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COMMISSION STAFF WORKING DOCUMENT

2023 Country Report - Spain

Accompanying the document

Recommendation for a COUNCIL RECOMMENDATION

on the 2023 National Reform Programme of Spain and delivering a Council opinion on the 2023 Stability Programme of Spain

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European Commission

Spain

2023 Country Report

ECONOMIC AND EMPLOYMENT SNAPSHOT

Spain faces a more demanding scenario with increased resilience

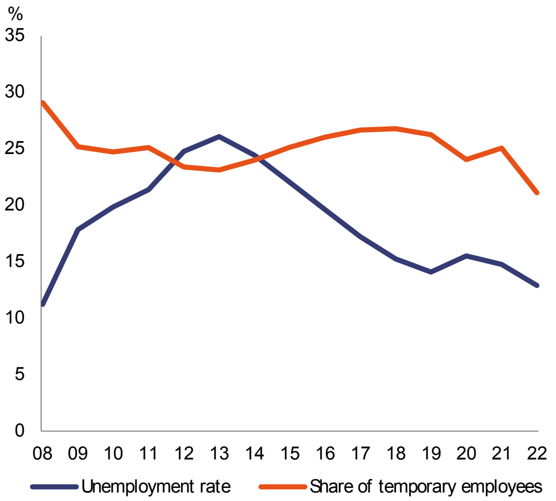
Spain weathered well the effects of the Russian war of aggression against Ukraine. Real GDP grew by 5.5% last year mainly driven by external demand, including a significant rebound in international tourism, and by the dynamism of private consumption (see Annex 20). The latter was supported by a resilient labour market and fiscal support measures. However, the loss of purchasing power, the tightening of financial conditions, and economic uncertainty all took a heavy toll on private expenditure during the second half of the year, with vulnerable and low-income households being particularly affected.

The labour market remained remarkably resilient. Employment grew last year by 3.1% to above pre-pandemic levels, reaching close to 70% of working age population but still below the EU average. Following the 2021 labour market reform, the number of temporary employees has fallen steadily in the private sector amid continued job creation (see Graph 1.1). The unemployment rate declined further to 12.9%, which is the lowest rate since 2008. However, it remains almost double the EU average, with structural pockets of vulnerability, including very high long-term and youth unemployment and still a high share of fixed-term contracts in the public sector (see Annex 14).

Moderate nominal wage growth coupled with high inflation led to a decline in real wages. Nominal wage growth per head [1] remained moderate in 2022 (2.9%), well below inflation, resulting in a substantial decline in real terms (-5%).

The energy shock was mainly channelled through import prices. Despite low direct exposure to supply disruptions, Spain has a large external dependence on international markets (see Annex 7). The surge in energy prices contributed to push up HICP inflation, which peaked in the summer and averaged 8.3% in 2022 (see Graph 1.2). Generally, inflation eased down in the second half of last year on the back of lower energy inflation and limited second-round effects from wages. However, the pass-through to goods and services accelerated, particularly to food products and hospitality, leading to higher prices for consumers.

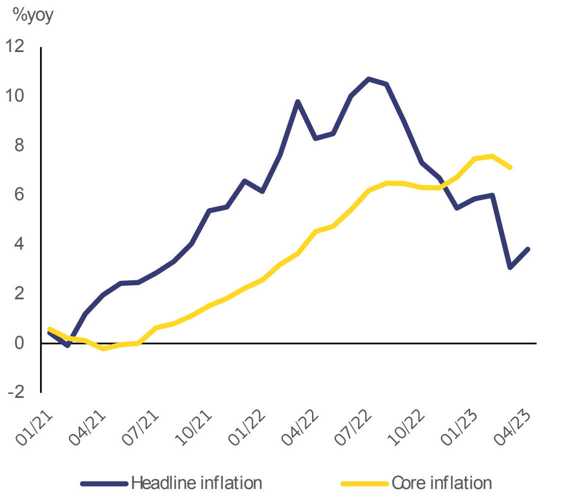
Graph 1.1: **Unemployment rate (% of labour force) and share of temporary employees (% of total employees) (2008-2022)**



Source: INE, own calculations.

(1) Wages and salaries over total full-time equivalent employees.

Graph 1.2: **HICP headline and core inflation (% y-o-y rate) (2021-2023)**



(1) Core inflation: excluding energy and unprocessed food
Source: Eurostat, own calculations.

Competitiveness showed resilience to the energy shock. Terms of trade deteriorated significantly in 2022, but labour productivity gains and moderate wage increases helped to maintain cost competitiveness, while unit profits recovered strongly. Export performance was very positive, supported by the recovery of international tourism, contributing to Spain regaining global market shares (see Annex 20).

The fiscal deficit continued to decline despite significant measures to reduce the impact of energy prices. The cost of government measures to mitigate the impact of the energy shock in 2022 is estimated at 1.6% of GDP, of which only 0.5% of GDP accounted for targeted measures to vulnerable firms and households (see Box 1). The double-digit increase in tax revenues has offset the impact of these measures and helped to reduce the fiscal deficit from 6.9% of GDP in 2021 to 4.8% in 2022. The debt ratio also decreased from 118.3% of GDP in 2021 to 113.2% in 2022 supported by strong nominal GDP growth. (see Annex 20).

The economy is projected to expand by 1.9% in 2023. Downside risks to the outlook are the impact of prolonged tightening of financial conditions and the materialisation of further disruption on the energy markets. GDP is expected to gradually pick up over this year, sustained by stronger private consumption and further normalisation of tourism. The implementation of the recovery and resilience plan (see Annex 3) and cohesion policy programmes (see Annex 4) are also set to boost investment growth. Moderate job creation will support further reductions in the unemployment rate to 12.7% in 2023 (see Annex 20).

Annual headline inflation is set to gradually ease and reach 4% in 2023. Lower inflation is expected on the back of the expected further moderation of energy prices. In turn, core inflation is projected to stay at high levels over the forecast horizon.

Nominal wage growth per head is expected to accelerate in 2023 up to 3.9%, marginally below inflation. The government increased the minimum wage by 8% for 2023, up to gross EUR 1 080 per month (14 instalments per year). In the public sector, the budget set a 2.5% wage increase for 2023; this could be increased by 1 percentage point depending on inflation and nominal GDP developments. Going forward, the multi-year wage agreement reached within the social dialogue process will contribute to limiting second-round effects and mitigating the inflation-driven loss in purchasing power, while ensuring competitiveness is protected.

