilling and upskilling the workforce is key for Sweden to address the skills mismatch, thus helping it reach the 2030 EU headline targets on skills and employment.

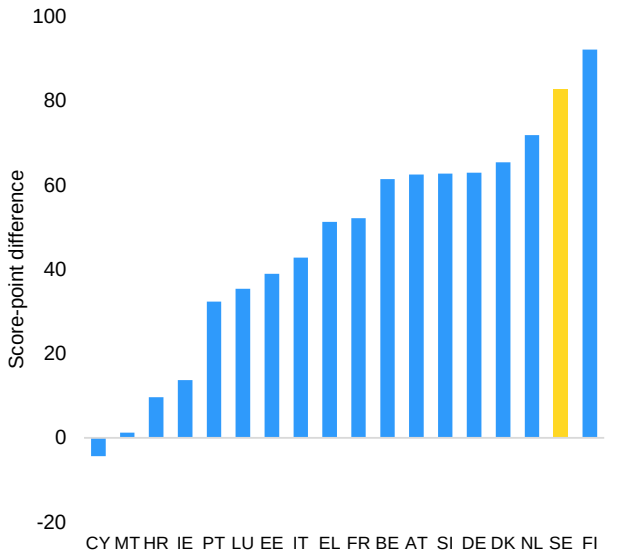
Despite a slight decline in 2020, Sweden has seen increasing income inequality in recent years. The income of the richest 20% of the population was more than four times higher than that of the poorest 20% in 2020, having increased from more than three times higher in 2005, albeit with a slight decline recorded in 2020. This is, however, better than the EU average (4.12 for Sweden compared to an EU average of 5.24). The at-risk-of-poverty or social exclusion rate (AROPE) has been relatively stable in Sweden over the last decade. However, it reached a new high of 18.4% in 2019, before falling to 17.7% in 2020. A 29.4 pps difference was recorded in 2019 between the AROPE rates of those born in Sweden and those born outside the EU (a rate of 11.9% for those born in Sweden vs 41.3% for those born outside the EU, above the EU average of 38.1%). Children have a higher AROPE rate than adults, and children born outside the EU are more than three times as likely to be at risk of poverty compared to children born in Sweden. The AROPE of people with disabilities is almost double compared to those without disabilities (29% vs 15.7% in 2020), and slightly exceeds the EU average. Housing shortages have been widespread in recent years and led to a lack of affordable housing, in particular affecting young people and migrants. Strengthening the integration of people born outside the EU is key for Sweden to reach the 2030 EU headline target on poverty reduction. To foster equal opportunities and social inclusion, the European Social Fund Plus (ESF+) continues to support measures to strengthen the integration of those born outside Sweden in the labour market, particularly those having the largest difficulty in finding a job.

This Annex outlines the main challenges for Sweden's education and training system in light of the EU-level targets of the European Education Area strategic framework and other contextual indicators, based on the analysis from the 2021 Education and Training Monitor. While education outcomes in Sweden are better than the EU average, inequalities at all levels of education and a shortage of qualified teachers are important challenges.

Educational outcomes are good, but affected by inequalities, especially based on migrant background. Overall performance is better than the EU average and close to or above the EU level targets. However, participation in early childhood education is lower for children with migrant backgrounds and early school leaving is twice as frequent among foreign-born compared to people born in Sweden. While basic skills have improved overall, the gap in reading between students with a migrant background and students without such a background is one of the highest in the EU, both in mean scores (83 points - Figure 13.1) and in relation to underachievers (25.5 pps, and even 38.2 pps for pupils born abroad), and is growing. Disadvantaged and migrant pupils more frequently feel that they do not belong in school, and this further reduces their educational outcomes.

The pandemic risks increasing inequality. Schools had difficulty in providing pupils with individualised support, which may increase inequalities ([44]), although the government provided additional funding to address equity issues and reduce losses caused by the pandemic. General enrolment in higher education increased during the pandemic, but not for students from disadvantaged backgrounds, whose dropout rates increased during distance education.

Graph A13.1: **Gap in reading performance between native students and students with migrant background**



Source: OECD, PISA 2018

Inequalities in education are increasing and are often linked to school choice. The gap between schools with the highest and those with the lowest results is widening in 115 out of 188 municipalities, and the number of schools where many pupils are not eligible for upper secondary education has nearly doubled in 5 years ([45]). The results from the latest PISA-study show that pupils in private schools perform better on average. Pupils from public schools (12.4 pps gap) and from schools where many pupils repeat a year (8.7 pps gap vs EU 3.4 pps gap) more frequently leave school without a certificate. Pupils with migrant backgrounds generally go to public schools due to the private schools' enrolment process. The government is now proposing changes to remove obstacles for equal access for all pupils ([46]).

([44]) National Agency for Education (NAE), (2021). *Covid-19-pandemins påverkan på skolväsendet. Delredovisning 3* Skolverket, Stockholm. https://www.skolverket.se/publikationsserier/regeringsuppdrag/2021/covid-19-pandemins-paverkan-pa-skolvasendet-delredovisning-3

([45]) See Education and Training Monitor 2020, chapter on Sweden.

([46]) https://www.regeringen.se/pressmeddelanden/2022/02/regeringen-foreslar-andringar-i-skollagen-for-ett-mer-rattvist-skolval/.

Table A13.1:**EU-level targets and other contextual indicators under the European Education Area strategic framework**

Indicator			Target	2015 Sweden	2015 EU27	2021 Sweden	2021 EU27
Participation in early childhood education (age 3+)			**96%**	**94.1%**	**91.9%**	**95.6%** 2019	**92.8%** 2019
Low achieving 15-year-olds in:		**Reading**	**< 15%**	**18.4%**	**20.4%**	**18.4%** 2018	**22.5%** 2018
		Mathematics	**< 15%**	**20.8%**	**22.2%**	**18.8%** 2018	**22.9%** 2018
		Science	**< 15%**	**21.6%**	**21.1%**	**19.0%** 2018	**22.3%** 2018
Early leavers from education and training (age 18-24)	**Total**		**< 9 %**	**7.0%**	**11.0%**	**8.4%**	**9.7%**
	By gender	*Men*		7.6%	12.5%	10.2%	11.4%
		Women		6.4%	9.4%	6.5%	7.9%
	By degree of urbanisation	*Cities*		6.4%	9.6%	5.8%	8.7%
		Rural areas		8.2%	12.2%	11.0%	10.0%
	By country of birth	*Native*		5.9%	10.0%	6.3%	8.5%
		EU-born		11.6%	20.7%	: u	21.4%
		Non EU-born		14.3%	23.4%	16.3% u	21.6%
Tertiary educational attainment (age 25-34)	**Total**		**45%**	**46.5%**	**36.5%**	**49.3%**	**41.2%**
	By gender	*Men*		38.9%	31.2%	40.9%	35.7%
		Women		54.5%	41.8%	58.2%	46.8%
	By degree of urbanisation	*Cities*		56.8%	46.2%	62.2%	51.4%
		Rural areas		31.1%	26.9%	30.7%	29.6%
	By country of birth	*Native*		47.2%	37.7%	50.8%	42.1%
		EU-born		59.9%	32.7%	69.9%	40.7%
		Non EU-born		41.4%	27.0%	39.5%	34.7%
Share of school teachers (ISCED 1-3) who are 50 years or over				**39.3%**	**38.3%**	**38.6%** 2019	**38.9%** 2019

The 2018 EU average on PISA reading performance does not include ES; u = low reliability, : = not available; Data is not yet available for the remaining EU-level targets under the European Education Area strategic framework, covering underachievement in digital skills, exposure of vocational educational training graduates to work based learning and participation of adults in learning.