Macroeconomic vulnerabilities related to high private, government and external debt are receding but remain present.([2]) Favoured by high nominal GDP growth, strong export performance, and labour market resilience, private, public and external debt ratios declined in 2022. Yet, they remain at still elevated levels (see Annex 22). The reduction of public and private indebtedness is expected to slow down this year given the worse economic outlook and the tightening of financial conditions (see Annex 18). Further

([2]) European Commission (2023), In-Depth Review for Spain, Commission staff working document (COM(2023) 632 final).

reductions in external debt will also remain conditional on energy market developments, including potential new disruptions of energy supplies.

Macro socio-economic and environmental challenges remain

Further efforts are needed to consolidate progress towards the UN's Sustainable Development Goals (SDGs) (see Annex 1). Spain has improved particularly in gender equality, quality of education, and climate action. However, it still needs to catch up with the EU average on several SDGs, particularly on no poverty, decent work and economic growth, and reduced inequalities. Moreover, Spain is falling back from the target on sustainable cities and communities.

The green transition requires continued policy action (see Annexes 6 to 8). To transform the economy under the European Green Deal, Spain needs significant investments and further reforms to improve energy efficiency and decarbonisation, and clean and sustainable mobility, to scale up manufacturing of clean technologies, and water and waste management, and to support the reskilling and upskilling of the workforce. Improvements in permitting for grid infrastructure would help untap the full potential of renewable energy.

Structural factors keep hampering productivity growth (see Annexes 9 to 13). Weak productivity performance has, over the last decade, further widened the gap with EU peers. This has been driven, among other factors, by low private R&D expenditure and shortfalls in the business environment, including market fragmentation, size-dependent regulation, and concerns on legislation quality. Digital skills are improving, but other significant shortages and mismatches persist, including in green and innovation skills.

The energy crisis heightened social challenges (see Annexes 14 to 17). Rising inflation and decreasing housing affordability – particularly challenging in the rental sector of urban areas-disproportionately affected vulnerable households. Measures mitigating the impact on energy poverty were mostly untargeted and therefore fiscally costly. These shocks have aggravated structural challenges identified by the social scoreboard under the European Pillar of Social Rights. Transfers continue to have limited effects on income inequality and poverty reduction – child poverty in particular - which remain comparatively high and have worsened compared with pre-pandemic levels. Regional disparities remain wide, including in areas like innovation and educational outcomes, with some geographical areas further stressed by demographic and climate challenges.

Growth-enhancing policies are needed to complement fiscal consolidation (see Annexes 18 to 22). The effects of population ageing, particularly affecting health and pension expenditure, will pose an increasing challenge to ensuring public debt sustainability. Keeping the momentum for tax reforms is also needed to ensure that the recent increase in tax revenues becomes permanent. Targeted investments and growth-enhancing reforms would support medium-term fiscal adjustment, and would contribute to reducing high private debt levels and improving external competitiveness.

Full implementation of policy measures will contribute to addressing the remaining challenges (see Annexes 2 to 5). Spain needs to advance on its country-specific recommendations, making use of the potential of the RRF funds and other available EU funds, notably cohesion policy funds, to reduce vulnerabilities and increase resilience capacities.

Box 1: Energy policy response in Spain

Spain adopted various support measures to mitigate the impact of energy price inflation on households and businesses. For 2023, the Commission 2023 spring forecast projects its gross budgetary costs to amount to 0.6 % of GDP (3). Most measures do not preserve the price signal and are untargeted. Most measures will be in place until 31 December 2023.

In 2022, the government successively extended reduction of VAT on electricity (from 21% to 10%, and then to 5% since September), the reduction of the special tax on electricity (from 5.5% to 0.5%) and the suspension of the tax on the value of electricity production; these have been in place since 2021. The reduction of VAT was extended to gas as from October 2022. The energy social voucher has become more generous, including higher discounts in electricity bills and higher subsidies for heating. In 2023, this measure was enhanced by a lump sum subsidy of EUR 200 for low-income households. The generalised vehicle fuel rebate of 20 cents per litre, which was in place between April and December 2022, has been substituted in 2023 by a more targeted support to road and maritime transport and to agriculture and fishing sectors. Other measures include price discounts for using public transport and allowing collective heating systems to benefit from regulated gas tariffs.

The cost of these measures will be partly offset by measures related to the temporary solidarity contribution by energy producers, credit institutions and wealthier taxpayers, which will be in place until the end of 2024.

Spain also introduced the 'Iberian mechanism'. The measure covers part of the fuel costs of gas and coal-fired power plants with the aim of reducing wholesale and retail electricity prices. It is financed by the 'congestion income' obtained by the Spanish transmission system operator as a result of cross-border electricity trade between France and Spain, and by a charge imposed by Spain and Portugal on certain buyers in the Iberian wholesale electricity market.

Spain applies a national measure in application of Council Regulation (EU) 2022/1854: a 1.2% tax rate on 2022 and 2023 net turnover applies to petroleum, gas and electricity firms when their turnover exceeds EUR 1 bn (4).

Spain also took measures to increase energy savings. Royal Decree-Law 14/2022 laid down provisions to promote energy savings and efficiency by ruling out heating or cooling buildings and premises: i) above 19 degrees (for heating), below 27 degrees (for cooling); ii) irrespective of the energy source; and iii) with an obligation to have doors that close automatically (to prevent energy waste). In addition, Royal Decree-Law 18/2022 and the 'Plan Más Seguridad Energética' (+SE), approved in October 2022, include 73 energy security measures, also with regard to savings and efficiency.

(3) For 2022, gross budgetary costs of measures amounted to 1.6% of GDP. Some of the measures outlined in this box were already in place in 2022.

(4) Member States can keep national measures that are equivalent to the solidarity contribution regulated in Council Regulation (EU) 2022/1854 provided they are compatible with the objectives of the regulation and generate higher or comparable proceeds. These measures must also cover the extraordinary and unexpected profits of businesses active in the extraction of crude petroleum, natural gas, coal, and refinery sectors.

THE RECOVERY AND RESILIENCE PLAN IS UNDERWAY

Progress on the recovery and resilience plan in 2022

Spain's recovery and resilience plan (RRP) aims to address the key challenges related to the green transition, the digital transition and to economic and social resilience. It consists of 102 reforms and 112 investments that are supported by EUR 69.5 bn in grants, representing 6.5% of GDP (see Annex 3 for more details). RRP measures implemented so far include labour market reforms, a first set of pension reforms, modernisation of the Tax Administration Agency and tax fraud prevention, approval of the Public Health Strategy, and a review of the Insolvency Law, the Science, Technology and Innovation Law, the law on Telecommunications, the law on integrated Vocational Training System and the general law on Audio-visual Communication. Based on data published by the Spanish authorities, the investments supported by the RRP are well under way, and 78% of the more than EUR 50 bn budgeted in 2021 and 2022 had been committed by the end of 2022. EUR 19.6 bn was transferred to regions to implement investments under the RRP. Box 1 contains a summary of key deliverables in 2023 and 2024.

The implementation of Spain's recovery and resilience plan has so far been well underway, however it is facing some challenges going forward. Spain submitted 3 payment requests, corresponding to 121 milestones and targets in the plan and resulting in an overall disbursement of EUR 28 bn. While Spain has been among the Member States most advanced in the implementation of the plan, it is now expecting to revise it to more than double its size. This should be accompanied by sufficient administrative capacity as to ensure the effective and efficient absorption of the recovery and resilience and other EU and national available funds. In particular, Spain has expressed its intention to request EUR 84 bn in loans and will benefit from a higher RRP grant allocation. The revised plan will also include a REPowerEU chapter, to be funded at least partially by the additional REPowerEU grants. The following, more detailed review of measures being implemented under the RRP in no way implies formal Commission approval or rejection of any payment requests.

Supporting the green transition

Reforms have been approved to pave the way for higher shares of renewable energy sources. Spain launched calls for applications to support both renewable energy facilities integrated in buildings and production processes, and also renewable energy communities. The framework for regulatory sandboxes provides for a test environment that will allow electricity market participants to get regulatory exemptions to test innovative solutions in the energy sector. Spain also adopted a system of guarantees of origin to verify the origin of gases claiming to be renewable, including hydrogen. The REPowerEU initiative provides a unique opportunity to scale up and support energy-related measures to further enhance Spain's decarbonisation objectives.

Spain adopted a new framework for a methodical development of mobility. A strategy was approved to increase the security and sustainability of the mobility network. This will be through better protection of people and goods, and prioritising daily mobility, economic and social equity, energy efficiency and the fight against climate change. Furthermore, the strategy includes measures to enhance the connectivity of the transport system, including multimodal connectivity, by means of digitalising the network and technological progress. Spain has also taken important steps on electromobility, notably by strengthening the operational and regulatory framework. This will facilitate the deployment of recharging infrastructure to boost the use of electric vehicles, including the obligation for installation of charging points in car parks attached to residential and non-residential buildings.

Adopted reforms provide support for energy-efficient renovations. Spain put in place aid programmes and tax incentives for energy efficiency renovations and extended the coverage of one-stop shops for renovation across different regions and levels of government. The regulatory framework was also approved to build at least 20 000 energy-efficient dwellings for social rent or at affordable prices. These measures are expected to contribute to achieving National Energy and Climate Plan (NECP) targets.

Spain took steps towards a circular economy. Under the Strategic Projects for Economic Recovery and Transformation (*PERTEs*), the project on the circular economy will invest over EUR 492 million by 2026 in improving circular economy in industrial sectors and in three key sectors: plastics, textile, and goods for renewable energy. Spain also introduced taxes on single-use plastic packaging and the deposit of waste in landfill, incineration, and co-incineration plants, as well as revision of the tax on fluorinated gases.

Measures were adopted to advance on water management reforms. New technical standards for the safety of dams and their reservoirs were approved and the national plan for wastewater, sanitation, water efficiency, savings, reuse and infrastructure safety (*Plan DSEAR*) was adopted.

Reinforcing economic and social resilience

Spain approved reforms broadening education opportunities and supporting higher employability. The new Vocational and Education Training System, approved in 2022, aims to increase the attractiveness of vocational and education training programmes and improve employability of low-skilled adults. The newly adopted curricula for compulsory education and the baccalaureate introduce a flexible and open model that provides guidance and advice to favour student progress, also taking account of special learning needs. Reforms are being complemented by investments supporting an inclusive digital transformation of education and the reskilling of workers affected by the transition to a low carbon economy.

The labour market reform approved in December 2021 is helping to reduce temporary employment in the private sector. Streamlining of the range of contracts included stricter rules for hiring on a temporary basis and reinforcement of the open-ended contract for discontinuous activities (*fijos-discontinuos*). New contracts signed during 2022 point to a widespread reduction in the share of fixed-term contracts, falling overall to 62% from 90% in 2019 (the year before the COVID-19 pandemic). As for temporary employees in the private sector their share fell to 14.8% in Q4-2022, down from 23.9% one year before. The reform package also included a permanent mechanism to adjust to cyclical and structural shocks (*Mecanismo RED*), which was activated in 2022 for workers in travel agencies.

Spain adopted measures to strengthen social services and inclusion policies. An in-depth evaluation was undertaken to understand the progress of the long-term care reform process initiated in 2020, and its impacts. The reception system for migrants and applicants for international protection was reformed to improve its capacity and efficiency, adjusting it to existing and estimated future needs.

Measures were adopted to strengthen the healthcare system. An investment plan was approved to renew obsolete hospital equipment with new high-tech medical devices (*Plan INVEAT*), including redressing regional imbalances in infrastructure. Spain also approved the action plan for improving primary care and the public health strategy, which will help to strengthen healthcare across the country.

Closing the productivity gap and supporting the digital transition

Spain approved reforms to improve educational outcomes and provide appropriate skills. The new Vocational and Education Training System aims to address skills shortages and mismatches, to better adapt to the future needs of the economy, including the twin transitions. The new curricula for compulsory education and the baccalaureate introduce a competence-based model that promotes deep learning and aims to improve educational outcomes. Reforms are being complemented by investments in providing digital training to teaching staff, and supplying devices and improved school connectivity for learning.

The newly approved Science Law aims to improve the performance of the research and innovation system. The reform improves the governance and coordination of the Science, Technology and Innovation Information System. The new framework provides for progress in the scientific career, helps knowledge transfer of scientific research to applied products and services, includes a framework for regulatory sandboxes to R&I projects and facilitates investments. Complementary R&I plans provide for strategic investment with regions, enhancing knowledge generation, technological innovation and territorial cohesion in the sector. Furthermore, the RRP is deploying R&I investments in strategic sectors such as sustainable automotive.