Source: Eurostat (UOE, LFS), OECD (PISA)

Teacher shortages remain a significant challenge. Staff shortages reported in PISA are above the OECD average, and more pronounced in disadvantaged schools (40% vs 20%). It is projected that by 2035 there will be a shortage of 12 000 teachers (5.6% of the relevant teacher population in 2020), which means that annually 800 more teachers need to acquire qualifications than is currently the case ([47]), despite many initiatives to increase the number of qualified teachers. Participation in the formal qualification programme is far lower than the EU average (5.1%; EU-22 14.7%). The shortage of teachers is significant in the three largest cities. Relative to the teacher population, the shortage is worst in Gotland, Uppsala and Västmanlands län. Some schools in rural areas of northern Sweden have no certified subject teacher. This shortage of teachers might be further aggravated by workload-related stress during the pandemic (reported by 78% of teachers in ECEC and schools) ([48]), and an elevated infection risk for teachers in compulsory schooling and in ECEC, which did not transition to distance teaching but continued face-to-face teaching during the pandemic ([49]).

([47]) https://www.skolverket.se/skolutveckling/forskning-och-utvarderingar/skolverkets-utvarderingar-och-rapporter/prognos-over-behovet-av-larare-och-forskollarare

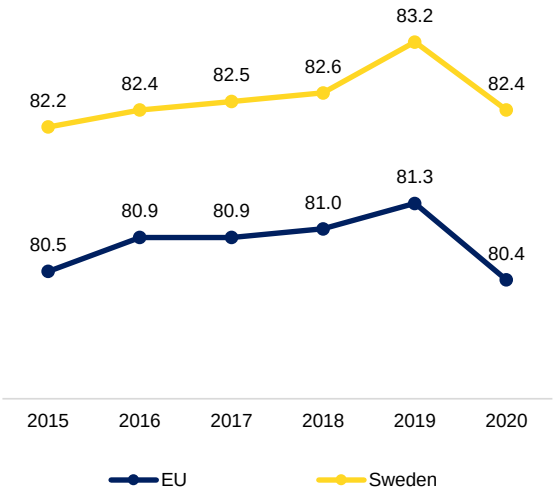
([48]) Lärarförbundet, (2020b). "Läget är katastrofalt, pressat och ohållbart." - Lärarnas syn på hur det fungerar att arbeta under covid-19. Lärarförbundet, Stockholm. https://res.cloudinary.com/lararforbundet/image/upload/v1604063733/b3fb4e66eab617072acab1dafa2643f5/La_get_ar_katastrofalt_pressat_och_oha_llbart.pdf.

([49]) Coronakommissionen (2021) Sverige under pandemin. Volym 1. Smittspridning och smittskydd.. SOU 2021:89. Stockholm. Statens offentliga utredningar. https://coronakommissionen.com/wp-content/uploads/2021/10/sverige-under-pandemin-volym-1_webb.pdf, pp. 84-85.

Especially relevant in light of the ongoing COVID-19 pandemic, resilient healthcare is a prerequisite for a sustainable economy and society. This Annex provides a snapshot of the healthcare sector in Sweden.

Life expectancy in Sweden is higher than in the EU as a whole, but fell in 2020 by almost 10 months due to COVID-19. As of 17 April 2022, Sweden reported 1.81 cumulative COVID-19 deaths per 1 000 inhabitants and 242 confirmed cumulative COVID-19 cases per 1 000 inhabitants. Sweden had low rates of mortality from preventable and treatable causes in 2018, pointing to an overall effective health system.

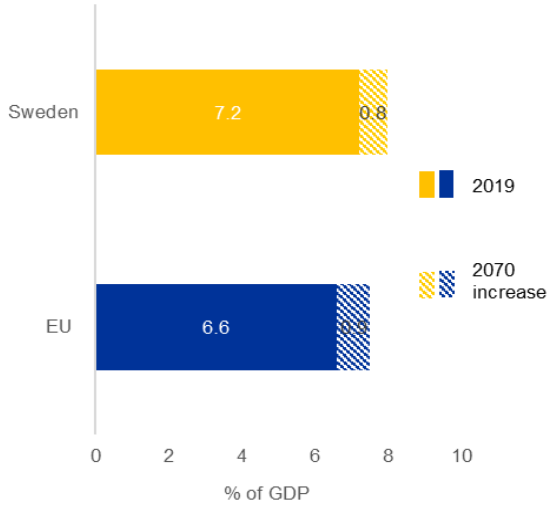
Graph A14.1: **Life expectancy at birth, years**



Source: Eurostat database

Health spending relative to GDP in Sweden was the third highest in the EU in 2019. Most health spending is publicly funded (85%). The growth rate in health spending was relatively modest in the years prior to the pandemic, but the government increased spending on health in response to COVID-19. Public expenditure on health is projected to increase by 0.8 percentage points (pp) of GDP by 2070, slightly below the 0.9 pp increase for the EU.

Graph A14.2: **Projected increase in public expenditure on health care over 2019-2070 (reference scenario)**



Source: European Commission/EPC (2021)

Waiting times for health services are a longstanding issue, although reported unmet needs for medical care are low (see also indicators on the unmet needs for medical from the Social Scoreboard in the Annex 12). Despite a commitment by the government to increase its efforts to reduce waiting times, a greater proportion of the population had to wait longer than 3 months to access specialists or interventions during the COVID-19 pandemic. The COVID-19 pandemic also highlighted the need for skilled nurses, particularly in elderly care settings. Swedish health care is expected to benefit from the RRP through training for elderly care providers, the increased number of study places in vocational education and training (Yrkesvux) with a focus on health and social care and the introduction of a protected title for assistant nurses. The government identified cancer care as a priority for new investment in 2019-2021. While the strategy has a strong focus on quality and equity in treatment, it also covers prevention and early detection. Further, Sweden's efforts towards a more rational use of antibiotics have effectively reduced consumption of antimicrobials over the years, to a level well below the EU average.

Table A14.1:**Key health indicators**

	2016	2017	2018	2019	2020	EU average (latest year)
Treatable mortality per 100 000 population (mortality avoidable through optimal quality healthcare)	67.6	66.6	65.6	60.2		92.1 (2017)
Cancer mortality per 100 000 population	229.4	229.6	221.3	216.7		252.5 (2017)
Current expenditure on health, % GDP	10.9	10.8	10.9	10.9		9.9 (2019)
Public share of health expenditure, % of current health expenditure	84.3	84.7	84.8	84.9		79.5 (2018)
Spending on prevention, % of current health expenditure	3.2	3.3	3.4	3.3		2.8 (2018)
Acute care beds per 100 000 population	215.3	203.6	196.3	190.5		387.4 (2019)
Doctors per 1 000 population *	4.2	4.3	4.3	0.0		3.8 (2018)
Nurses per 1 000 population *	10.9	10.9	10.9	0.0		8.2 (2018)
Consumption of antibacterials for systemic use in the community, daily defined dose per 1 000 inhabitants per day **	11.7	11.3	10.8	10.3	8.9	14.5 (2020)

Doctors' density data refer to practising doctors in all countries except FI, EL, PT (licensed to practice) and SK (professionally active). Nurses' density data refer to practising nurses in all countries (imputation from year 2014 for FI) except IE, FR, PT, SK (professionally active) and EL (nurses working in hospitals only). More information: https://ec.europa.eu/health/state-health-eu/country-health-profiles_en

Source: Eurostat, except: * Eurostat and OECD, ** ECDC.