Spain adopted reforms to streamline the business environment. Spain approved the reform of the insolvency framework, making it more efficient and establishing a dedicated electronic procedure for micro-enterprises to reduce the cost and duration of insolvency procedures. The new framework is expected to support the reduction of high levels of private debt. A new legislative framework contributes to reducing barriers and removes requirements for access to the professional practice of lawyers and *procuradores*. The Telecommunications Law also cuts red tape for high-capacity network deployment.

Relevant measures were approved to improve digitalisation. Spain approved a new Telecommunications Law that will facilitate the deployment of high-capacity networks. As part of the RRP, other important reforms have been adopted, like the Law on 5G cybersecurity and the assignment of the 26 GHz band for 5G. These measures will further strengthen connectivity and notably accelerate 5G deployment.

Reinforcing fiscal sustainability and reducing macroeconomic imbalances

Spain approved a first set of reforms for the pension system. A new revaluation mechanism was introduced to maintain the purchasing power of pensions, while new economic incentives target a better alignment of the effective and the legal retirement age. Spain reformed the social security contribution system for the self-employed to equalise the treatment of workers and the self-employed, and to increase contributions to the pension system. The regulatory framework for the supplementary pension system was also revised to cover workers without occupational pension schemes in their companies, and self-employed who do not have access to these second-pillar schemes.

Fight against tax fraud and evasion was stepped up. The measures included setting stricter rules for cash payments, lowering the threshold for publishing the names of people with tax arrears, banning software that can be used to commit tax fraud ("dual-use software"), and introducing a reference value for the tax base in property taxation. Spain also updated its list of non-cooperative jurisdictions for tax purposes. The Tax Administration Agency increased its staff and the number of tax investigations, and it improved IT systems facilitating the submission of personal and corporate tax declarations. The agency also took measures for a better use of taxpayer data received from abroad and to increase transparency among large corporate taxpayers.

Spain adopted measures to improve the quality of public spending. The first monitoring report was published on the implementation of recommendations included in spending review studies by the Independent Authority for Fiscal Responsibility (AIReF). These covered policy areas such as hospital pharmaceutical products and equipment, support to business competitiveness, university scholarships, R&D support systems, active labour market policies, and postal services. More than half of nearly 300 recommendations by AIReF have been addressed according to the latest monitoring report. Spain approved the policy areas for the spending review studies that will be carried out in 2022-2026. A report assessing the alignment of spending policies with the UN's Sustainable Development Goals was also published.

Measures were adopted to strengthen the public procurement framework. Spain established the National Evaluation Office within the Independent Office for Regulation and Supervision of Public Procurement. It will assess the financial sustainability of concession contracts. On 1 April 2022, the National Evaluation Office published its first report regarding a municipal concession contract to deliver urban cleaning services.

Box 2: **Key deliverables expected under the recovery and resilience plan in 2023-2024**

- Entry into force of the Housing Law, including actions supporting the increase in housing supply in compliance with nearly zero-energy buildings
- Entry into force of the Water Law
- Entry into force of the Sustainable Mobility Law
- Entry into force of the law improving the efficiency of judicial procedures
- Approval of PERTE projects in three strategic areas, including electric vehicles
- Entry into force of the organic Law on the university system
- Entry into force of the amendment to the Employment Law
- Entry into force of the reform to simplify and increase the effectiveness of the recruitment incentive system, taking into account the recommendations issued by AIReF
- Entry into force of amendment of Royal Decree Law 8/2015 reforming the regulation of non-contributory unemployment support
- Entry into force of the tax reforms derived from the expert committee recommendations
- Entry into force of the regulatory reforms needed to implement the working group's recommendations to modify or abolish 15 tax benefits
- Updated projections showing how the pension reforms undertaken in 2021 and 2022 ensure long-term fiscal sustainability

Source: CID Annex.

FURTHER PRIORITIES AHEAD

Beyond those tackled in the recovery and resilience plan (RRP), Spain faces additional challenges. In the current uncertain geopolitical context, accelerating the green transition will continue to be a key priority. In addition, further progress is required on fiscal sustainability, tackling structural barriers to business growth and productivity, addressing key social issues, such as housing affordability and child poverty, the correction of macroeconomic imbalances, and the circular economy. Addressing these challenges will also help make further progress in achieving the SDGs where Spain currently shows room for further improvement, namely those relating to poverty (SDG 1), inequalities (SDG 10), housing (SDG 11), clean water and sanitation (SDG 6) and sustainability of public finances (SDG 17).

Ensuring the sustainability of public finances

A credible consolidation path remains critical to ensure fiscal sustainability and that expectations are met. Fiscal sustainability continues to be challenged by the high level of public debt and the unfavourable initial budgetary position. These challenges become more crucial in the current uncertain geopolitical and financial environment. While government revenues have recently evolved better than expected, the structural nature of part of these developments remain uncertain. Spain has also legislated several measures to cushion the impact of high energy prices, but these need to be further targeted to vulnerable households and firms. Credible medium-term fiscal consolidation plans are necessary. Implementing effective and broad reforms of taxation and continuously monitoring the sustainability of the pension system remain important priorities. Targeted investments and growth-enhancing reforms would support medium-term fiscal adjustment and help to meet expectations in the long-term.

Revenue and expenditure measures become more urgent given an ageing population. Demographic developments are expected to lead to a significant increase in costs related to healthcare, long-term care, and pensions. Concerns on sustainability gaps over the medium and long-term will increase unless there are compensating measures on the revenue and expenditure side. In this regard, following expert recommendations, the tax reforms included in the RRP aim to make the system more effective, increasing revenue, supporting the green transition, and promoting fairness. On the expenditure side, spending reviews remain a key element to improve the quality and efficiency of public spending. This is particularly relevant for healthcare, to address regional access and quality disparities, and the significant investment needs in primary care. For pensions, the reforms included in the RRP need to be carefully designed and implemented as a consistent package; this is to ensure that they contribute positively to mitigating medium- and long-term risks while ensuring sufficient levels of pensions.