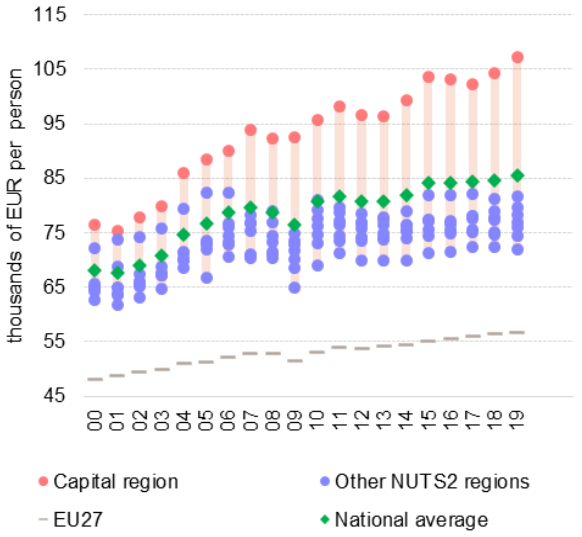
The regional dimension is an important factor when assessing economic and social developments in a Member State. Taking into account this dimension enables a well-calibrated and targeted policy response that fosters cohesion and ensures sustainable and resilient economic development across all regions.

Sweden's regions are performing well but regional disparities have increased slightly. In terms of GDP per head (purchasing power standards) in 2019, almost all of its NUTS2 regions were above or close to the EU average. The capital region of Stockholm performed strongly, at 166% of the EU average. North-Central Sweden, on the other hand, had the weakest performance at 94%. GDP per head growth was lower in the northern regions (Figure 15.1). Between 2010 and 2019, GDP per head growth rates was 0.6% per year in Central Norrland, 1.1% in North-Central Sweden and 1.2% in Upper Norrland while it was 1.7% in the Stockholm region and at least 1.3% in the rest of the country's regions.

The productivity gap between the most and the least productive region has increased over the past two decades (Graph 15.2), although labour productivity was higher than the EU average in all NUTS 2 regions in 2019. The capital region is a strong leader, while Småland and islands reaches 70% of Stockholm's performance. Factors causing low productivity are poor transport links, lower employment in knowledge-intensive sectors, suboptimal R&D expenditure, and lower levels of educational attainment ([50]).

Småland and islands is the third least accessible region by car, after Upper Norrland and North-Central Sweden. In addition, Småland and islands has the smallest percentage of individuals employed in knowledge-intensive services, at 48.3% of total employment. Employment in high-technology sectors is also much higher in the capital region where it employs 10.4% of the workers compared to 1.9% in North-Central Sweden and 2.5% in Småland and islands. Significant disparities are also observed in terms of educational attainment. While around 62% of the population of Stockholm has a tertiary education degree, only 42% do in Central Norrland and Upper Norrland.

Graph A15.1: **Changes to labour productivity across Swedish regions**

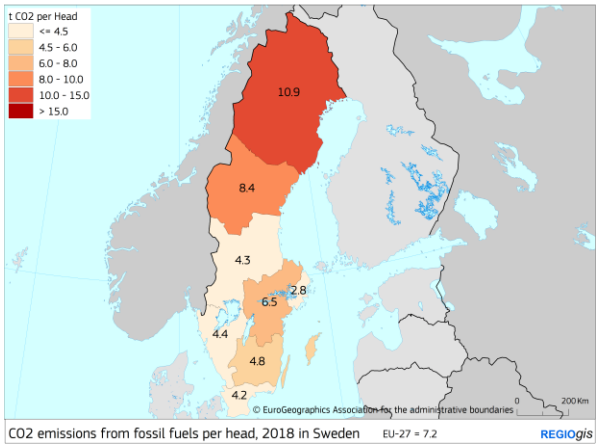


(1) Unit: real GVA in MM EUR (2015 prices) by employment in thousands of persons
(2) The light red circle shows the capital city region. The blue circles show the remaining NUTS2 regions. The green diamond shows the national average. The purple line shows the EU27 average.
Source: Eurostat

Most regions in Sweden have lower greenhouse gas emission intensity per capita than the EU average but the two northern sparsely populated areas, stand out. The areas face considerable challenges because of their greenhouse gas emission-intensive industries (steel, metal), for which the industries have developed roadmaps, setting out steps to reach carbon neutrality by 2045.

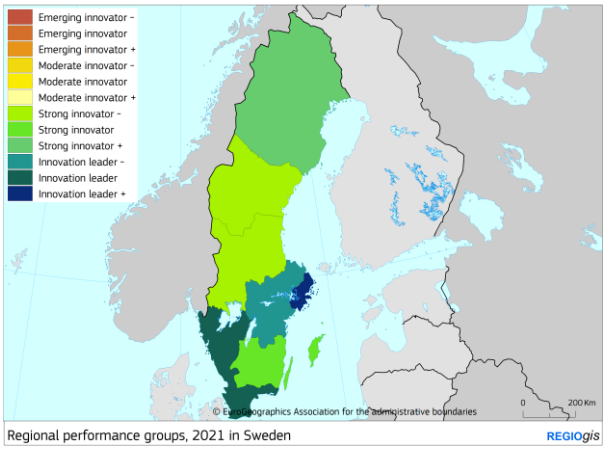
([50]) As identified by the OECD. See Regional differences in productivity in Sweden: insights from OECD Regions, ECO/WKP(2021)39.

Graph A15.2: **CO2 emissions from fossil fuels per head, 2018 in Sweden**



Source: European Commission

Graph A15.3: **Regional performance groups, 2021 in Sweden**

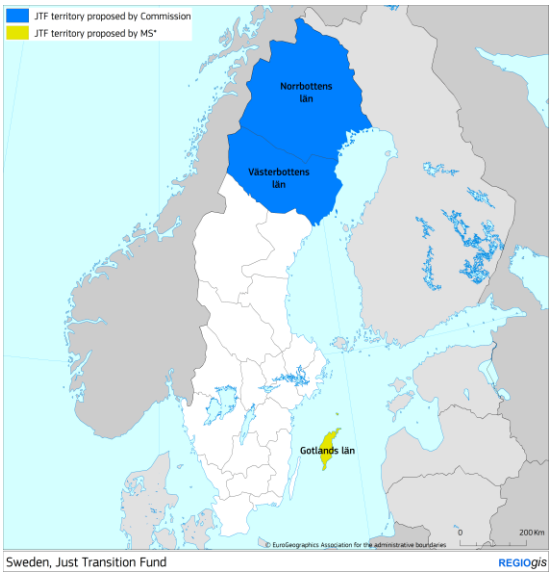


Source: European Commission

Gotland contributes to almost 5 % of the total greenhouse gas (GHG) emissions in Sweden, mainly from its mineral (cement) industry. Due to its relatively small population, it is the most emission-intensive region in Sweden and has the highest proportion of employment in ETS installations (at NUTS 3 level) in the EU (source: Eighth report on economic, social and territorial cohesion).

The steel, metal and cement industries in these regions account for a significant proportion of the GHG emissions in Sweden. Restructuring of the industrial processes, modernizing the regional economies and supporting the re- and upskilling of the workforce will be crucial to ensure sustainable competitiveness. By directing the EU Just Transition Fund towards the NSPAs and Gotland, there is a great potential to achieve emission reductions and maintain economic and employment levels.

Graph A15.4: **Territories most affected by the climate transition in Sweden**



*Gotland and Västra Götaland were proposed as additional territories by Sweden. Gotland has been provisionally agreed to by the Commission as an extension of the scope of the JTF
Source: European Commission

The population is growing in all Swedish regions, but at a much faster pace in the capital region. Between 2011 and 2019, Stockholm experienced a 15.6% increase in its population, while population growth was around 1.9% in Central Norrland, 2.7% in Upper Norrland and 3.7% in North-Central Sweden (3.7%). These three regions are least accessible regions in Sweden. While in the Stockholm region, 96.7% of the population living within 120km radius can be reached in less than 90 minutes, this ratio falls to 64% in Central Norrland and 55.5% in North-Central Sweden. Accessibility is also lower in Småland and islands, where this figure stood at 61.4% in 2018. A combination of these factors explains why Central Norrland, Upper Norrland and North-Central Sweden.also score the lowest on the Regional Competitiveness Index, all below 62, while the other regions in Sweden are above 80, and the Stockholm region is at 100.

Disparities across the country's labour markets increased during the COVID-19

Table A15.1:**Selected indicators at regional level – Sweden**

NUTS 2 Region	GDP per head (PPS)	Real productivity growth	GDP per head growth	Population growth	Population with high educational attainment	R&D expenditure	Transport performance by car	Regional Competitiveness Index	CO_2 emissions from fossil fuels per head	Innovation performance
	EU27=100, 2019	Avg % change on preceding year, 2010-2019	Avg % change on preceding year, 2010-2019	Total % change, 2011-2019	% of population aged 30-34, 2017-2019	% of GDP, 2017	% Pop. within a 1h30 travel / within 120 km radius, 2018	Range 0-100, 2019	tCO_2 equivalent, 2018	RIS regional performance group
European Union	100	1.00	1.39	1.8	39.4	2.19		57.3	7.2	
Sverige	119	1.12	1.50	9.6	51.9	3.32	80.0	81.3		
Stockholm	166	1.49	1.69	15.6	62.0	3.75	96.7	100.0	2.8	Leader innovator +
Östra Mellansverige	100	0.68	1.19	10.0	47.7	3.51	77.4	81.6	6.5	Leader innovator -
Småland med öarna	100	1.03	1.29	7.2	44.9	1.59	61.4	67.7	4.8	Strong innovator
Sydsverige	101	1.10	1.36	10.0	52.8	3.23	85.4	84.8	4.2	Leader innovator
Västsverige	115	1.05	1.57	9.5	50.2	4.83	85.0	81.4	4.4	Leader innovator
Norra Mellansverige	94	0.80	1.06	3.7	45.1	1.20	55.5	61.9	4.3	Strong innovator -
Mellersta Norrland	101	0.41	0.59	1.9	42.0	0.81	64.0	57.6	8.4	Strong innovator -
Övre Norrland	115	0.64	1.25	2.7	42.5	2.30	59.6	59.9	10.9	Strong innovator +

Source: Eurostat, *EDGAR Database

pandemic, with the unemployment rate in 2020 ranging from 6.3% in Upper Norrland to 10.5% in South Sweden. All regions in Sweden were affected by the COVID-19 pandemic, which contributed to an increase in unemployment across Sweden although not of the same magnitude across all regions. Northern regions were less affected than the other regions. From 2019 to 2020, the unemployment rate increased by 0.2 percentage points (pps) in Upper Norrland. On the other hand, the unemployment rate increased by 2.1 pps in East-Central Sweden, 1.4 pps in Småland and islands and 1.6 pps in South Sweden.

ANNEX 16: KEY FINANCIAL SECTOR DEVELOPMENTS

This Annex provides an overview of key developments in Sweden's financial sector. The Swedish banking system is large, concentrated, interconnected and uses global financial markets for its funding, which makes it sensitive to shocks. Despite a relatively high degree of capital market financing, compared to other EU countries, banks remain the most important financial intermediaries in Sweden. Banks' total assets amount to almost 300% of GDP ([51]), of which the five largest banks hold a share of 55%. To cover their funding gap, Swedish banks mostly rely on short-term foreign currency debt and on covered bond issuances backed by residential mortgages. This exposes banks to changes in the risk sentiment of the global financial markets and to liquidity shortages, which could lead to higher funding costs. Swedish banks also have large holdings of each other's covered bonds, which increases interconnectedness and entails significant contagion risks in the event of disruptions.

The Swedish banking sector features high profitability and strong capital and liquidity positions. Despite negative and low interest rates in recent years, bank profitability still ranks among the highest in Europe (return on equity of 10,1%). Most pandemic-related loan loss provisions have been reversed over the past 12 months, bolstering net profits. The non-performing loans ratio is among the lowest in the EU (0.9%). The capital adequacy ratio was 22.2% in 2021, above the capital requirements, which were adjusted in October 2020 in order to adapt to the EU's banking package and which also reflect the extension of the risk weight on residential mortgage exposures. However, the leverage ratio remains among the lowest in the EU. The comparatively low level of own funds indicates vulnerabilities. A sharp increase in deposits during the pandemic decreased the loan-to-deposit ratio to 145.5% but the inflow of deposits is expected to taper off as the economy normalises.

Some long-standing vulnerabilities have been exacerbated by the pandemic. The residential housing market functions poorly and the tax system is not well designed as regards limiting debt bias in taxation or from a financial stability perspective. Support measures have significantly driven up prices of both financial assets and real estate. As a result, households needed to take increasingly larger mortgages in 2021, further inflating household indebtedness, which continues to increase faster than disposable income and GDP. As regards macro-prudential measures, the countercyclical capital buffer will be increased to 1% as of 29 September 2022, after it had been reduced to zero in March 2020.

Risks also relate to the commercial real estate market. Commercial real estate companies continue to rely on both bank- and market-based financing and their debt levels are increasing in relation to their income. Given these increased vulnerabilities, banks need to hold sufficient capital buffers. Against this backdrop, in January 2020 the Swedish FSA imposed additional capital requirements on banks' exposures in lending to the commercial real estate sector.

Sweden has continued to strengthen its anti-money laundering and counter-terrorism financing (AML/CFT) framework. It has introduced or proposed a number of significant legislative reforms, including in the area of information exchange between the public and private sector. The budget, resources and tools available to its supervisory and other public authorities have been steadily increasing and their effective cooperation has been improved. The Financial Supervisory Authority intensified its supervision, making this more risk-based, which resulted, in the application of more targeted, appropriate and dissuasive sanctions where there was inadequate compliance with AML/CFT requirements.

([51]) This includes foreign banks' operations on the Swedish market.

Table A16.1:**Financial soundness indicators**

	2017	2018	2019	2020	2021
Total assets of the banking sector (% of GDP)	289.6	272.8	279.1	315.3	290.5
Share (total assets) of the five largest bank (%)	58.2	54.3	54.8	55.1	-
Share (total assets) of domestic credit institutions (%)1	92.7	77.7	79.1	78.7	80.2
Financial soundness indicators:1					
- non-performing loans (% of total loans)	1.3	1.0	1.1	1.0	0.9
- capital adequacy ratio (%)	25.9	20.7	21.6	22.3	22.2
- return on equity (%)	10.9	12.2	10.9	8.4	10.1
NFC credit growth (year-on-year % change)	5.7	6.1	3.6	4.0	6.8
HH credit growth (year-on-year % change)	7.0	5.5	5.1	5.6	6.8
Cost-to-income ratio (%)1	54.2	51.9	56.5	57.1	54.2
Loan-to-deposit ratio (%)1	172.7	190.7	187.9	163.2	146.5
Central bank liquidity as % of liabilities	0.0	0.0	0.0	1.2	-
Private sector debt (% of GDP)	198.6	201.0	203.8	215.6	-
Long-term interest rate spread versus Bund (basis points)	33.3	25.5	29.3	47.3	64.2
Market funding ratio (%)	61.3	61.2	61.9	61.2	-
Green bond issuance (bn EUR)	3.8	6.5	11.3	12.0	14.6

(1) Last data: Q3-2021.
Source: ECB, Eurostat, Refinitiv

The Macroeconomic Imbalance Procedure Assessment matrix presents the main elements of the in-depth review. It reports in accordance with Article 5 of Regulation (EU) No 1176/2011 on the prevention and correction of macroeconomic imbalances, as summarized in SWD (2022)639 ([52]). For Member States selected in the 2022 Alert Mechanism Report it presents, separately for each source of imbalance and adjustment issue, the main findings regarding the gravity and the evolution of the identified challenges, as well as policy response and gaps.