Accelerating the green transition

Despite low direct exposure to Russian fossil fuels, the surge in energy prices experienced in 2022 underlines the need for Spain to accelerate its transition towards clean energy. Despite the low direct exposure to Russian gas, businesses and consumers have been facing a high increase in energy prices in 2022. Public support measures implemented by the government have been mostly of an untargeted nature. As a result, some of them may be potentially limiting price signals to improve demand efficiency in the medium term. The 'Iberian mechanism' may also have a similar effect: while helping to curtail the increase in wholesale electricity prices, it also lessened incentives to reduce gas consumption in electricity generation. Despite these challenges, and others linked to droughts and the fall in hydropower generation, Spain's consumption of natural gas has dropped by 10.8% in the period August 2022-March 2023, compared with the average gas consumption over the same period in the last 5 years, above its 7% reduction target ([5]). While energy prices have decreased, uncertainty remains regarding next winter, which requires continued efforts to structurally reduce gas demand.

While Spain is progressing in deploying renewables, much more is needed. According to the projections supporting the Fit-for-55 package, Spain should aim to install 67 GW of wind power and 35 GW of solar power by 2030. Spain is one of the Member States with the highest installed capacity of wind and solar power, with approximately 49.8 GW ([6]). Some improvements to the permitting procedures, in particular for self-consumption, have helped to make further progress in deploying these technologies (Annexes 7 and 12). However, Spain has a large backlog of applications for new renewable energy plants. Measures to accelerate the deployment of renewable energy could include further streamlining and digitalising permitting procedures, allocating network capacity to projects faster and supporting the work of authorities in processing permits by ensuring appropriate skills and staffing in permitting authorities as well as by improving coordination among all levels of government.

In the context of the green transition, labour shortages in several key sectors have increased in recent years, linked to a lack of relevant skills. This is creating bottlenecks in the transition to a net-zero economy. In 2022, labour shortages were reported in Spain for several occupations that required specific skills or knowledge for the green transition, such as electronics engineering technicians ([7]). Upskilling and reskilling for the green transition, including for people most affected, and promoting inclusive labour markets are essential policy levers to accelerate the transition to net-zero and ensure its fairness (see Annex 8).

Network capacity constraints limit the further integration of renewables in the electricity grid. Spain is one of the countries with the highest shares of smart meters but additional investments in storage would be needed to integrate additional renewable electricity. Furthermore, its cross-border electricity interconnection level (5.4%) is still significantly below the interconnection targets for 2020 (10%) and 2030 (15%).

Further investment in energy-efficient housing would help alleviate affordability challenges. Significant loss in purchasing power, sustained growth in rental prices, and higher mortgage payments have all aggravated affordability problems, particularly for vulnerable households (see Annexes 1 and 14). Under the RRP, Spain has committed to deliver a new housing law and investments to provide energy-efficient affordable and social housing. Successfully delivering on these commitments becomes more relevant in the current context. Supply remains constrained under the very limited provision of affordable and social housing, which is significantly lower than the EU average. Spain's current national energy and climate plan envisages 1.2 million renovations of residential buildings by 2030, with the RRP covering around a third

(5) Spain has been granted a derogation therefore their target is 7% instead of 15%

(6) IRENA (2023), Renewable capacity statistics 2023.

(7) European Labour Authority (2023), EURES Report on labour shortages and surpluses 2022. Definitions of shortages differ across countries. Skills and knowledge requirements are based on the ESCO (European Skills Competences and Occupations) taxonomy of skills for the green transition.

of them. Deploying additional energy-efficient housing in areas with pronounced shortages and in a time of stressed markets, including through renovation and electrification, could help contain energy consumption and address the green transition, as well as support the vulnerable households that are more exposed to energy poverty (see Annex 6). Well-targeted social and affordable rental housing in cooperation with the private sector can help limit the fiscal impact.

Transport remains heavily reliant on oil fuels. The sector accounts for a large share of greenhouse gas emissions and contributes to air pollution, which is still above the EU average (see Annex 8). Insufficient infrastructure and access to public transport remains a concern in rural areas. Electro-mobility deployment is underdeveloped both from the supply and demand side. Measures included in the RRP have the potential to transform urban/metropolitan transport and strengthen the Trans-European Transport Network, helping to introduce new technologies in the sector.

Decoupling economic growth from resource use

Further measures are needed to meet the EU waste management targets. The circular economy strategy is due to further increase ambitions in waste management. In this regard, Spain's rate for recycling municipal waste falls below the 2020 EU target (36.7% vs 50%) and the Commission's Early Warning Report alerts that Spain is at risk of also missing the 2025 EU target. The share of waste being landfilled is also well above the EU average (52% vs 23%) and illegal landfilling has not been eradicated. In 2022, as part of the RRP, Spain approved the Law on waste and contaminated soils for a circular economy, which should help reduce landfill.

EU circular economy goals and water management also represent challenges for Spain. The EU's new circular economy action plan aims at doubling circular material use by 2030. However, Spain's circular use of material remains below the EU average (8% vs 11.7% in 2021). On the positive side, the target to reduce the consumption of resources by 30% has been met and the Spanish material footprint is lower than the EU average. However, there is scope for improvement on construction and demolition waste management. Furthermore, innovation and investment to promote the circular economy are key to ensuring greater resource efficiency. Spain suffers severely from water stress and water is becoming scarcer due to climate change. Challenges remain, especially in the areas of water governance, waterbody rehabilitation, and efficient use and management of water, including urban wastewater recovery through improved infrastructure and further promoting water reuse.

Addressing structural challenges to boost productivity

Productivity-enhancing reforms would ensure a further remediation of macroeconomic vulnerabilities. Besides the beneficial effect of strong nominal GDP growth since 2021, significant policy steps were taken across several areas, accelerating the deleveraging process in the private sector and supporting a reduction in the high level of unemployment (see Annex 22). Policy progress in the areas affected by vulnerabilities is being supported primarily by effectively implementing the RRP, given its wide-ranging reforms and investments covering the major vulnerabilities across diverse policy fields, and with investments in various cohesion policy programmes. However, further measures to boost the productivity and competitiveness of firms, and to address skills mismatches and shortages, would ensure a deleveraging trend in the private, public, and external sector.

Increasing R&D investment and stronger links with the scientific

ecosystem can boost the productivity of firms. Spain is one of the EU countries with the lowest investment in R&D (1.4% of GDP in 2021, compared with 2.2% in the EU). Business R&D is particularly low compared with the EU average (0.8% GDP vs 1.5% in the EU), indicating that the full potential of the private sector remains untapped (see Annex 11). Notwithstanding the measures taken as part of the RRP, further steps to improve the efficiency of public support for R&D and the quality of innovation output would be highly beneficial. Following OECD recommendations, science-business linkages could be further strengthened to support private innovation. This would include improving the governance of public research organisations towards a performance-based functioning and reinforcing the skills of technology transfer offices.

There is scope for further improving the business environment. Built upon the measures to support business creation and growth included in the RRP, a multiplicity of size-dependent regulation measures could be reviewed to improve capital and labour allocative efficiency. Measures hampering business growth include significant increases in labour, accounts and tax requirements when crossing certain employee or turnover thresholds (see Annex 12). The constitutional distribution of competence has increased the capacity of regional governments to adopt legislation over time. As part of the RRP, new tools have been introduced to improve coordination across public administrations, including an observatory of good regulation practices and the sectoral conference for improving the business environment. The RRP includes measures to foster an early payment culture in commercial transactions. The effect of these measures would be strengthened by a fully-fledged sanctioning system, for which a draft has remained under discussion in the Congress since 2020 and was only approved for the road transport sector in 2021.

Improving legislation quality and judicial efficiency would reduce economic distortions. These shortfalls particularly hamper business creation and growth, as well as entrepreneurship, investment rates and productivity (see Annex 13). The time to resolve civil and commercial cases remains long given the levels of judicial bottlenecks, particularly in the Supreme Court caused by the prolonged non-renewal of the Council of the Judiciary in charge of nominating top judges and protracted discussions on adapting the Council's appointment system in line with European Standards on judicial independence.

Skills shortages and mismatches need to be addressed to support economic growth and the twin transitions, and to reduce high unemployment. Further labour market reforms in the RRP, such as the new Employment Law, the review of hiring incentives, and the modernisation of Public Employment Services (PES), all have the potential to improve job-matching efficiency and address skill mismatches to a larger extent if there is agreement in the social dialogue process. This would eventually contribute to reducing high unemployment relative to the EU – particularly long-term and youth unemployment – and achieve Spain's 2030 national employment target of 76% of working age population (see Annex 14). Notwithstanding the relevant education reforms and investments included in the RRP and their expected positive effects on educational outcomes and skills, major gaps remain in the provision of the necessary skills to contribute to the green transition, information and communications technology (ICT) specialists, and science, technological, engineering and mathematics (STEM) graduates (see Annexes 8, 10 and 15). These challenges are particularly acute for small and medium-sized enterprises, which struggle to attract talent and are still far from reaching the Digital Decade targets.

Tackling social and cohesion challenges

The capacity of social transfers to reduce poverty and income inequality is improving but remains limited. Most of the support to households takes place via non-refundable fiscal transfers in the tax system, limiting the effectiveness in reducing poverty, particularly for families with children (see Annex 14). The tax reform included in the RRP, if ambitious, has the potential to have a positive impact on fiscal progressivity and to support vulnerable households and families with children. The minimum vital income included in the RRP sets the basis for the review of non-contributory financial benefits. The full and swift implementation of further measures, such as the integration pathways for beneficiaries, are expected to increase the take-up rate to its full potential, increasing the capacity to provide effective support to people at risk of poverty or social exclusion and contributing towards Spain's national target on the reduction of poverty by 2030.

Regional disparities remain wide, including in areas such as innovation and educational outcomes. Public investment with EU cohesion policy support is key to help regions in strengthening their competitive advantages and improving their access to European markets (see Annex 17). Some geographical areas are particularly stressed by demographic and climate challenges. The ageing of civil servants, staff shortages and the high share of temporary employees all merit continuous monitoring to guarantee the provision of basic public services benefiting social cohesion (see Annexes 15 and 16). This is particularly relevant for compulsory education and primary care.

KEY FINDINGS

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

- furthering the decarbonisation of the energy sector and promoting sustainable mobility;
- helping to mitigate the adverse effects of climate change;
- supporting the digital transition in public administration, industry and SMEs;
- investing in digital skills and training, artificial intelligence and cybersecurity;
- adopting labour market reforms to improve job quality and reduce structural unemployment;
- supporting the upskilling and reskilling of workers and improving employability;
- reinforcing economic and social resilience by fostering a reduction of early school leaving; and
- reforming the pension system to preserve its financial sustainability in the face of demographic challenges.

Spain should maintain the momentum in the steady implementation of its recovery and resilience plan and swiftly finalise the REPowerEU chapter with a view to rapidly starting its implementation. Continued sufficient administrative capacity should be ensured in view of the size of the plan.

Beyond the reforms and investments in the recovery and resilience plan, Spain would benefit from:

- ensuring public debt sustainability and meeting fiscal expectations given the demographic challenges and their effect on pension and healthcare expenditure;
- reducing reliance on fossil fuels, further accelerating the deployment of renewable energy, by continuing to streamline permitting procedures and improving access to the grid;
- supporting investments in storage, transmission, distribution and cross-border interconnections capacity for electricity;
- supporting availability of social and affordable energy-efficient housing, including through renovation, and accelerating the electrification of buildings and the penetration of electromobility;
- investing in recycling municipal waste and reusing materials, including water, and enhancing efforts on sustainable water management more broadly;
- improving the business environment and regulation to support productivity and business growth, including by reducing late payments;
- addressing skills shortages, promoting skills needed for the green transition, increasing R&D investment and reinforcing links with the scientific ecosystem;
- increasing the capacity of social transfers to reduce income inequality and poverty, particularly for families with children;
- reducing the gap between regions, building on the effective use of EU funding;
- ensuring the quality of public services given the ageing of civil servants, staff shortages and the high share of temporary employees, particularly affecting compulsory education and

primary care; and ensuring administrative capacity for the effective absorption and higher impact of the Recovery and Resilience Facility and other available EU and national funds.