Sweden is characterised by vulnerabilities relating to high and rising house prices and high household indebtedness. As a consequence, Sweden is exposed to potential adverse shocks and a possible disorderly correction with harmful implications for the real economy and the banking sector and possible spill-over effects to countries with a strong presence of Swedish banks. Furthermore, fiscal incentives for housing loans imply foregone tax revenue and may divert investment in productive and innovative assets. Nominal household debt grew on average 5.7% between 2011 and 2020 and by 6.2% year-on-year in the first three quarters of 2021. Household debt is likely to continue increasing both in nominal terms and as a ratio to disposable income. After the correction and stabilisation over 2017-2019 house prices have accelerated in 2020 and 2021 and are set to increase further to above current levels that already appear significantly overvalued

House price growth is expected to slow down. The strong labour market and increasing household disposable income are expected to support house prices. However, this should be counteracted by the downward pressure that is expected to come from the already high valuations, construction at a pace above household formation and rising nominal interest rates that are quickly translated into rising mortgage rates due to the typically low interest fixation period of mortgages in Sweden. Higher interest rates will affect in particular first-time buyers as they have taken on high debt usually with variable interest rates to enter the housing market, lowering their ability to move up the property ladder. Moreover, for potential homeowners the entrance into the housing market will become even more costly.

Policy measures have still not sufficiently addressed household debt and house prices. The amortization requirement has been reinstated as of 1 September 2021. Irrespective of policy actions and the inquiries started, the overall policy framework still provides an incentive for debt accumulation feeding into house price increases. Policy gaps remain for housing-related taxation and for the functioning of housing supply and the rental market. The Swedish RRP contains three measures to ease building regulations, one investment measure for rental and student accommodation and a reduction of the capital gains tax in two steps.

For those reasons, and more generally on the basis of the elements of the in-depth review undertaken for Sweden under Regulation (EU) No 1176/2011 on the prevention and correction of macroeconomic imbalances as summarised in the Staff Working Document (SWD (2022)639 final), **the Commission has considered in its Communication "European Semester – 2022 Spring Package" (COM(2022)600 final) that Sweden continues to experience macroeconomic imbalances**.

([52]) European Commission (2022), COMMISSION STAFF WORKING DOCUMENT In-Depth Review for Sweden in accordance with Article 5 of Regulation (EU) No 1176/2011 on the prevention and correction of macroeconomic imbalances.

Table A17.1:**Assessment of Macroeconomic Imbalances matrix**

	Gravity of the challenge	Evolution and prospects	Policy response
	Imbalances (unsustainable trends, vulnerabilities and associated risks)		
Private debt	Sweden continues to have one of the highest levels of private debt in the EU, at 218% of GDP in 2021. High private indebtedness increases the vulnerability to macroeconomic shocks, as subsequent deleveraging may lead to large corrections in consumption and investment. Household debt is a particular concern; it stood at 187% of disposable income and 94% of GDP at the end of 2021 (24 percentage points above the Commission's prudential benchmark, and 15 percentage points above the fundamental benchmark). Households have good repayment ability and assets, but the distribution of debt and assets across age groups is uneven and a large part of household assets is exposed to liquidity and/or market risks.	Household debt grew at 6.4% year-on-year in 2021, somewhat higher than the average over the past decade. The Riksbank projects that household debt will return to the trend growth rate and reach almost 220% of disposable income in 2025. Interest payments have decreased over time as a share of disposable income, as the interest rate declined. Average interest rates on housing loans declined further in 2021 with households also extending the periods for which mortgage rates are fixed.	The amortization requirement has been reinstated as from 1 September 2021. The requirement had been suspended in response to the pandemic and the related economic crisis. Households have to amortize 3% annually of their debt if the LTV is above 70% (raised by 2%-pt if LTI is above 450%, 2% if the LTV is between 50 and 70% (raised by 1%-pt if LTI is above 450%) and by 1% if the LTV is below 50%. Policy gaps remain regarding the incentives to take on mortgage debt. The full and unconditional tax deductibility of mortgage interest payments and the low ceiling on recurrent property taxation have not been addressed.
	Non-financial corporate debt is relatively high compared to other EU countries, but it is matched by the high value of corporate assets and significant equity cushions. It mainly reflects a large share of international companies. Exposure to external financing is high. Commercial real estate companies are exposed to real estate price developments, have assumed more debt with a reduction in the number of large players implying also a concentration of financial risks.	The corporate debt-to-GDP ratio has started to rise again after a period of 'passive' deleveraging. The risk from commercial real estate has risen in 2021 as credit growth to the sector increased by over 10% on the year and the proportion of bank loans with elevated credit risk almost doubled from 2019 to 2020, reaching nearly 10%.	Finansinspektionen raised the capital requirements specifically for bank loans to commercial real estate in January 2020.
	Banks are well capitalised, non-performing loans remain among the lowest in the EU, and profitability is among the highest. These indicators somewhat mitigate, but do not fully offset, risks stemming from high private sector indebtedness. The reliance of Swedish banks on wholesale funding could amplify the impact of a sharp housing adjustment. The major banks' loan-to-deposit ratios remain among the highest and leverage ratios among the lowest in the EU. Swedish banks serve a large share of the market in the Nordic-Baltic region, thus representing a source of possible spillovers in the event of sudden deleveraging needs.	Banks continue to have a high exposure to the real estate market: mortgage loans to households and commercial real estate firms constitute almost 50 % of the banks' total domestic lending, 55 % of which is mortgage loans to households. Additional exposure to the commercial real estate market comes from lending to construction firms. Commercial real estate firms are increasingly funding themselves directly in the market, bringing in foreign funding. Although this puts part of the risk on non-bank and foreign investors, it also implies an increased overall leverage that increases the risks of the bank loans to commercial real estate firms.	The countercyclical capital buffer was lowered to 0% in response to the crisis. The buffer rate will be raised to 1.0% on 29 September 2022. The buffer stood at 2.5% until 16 March 2020. The application of the risk-weight floor for banks' Swedish mortgage exposures of 25% was extended on 17 December 2021 until 30 December 2023. The FSA recommended banks to be restrictive in using earnings for dividend pay-outs and share buybacks from December 2020 till September 2021.

(Continued on the next page)

Table (continued)

Housing sector	House prices have grown almost continuously since the second half of the 1990s. Following price declines in 2018, prices started to rise moderately till the end of 2020. Swedish house prices continue to appear significantly overvalued. Price-to-income and price-to-rent ratios were about 45-66 % above their long-term average as of 2021. A model-based estimate suggests prices are slightly above fundamentally justified levels, reflecting also low interest rates. These valuation gaps are among the highest in the EU. High house prices are driven predominantly by a combination of structural bottlenecks in housing supply, especially in the main urban areas, combined with a favourable tax treatment of home ownership and mortgage debt, as well as a regulated rental market (preventing an efficient allocation of the rental housing stock and limiting access to housing). Overvalued house prices combined with a large mortgage debt stock entail risks of a disorderly correction and adverse consequences for the real economy and potentially the banking sector.	House price growth accelerated during 2021, reaching nominal growth of 11.1% y-o-y in the fourth quarter. Real house prices stood 10% higher at the end of 2021 in comparison with the previous high reached in 2017 Q3. As a consequence, prices are increasingly out of line with fundamentals. Housing investment has recovered from the slump during and following the global financial and economic crisis. Construction permits were handed out between 2015 and 2021 at almost double the rate of 2009 – 2014. Even at this higher rate, new housing supply is still falling short of the current needs.	The authorities have taken several measures, however with only limited impact on the overall imbalances. Demand side measures are the temporary suspension of the amortisation requirement until September 2021, the raised ceiling on deferred capital gains from SEK 1.45 million to SEK 3 million in combination with the abolishment of interest payments on the amount of the capital gains deferred. These on balance supported price increases. Supply side measures taken have been the investment support for rental housing and housing for students, and amendments to the building and planning act to allow for a private right of initiative. Several inquiries have been launched with an aim to ease administrative procedures or to liberalise rent setting. However, planning and building regulations in combination with the approaches differing between municipalities, weak competition in the construction sector and the lack of actions to reform the rental market (liberalising rents in newly produced and existing rental real estate still stiffen the reaction of supply to increased demand. Public housing investments lag behind other housing investments with a declining proportion of public housing dwellings in overall housing stock as a consequence.

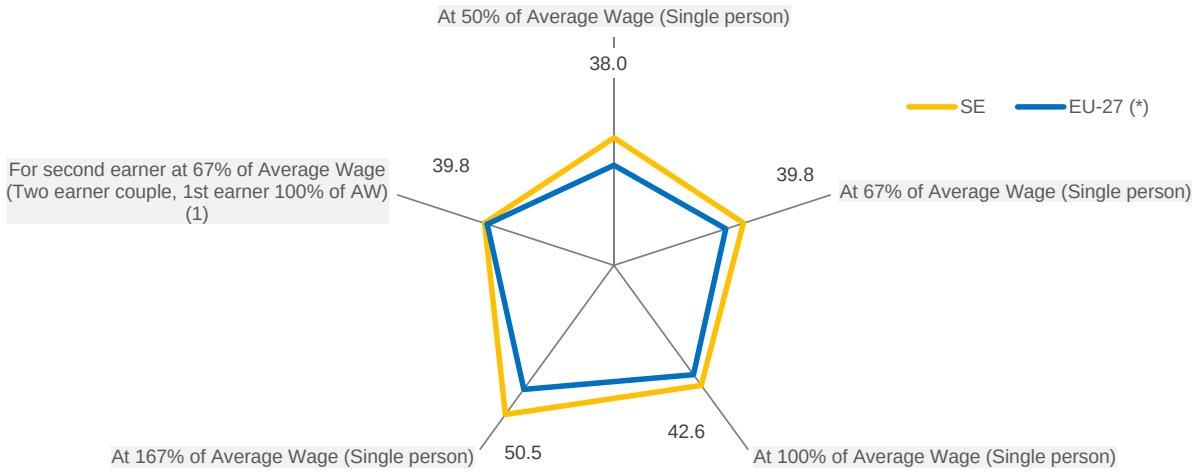
Source: European Commission

This Annex provides an indicator-based overview of the Sweden's tax system. It includes information on the tax structure, i.e. the types of tax that Sweden derives most revenue from, the tax burden for workers, and the progressivity and redistributive effect of the tax system. It also provides information on tax collection and compliance and on the risks of aggressive tax planning.

Sweden's tax revenues are high in relation to GDP, and the tax system relies heavily on labour taxation. In 2020, Sweden's labour tax revenues as a percentage of GDP were the highest among EU Member States and revenues from consumption taxes as a percentage of GDP were also above the EU aggregate. Revenues from capital taxes and environmental taxes were, however, below the EU aggregate. Moreover, revenues from recurrent taxes on immovable property, which are considered to be particularly conducive to economic growth, are low compared to other EU countries. Despite some minor reforms in 2021, only limited progress has been made on broader property tax reforms.

Sweden's labour tax burden is relatively high at different income levels. The tax wedge at lower income levels (for single earners at 50% and at 67% of the average wage) was relatively high in 2020, as was the tax wedge at the higher income level of 167% of the average wage. The wedge for the highest income percentile, however, was lower than in 2021. At the same time, the tax wedge at 100% of the average wage was a little below the EU average. Second earners at a wage level of 67% of the average wage, whose spouse earned the average wage, also faced a slightly higher tax wedge than the EU average, though they were – unlike in many other Member States – not taxed more heavily than single people at the same wage level. The Swedish tax benefit systems reduced income inequality, as measured by the GINI coefficient, by more than the EU average in 2020.

Graph A18.1: **Tax wedge indicators 2021**



The tax wedge measures the difference between the total labour cost of employing a worker and the worker's net earnings: sum of personal income taxes and employee and employer social security contributions, net of family allowances, expressed as a percentage of total labour costs (the sum of the gross wage and social security contributions paid by the employer). It is calculated for specific types of tax payers in terms of household composition and income level expressed as % of average wage. Data on tax wedges can be consulted in the 'Tax and benefit database' by ECFIN https://europa.eu/economy_finance/db_indicators/tab/.

(1) The second earner average tax wedge measures how much extra personal income tax plus employee and employer social security contributions (SSCs) the family will have to pay as a result of the second earner entering employment, as a proportion of the second earner's gross earnings plus the employer SSCs due on the second earner's income. For a more detailed discussion see OECD (2016), Taxing Wages 2016, OECD Publishing, Paris. http://dx.doi.org/10.1787/tax_wages-2016-en

(*) EU-27 simple average, as no aggregated EU-27 value.

Source: European Commission

Table A18.1:**Taxation indicators**

		Sweden					EU-27				
		2010	2018	2019	2020	2021	2010	2018	2019	2020	2021
Tax structure	Total taxes (including compulsory actual social contributions) (% of GDP)	42.9	43.8	42.8	42.9	43.2	37.9	40.1	39.9	40.1	
	Labour taxes (as % of GDP)	24.2	25.6	24.9	24.9		20.0	20.7	20.7	21.5	
	Consumption taxes (as % of GDP)	12.6	12.2	11.9	12.1		10.8	11.1	11.1	10.8	
	Capital taxes (as % of GDP)	6.1	6.0	6.0	5.8		7.1	8.2	8.1	7.9	
	Total property taxes (as % of GDP)	1.0	1.2	1.1	1.1		1.9	2.2	2.2	2.3	
	Recurrent taxes on immovable property (as % of GDP)	0.7	0.7	0.7	0.7		1.1	1.2	1.2	1.2	
	Environmental taxes as % of GDP	2.7	2.1	2.1	2.0		2.4	2.4	2.4	2.2	
Progressivity & fairness	Tax wedge at 50% of Average Wage (Single person) (*)	39.0	39.4	38.8	38.9	38.0	33.9	32.4	32.0	31.5	31.9
	Tax wedge at 100% of Average Wage (Single person) (*)	42.8	43.0	42.6	42.7	42.6	41.0	40.2	40.1	39.9	39.7
	Corporate Income Tax - Effective Average Tax rates (1) (*)		21.0	20.4	20.4			19.8	19.5	19.3	
	Difference in GINI coefficient before and after taxes and cash social transfers (pensions excluded from social transfers)	7.8	9.8	9.7	9.7		8.4	7.9	7.4	8.3	
Tax administration & compliance	Outstanding tax arrears: Total year-end tax debt (including debt considered not collectable) / total revenue (in %) (*)		0.2	0.1				31.9	31.8		
	VAT Gap (% of VTTL)		3.3	1.4				11.2	10.5		
Financial Activity Risk	Dividends, Interests and Royalties (paid and received) as a share of GDP (%)		9.7	10.7	9.2			10.7	10.5		
	FDI flows through SPEs (Special Purpose Entities), % of total FDI flows (in and out)		5.1	5.0	4.8			47.8	46.2	36.7	

For more data on tax revenues as well as the methodology applied see European Commission, Directorate-General for Taxation and Customs Union, Taxation trends in the European Union: data for the EU Member States, Iceland, Norway and United Kingdom: 2021 edition, Publications Office, 2021, https://data.europa.eu/doi/10.2778/843047 and the 'Data on Taxation' webpage (data https://ec.europa.eu/taxation_customs/taxation-1/economic-analysis-taxation/data-taxation_en). For more details on VAT GAP see European Commission, Directorate-General for Taxation and Customs Union, "VAT gap in the EU : report 2021", Publications Office, 2021, https://data.europa.eu/doi/10.2778/30877

(1) Forward-looking Effective Tax Rate (OECD).