ANNEXES

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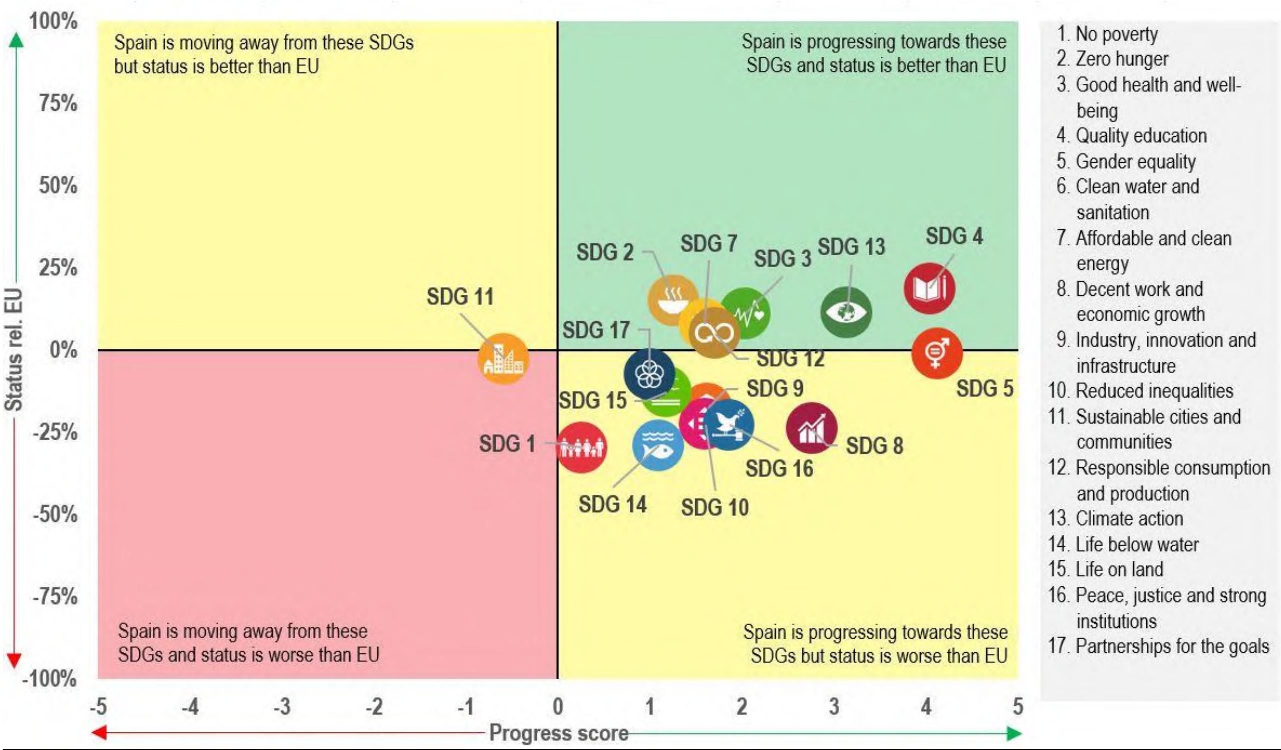
This Annex assesses Spain's progress on the Sustainable Development Goals (SDGs) along the four dimensions of competitive sustainability. The 17 SDGs and their related indicators provide a policy framework under the UN's 2030 Agenda for Sustainable Development. The aim is to end all forms of poverty,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

While Spain is improving on most of the SDG indicators related to *environmental sustainability* (SDGs 2, 7, 9, 12, 13, 14, 15), it is moving away from SDG 11 (Sustainable cities and communities). It also needs to catch up with the EU average on some of the indicators (SDGs 9, 14, 15). Spain has made some progress on energy indicators, including the share of renewable energy in gross final energy consumption (SDG 7; from 17% in 2016 to 20.7% in 2021). Nevertheless, it remains below the EU average (21.8%). Spain's recovery and resilience plan (RRP) includes measures to address some of the energy-related challenges, namely on the energy renovation of buildings and the decarbonisation of energy production. On SDG 11, Spain is moving away from the goal due to a higher share of the population living in households suffering from noise (from 15.7% in 2015 to 21.9% in 2020; EU average 17.3% in 2019), and a lower share of buses and trains in total passenger transport (15.4% compared to 17.2% in the EU in 2020). The Spanish RRP aims to promote sustainable mobility by making large investments.

While Spain is improving on some SDG indicators related to *fairness* (SDGs 3, 4, 5,

Graph A1.1: **Progress towards the SDGs in Spain in the last 5 years**



For detailed datasets on the various SDGs, see the annual Eurostat report 'Sustainable development in the European Union'; for details on extensive country-specific data on the short-term progress of Member States: Key findings – Sustainable development indicators – Eurostat (europa.eu). The status of each SDG in a country is the aggregation of all indicators for the specific goal compared to the EU average. A high status does not mean that a country is close to reaching a specific SDG, but signals that it is doing better than the EU on average. The progress score is an absolute measure based on the indicator trends over the past 5 years. The calculation does not take into account any target values as most EU policy targets are only valid for the aggregate EU level. Depending on data availability for each goal, not all 17 SDGs are shown for each country.
Source: Eurostat, latest update of 20 January 2023. Data mainly refer to 2016-2021 or 2017-2022.

8, 10), it still needs to catch up on poverty (SDG 1). Spain performs well on healthy life years at birth (SDG 3; 66.3 years in 2020 compared to 64.0 years in 2015, with the EU average 64.0 years in 2020) and on the share of people with good or very good perceived health (71.2% in 2021 compared to the EU average of 69.0%). In addition, Spain has improved on several fairness-related indicators such as people at risk of poverty or social exclusion (SDG 1; 27.8% in 2021 compared to 28.8% in 2016), the in work at-risk-of-poverty rate (SDG 1; 12.7% in 2021 compared to 13.1% in 2016), the long-term unemployment rate (SDG 8; 6.2% in 2021 compared to 9.5% in 2016), and early leavers from education and training (SDG 4; 13.3% in 2021, compared to 19% in 2016). However, it is still performing worse than the EU average on all these indicators, and challenges persist on poverty reduction, social exclusion, long-term unemployment and early school leaving. The Spanish RRP includes measures aimed at addressing challenges in all these areas. On the negative side, the severe housing deprivation rate has deteriorated (SDG 1; from 1.5% in 2015 to 3.4% in 2020), which indicates poorer living conditions. This adds to more acute housing affordability challenges for the most vulnerable, including young people, low-income households and families with children. On SDG 7 (Affordable and clean energy), the share of the Spanish population unable to keep their homes adequately warm is twice as high as the EU average (14.2% in 2021 vs EU average 6.9%). The Spanish RRP partially addresses social and affordable energy efficiency housing (with funding for the construction of 20 000 new social rental dwellings in energy-efficient buildings and measures such as renovation to increase energy efficiency).