(*) EU-27 simple average as there is no aggregated EU-27 value.

Source: European Commission and OECD

In terms of tax compliance and administration, Sweden is a top performer in the EU. With outstanding tax arrears at 0.1% of total tax revenue in 2019, Sweden is significantly below the EU average of 31.8%. Further, the 'VAT gap',, an indicator of the effectiveness of VAT enforcement and compliance, at 1.4% in 2019 was significantly below that of the EU average of 10.5%. As part of the Swedish RRP, the government intends to strengthen anti-money laundering rules, including by giving tax authorities access to information on holders of accounts and deposit boxes held by financial undertakings.

Table A19.1:**Key economic and financial indicators**

	2004-07	2008-12	2013-18	2019	2020	2021	2022	2023
Real GDP (y-o-y)	3.8	0.7	2.5	2.0	-2.9	4.8	2.3	1.4
Potential growth (y-o-y)	2.7	1.7	2.1	2.0	1.7	1.9	1.7	1.7
Private consumption (y-o-y)	3.3	1.7	2.6	0.7	-4.7	5.8	3.2	1.5
Public consumption (y-o-y)	0.5	1.4	1.6	0.3	-1.3	2.8	0.8	-3.0
Gross fixed capital formation (y-o-y)	6.9	-0.5	4.0	-0.3	-0.3	6.1	2.0	2.5
Exports of goods and services (y-o-y)	7.7	0.8	3.3	6.0	-4.6	7.5	4.1	3.1
Imports of goods and services (y-o-y)	7.5	1.2	4.2	2.1	-5.6	9.4	4.5	1.8
Contribution to GDP growth:								
Domestic demand (y-o-y)	3.2	1.0	2.6	0.3	-2.5	4.8	2.1	0.6
Inventories (y-o-y)	0.1	-0.1	0.2	-0.1	-0.7	0.4	0.1	0.1
Net exports (y-o-y)	0.5	-0.1	-0.2	1.8	0.2	-0.4	0.0	0.7
Contribution to potential GDP growth:								
Total Labour (hours) (y-o-y)	0.6	0.7	0.8	0.6	0.4	0.5	0.4	0.5
Capital accumulation (y-o-y)	0.7	0.6	0.7	0.8	0.7	0.8	0.8	0.8
Total factor productivity (y-o-y)	1.4	0.4	0.5	0.7	0.6	0.6	0.5	0.5
Output gap	1.6	-1.6	-0.3	0.4	-4.2	-1.4	-0.8	-1.2
Unemployment rate	6.9	7.9	7.4	7.0	8.5	8.8	7.8	7.0
GDP deflator (y-o-y)	1.4	1.7	1.8	2.5	1.8	3.0	4.3	3.9
Harmonised index of consumer prices (HICP, y-o-y)	1.3	1.9	1.1	1.7	0.7	2.7	5.3	3.0
Nominal compensation per employee (y-o-y)	4.0	3.0	2.6	3.0	2.5	4.3	2.7	3.7
Labour productivity (real, hours worked, y-o-y)	2.4	0.1	0.9	2.3	0.3	2.2	0.3	0.1
Unit labour costs (ULC, whole economy, y-o-y)	1.1	2.8	1.7	1.5	4.3	0.8	2.6	3.2
Real unit labour costs (y-o-y)	-0.3	1.0	-0.1	-1.0	2.5	-2.1	-1.6	-0.7
Real effective exchange rate (ULC, y-o-y)	-0.3	1.2	-1.5	-4.9	.	.	.	.
Real effective exchange rate (HICP, y-o-y)	-0.8	0.0	-2.1	-3.8	3.0	3.0	.	.
Net savings rate of households (net saving as percentage of net disposable income)	4.7	10.4	13.1	15.7	18.0	16.9	.	.
Private credit flow, consolidated (% of GDP)	12.7	7.8	7.9	10.0	12.6	16.9	.	.
Private sector debt, consolidated (% of GDP)	153.3	190.5	194.0	198.7	212.5	218.0	.	.
of which household debt, consolidated (% of GDP)	61.3	75.1	84.5	88.5	94.6	93.7	.	.
of which non-financial corporate debt, consolidated (% of GDP)	92.1	115.4	109.5	110.2	117.9	124.3	.	.
Gross non-performing debt (% of total debt instruments and total loans and advances) (2)	.	.	1.0	0.9	0.8	.	.	.
Corporations, net lending (+) or net borrowing (-) (% of GDP)	4.3	2.1	-2.0	-1.9	1.1	-0.8	0.5	1.3
Corporations, gross operating surplus (% of GDP)	25.4	24.5	24.2	24.4	24.5	24.8	25.6	26.2
Households, net lending (+) or net borrowing (-) (% of GDP)	0.5	3.9	5.2	6.5	7.6	6.7	4.9	4.1
Deflated house price index (y-o-y)	10.1	1.5	5.5	0.4	3.0	.	.	.
Residential investment (% of GDP)	3.9	3.7	4.8	4.7	5.0	5.3	.	.
Current account balance (% of GDP), balance of payments	7.1	6.1	3.5	5.5	6.1	5.5	4.9	5.8
Trade balance (% of GDP), balance of payments	6.7	5.2	3.5	4.4	4.7	4.4	.	.
Terms of trade of goods and services (y-o-y)	-0.4	-0.1	-0.2	0.4	0.8	0.7	-1.2	0.5
Capital account balance (% of GDP)	-0.2	-0.2	-0.1	0.0	0.1	0.2	.	.
Net international investment position (% of GDP)	-11.8	-8.9	-3.9	16.2	14.1	17.8	.	.
NENDI - NIIP excluding non-defaultable instruments (% of GDP) (1)	-21.4	-22.1	-17.0	-8.1	-6.4	-5.6	.	.
IIP liabilities excluding non-defaultable instruments (% of GDP) (1)	122.5	153.3	161.2	145.5	144.6	151.2	.	.
Export performance vs. advanced countries (% change over 5 years)	6.5	-5.8	-9.1	-4.4	5.0	.	.	.
Export market share, goods and services (y-o-y)	-0.7	-4.3	-1.3	3.0	5.4	-2.3	-0.5	-1.1
Net FDI flows (% of GDP)	2.3	2.5	1.5	1.3	0.9	-1.1	.	.
General government balance (% of GDP)	1.9	-0.1	0.1	0.6	-2.7	-0.2	-0.5	0.5
Structural budget balance (% of GDP)	.	.	0.2	0.4	-0.4	0.5	0.0	1.2
General government gross debt (% of GDP)	44.9	38.2	41.8	34.9	39.6	36.7	33.8	30.5

(1) NIIP excluding direct investment and portfolio equity shares

(2) Domestic banking groups and stand-alone banks, EU and non-EU foreign-controlled subsidiaries and EU and non-EU foreign-controlled branches.

Source: Eurostat and ECB as of 2 May 2022, where available; European Commission for forecast figures (Spring forecast 2022)

This annex assesses fiscal sustainability risks for Sweden over the short, medium and long term. It follows the same multi-dimensional approach as the 2021 Fiscal Sustainability Report, updated on the basis of the Commission 2022 spring forecast.

Table 1 presents the baseline debt projections. It shows the projected government debt and its breakdown into the primary balance, the snowball effect (the combined impact of interest payments and nominal GDP growth on the debt dynamics) and the stock-flow adjustment. These projections assume that no new fiscal policy measures are taken after 2023, and include the expected positive impact of investments under Next Generation EU.

Graph 1 shows four alternative scenarios around the baseline, to illustrate the impact of changes in assumptions. The 'historical SPB' scenario assumes that the structural primary balance (SPB) gradually returns to its past average level. In the 'lower SPB' scenario, the SPB is permanently weaker than in the baseline. The 'adverse interest-growth rate' scenario assumes a less favourable snowball effect than in the baseline. In the 'financial stress' scenario, the country temporarily faces higher market interest rates in 2022.

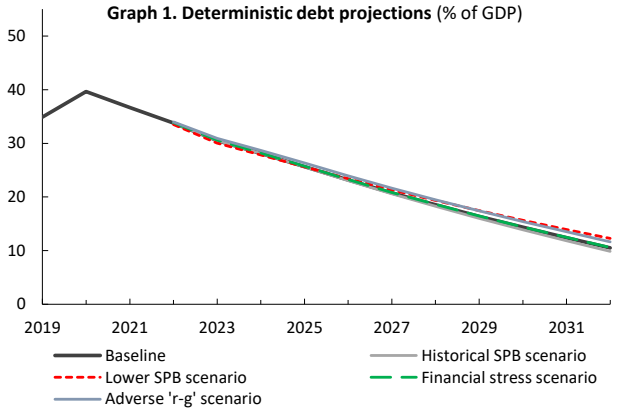
Graph 2 shows the outcome of the stochastic projections. These projections show the impact on debt of 2 000 different shocks affecting the government's budgetary position, economic growth, interest rates and exchange rates. The cone covers 80% of all the simulated debt paths, therefore excluding tail events.

Table 2 shows the S1 and S2 fiscal sustainability indicators and their main drivers. S1 measures the consolidation effort needed to bring debt to 60% of GDP in 15 years. S2 measures the consolidation effort required to stabilise debt over an infinite horizon. The *initial budgetary position* measures the effort required to cover future interest payments, the *ageing costs* component accounts for the need to absorb the projected change in ageing-related public expenditure such as pensions, health care and

Table A20.1:**Debt sustainability analysis for Sweden**

Table 1. Baseline debt projections	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Gross debt ratio (% of GDP)	**34.9**	**39.6**	**36.7**	**33.8**	**30.5**	**28.1**	**25.7**	**23.2**	**20.8**	**18.5**	**16.4**	**14.4**	**12.4**	**10.5**
Change in debt	-4.0	4.7	-3.0	-2.9	-3.2	-2.4	-2.5	-2.5	-2.4	-2.2	-2.1	-2.0	-2.0	-1.9
of which														
Primary deficit	*-1.0*	*2.4*	*0.0*	*0.3*	*-0.7*	*-0.9*	*-1.1*	*-1.3*	*-1.4*	*-1.5*	*-1.5*	*-1.5*	*-1.5*	*-1.5*
Snowball effect	*-1.3*	*0.7*	*-2.7*	*-2.2*	*-1.5*	*-1.5*	*-1.4*	*-1.2*	*-1.0*	*-0.8*	*-0.7*	*-0.6*	*-0.5*	*-0.4*
Stock-flow adjustment	*-1.7*	*1.6*	*-0.3*	*-1.1*	*-1.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Gross financing needs (% of GDP)	5.6	12.7	7.1	5.8	4.3	3.6	2.7	1.6	0.6	-0.4	-0.8	-0.9	-0.9	-1.0

Graph 1. Deterministic debt projections (% of GDP)



Graph 2. Stochastic debt projections (% of GDP)

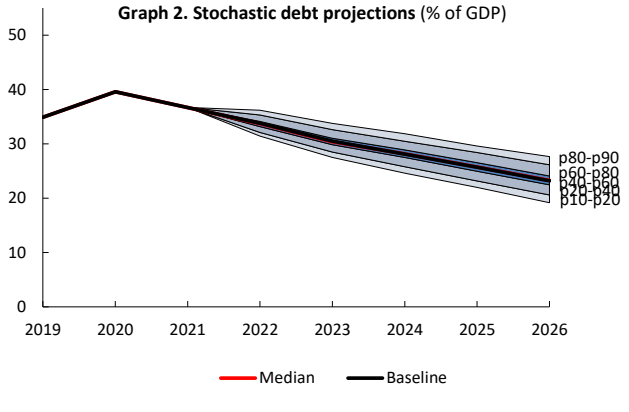


Table 2. Breakdown of the S1 and S2 sustainability gap indicators

		S1	S2
Overall index (pps. of GDP)		**-5.7**	**0.9**
of which			
Initial budgetary position		-3.3	-1.1
Debt requirement		-2.4	
Ageing costs		0.0	2.1
of which	*Pensions*	*-0.4*	*-0.1*
	Health care	*0.2*	*0.7*
	Long-term care	*0.4*	*1.9*
	Others	*-0.3*	*-0.4*

Source: European Commission

long-term care, and the *debt requirement* measures the additional adjustment needed to reach the 60% of GDP debt target.

Finally, the heat map presents the overall fiscal sustainability risk classification (Table A20.2). The *short-term risk category* is based on the S0 indicator, an early-detection indicator of fiscal stress in the upcoming year. The *medium-term risk category* is derived from the debt sustainability analysis (DSA) and the S1 indicator. The DSA assesses risks to sustainability based on several criteria: the projected debt level in 10 years' time, the debt trajectory ('peak year'), the plausibility of fiscal assumptions and room for tighter positions if needed ('fiscal consolidation space'), the probability of debt not stabilising in the next 5 years and the size of uncertainty. The *long-term risk category* is based on the S2 indicator and the DSA.

Overall, short-term risks to fiscal sustainability are low. The Commission's early-detection indicator (S0) does not signal short-term fiscal risks (Table A20.2).

Medium-term risks to fiscal sustainability are low. Both elements of the Commission's medium-term analysis lead to this conclusion. First, the debt sustainability analysis (DSA) shows that government debt is projected to continue falling significantly from about 34% of GDP in 2022 to around 11% of GDP in 2032 in the baseline (Table 1). This debt path is rather robust to possible shocks to fiscal, macroeconomic and financial variables, as illustrated by alternative scenarios and stochastic simulations, all pointing to low risks (Tables A20.1 and A20.2). Moreover, the sustainability gap indicator S1 (at -5.7 pps. of GDP) signals that the country has significant room to reduce its primary surplus, without breaching the 60% of GDP reference target (Table 2). Overall, the low risk reflects the current surplus and low debt.

Long-term risks to fiscal sustainability are low. Over the long term, both the sustainability gap indicator S2 (at 0.9 pps. of GDP) and the DSA point to low risks. The S2 indicator suggests that public long-term care costs would have a significant upward impact (Table 2).

Table A20.2:**Heat map of fiscal sustainability risks for Sweden**

Short term	Medium term									Long term	
				Debt sustainability analysis (DSA)							
					Deterministic scenarios						
Overall (S0)	Overall (S1+DSA)	S1	Overall		Baseline	Historical SPB	Lower SPB	Adverse 'r-g'	Financial stress	Stochastic projections	S2	Overall (S2+DSA)
LOW	LOW	LOW	LOW	Overall	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
				Debt level (2032), % GDP	11	10	12	12	11			
				Debt peak year	2021	2021	2021	2021	2021			
				Fiscal consolidation space	60%	60%	66%	60%	60%			
				Probability of debt ratio exceeding in 2026 its 2021 level						0%		
				Difference between 90th and 10th percentiles (pps. GDP)						9		

(1) *Debt level* in 2032: 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 the debt ratio exceeding in 2026 its 2021 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 2000 different shocks. Green, yellow and red cells indicate increasing uncertainty.
Source: European Commission