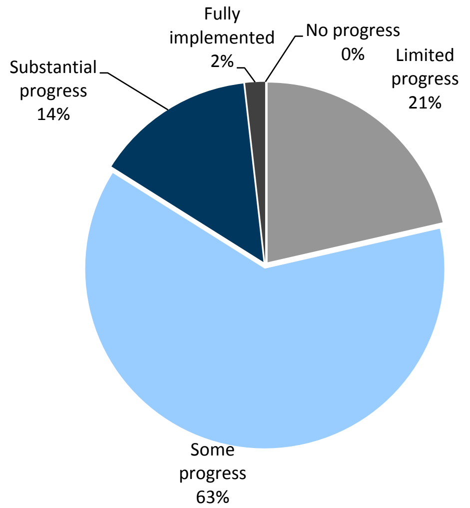
Spain is improving on all SDGs on *productivity* (SDGs 4, 8, 9), but still needs to catch up with the EU average in some of them (SDGs 8 and 9). It has a high share of households with a high-speed internet connection (SDG 9; 93.8% of households in 2021 compared to the EU average of 70.2%). In addition, the percentage of adults with at least basic digital skills (SDG 4; 64% in 2021) is above the EU average of 54%. Despite some improvements in the productivity indicators, the country ranks below the EU average on most of them. On SDG 8 (Decent work and economic growth), the percentage of young people not in employment, education or training aged 15-29 remains high (SDG 8; 14.1% in 2021) and is above the EU average (13.1% in 2021). In addition, the Spanish research and innovation system suffers from underinvestment, as shown by gross domestic expenditure on R&D ((SDG 9; 1.43% of GDP in 2021 compared to the EU average of 2.27%) and R&D personnel (1.09% of the active population in 2021 compared to the EU average of 1.50%, see Annex 8). The Spanish RRP includes significant reforms and investments aimed at boosting innovation and digital skills, but there is still room for improvement on addressing the remaining challenges.

Spain is improving on SDG indicators related to *macroeconomic stability* (SDGs 8, 16, 17), but still needs to catch up compared to the EU. It improved on SDG 8 (Decent work and economic growth) and SDG 16 (Peace, justice and strong institutions) in the years before the COVID-19 pandemic. Spain has not yet reached its pre-pandemic real GDP per capita (SDG 8; (EUR 23 780 in 2016 vs EUR 23 450 in 2021) and remains below the EU average of EUR 27 880. It also has a lower investment share of GDP (SDG 8) than the EU average (19.8% of GDP compared to 22.4% for the EU in 2021). Spain faces challenges in particular on the sustainability of public finances. The Spanish RRP includes several measures related to taxation and the effectiveness of public spending. These are expected to improve the sustainability of public finances and support substantial additional investments, which will increase the investment share of GDP.

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

The Commission has assessed the 2019-2022 country-specific recommendations (CSRs) (8) addressed to Spain as part of the European Semester. These recommendations concern a wide range of policy areas that are related to 14 of the 17 Sustainable Development Goals (see Annexes 1 and 3). The assessment considers the policy action taken by Spain to date (9) and the commitments in its recovery and resilience plan (RRP) (10). At this stage of RRP implementation, 79% of the CSRs focusing on structural issues from 2019-2022 have recorded at least 'some progress', while 21% recorded 'limited progress' (see Graph A2.1). As the RRP is implemented further, considerable progress in addressing structural CSRs is expected in the years to come.

Graph A2.1: **Spain's progress on the 2019-2022 CSRs (2023 European Semester)**



Source: European Commission

(8) 2022 CSRs: EUR-Lex - 32022H0901(09) - EN - EUR-Lex (europa.eu)

2021 CSRs: EUR-Lex - 32021H0729(09) - EN - EUR-Lex (europa.eu)
2020 CSRs: EUR-Lex - 32020H0826(09) - EN - EUR-Lex (europa.eu)
2019 CSRs: EUR-Lex - 32019H0905(09) - EN - EUR-Lex (europa.eu)

(9) Including policy action reported in the national reform programme and in Recovery and Resilience Facility (RRF) reporting (twice a year reporting on progress in implementing milestones and targets and resulting from the payment requests assessment).

(10) 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 considers the degree of implementation of the measures included in the RRP and of those carried out outside of the RRP at the time of assessment. Measures laid down in the Annex of the adopted Council Implementing Decision on approving the assessment of the RRP, which are not yet adopted or implemented but considered credibly announced, in line with the CSR assessment methodology, warrant 'limited progress'. Once implemented, these measures can lead to 'some/substantial progress or full implementation', depending on their relevance.

Table A2.1:**Summary table on 2019-2022 CSRs**

Spain	Assessment in May 2023*	RRP coverage of CSRs until 2026**	Revelant SDGs
2019 CSR 1	**Limited progress**		
Ensure that the nominal growth rate of net primary government expenditure does not exceed 0.9 % in 2020, corresponding to an annual structural adjustment of 0.65 % of GDP.	Not relevant anymore	Not applicable	SDG 8, 16
Take measures to strengthen the fiscal [framework]	Some Progress	Relevant RRP measures being implemented as of 2021	SDG 8, 16
and public procurement frameworks at all levels of government.	Limited Progress	Relevant RRP measures being implemented as of 2022	SDG 9
Preserve the sustainability of the pension system.	Substantial Progress	Relevant RRP measures being implemented as of 2022	SDG 8
Use windfall gains to accelerate the reduction of the general government debt ratio.	Not Assessed / No Input to Add	Not applicable	SDG 8, 16
2019 CSR 2	**Some progress**		
Ensure that employment services have the capacity to provide effective support	Some Progress	Relevant RRP measures being implemented as of 2022	SDG 8
and ensure that social services have the capacity to provide effective support.	Some Progress	Relevant RRP measures being implemented as of 2022	SDG 1, 2, 10
Foster transitions towards open-ended contracts,	Substantial Progress	Relevant RRP measures being implemented as of 2022	SDG 8
including by simplifying the system of hiring incentives.	Some Progress	Relevant RRP measures being implemented as of 2023	SDG 8
Improve support for families,	Some Progress	Relevant RRP measures being implemented as of 2021	SDG 1, 2, 10
reduce fragmentation of national unemployment assistance	Limited Progress	Relevant RRP measures planned as of 2022	SDG 1, 2, 10
and address coverage gaps in regional minimum income schemes.	Substantial Progress	Relevant RRP measures being implemented as of 2021	SDG 1, 2, 10
Reduce early school leaving	Some Progress	Relevant RRP measures being implemented as of 2021	SDG 4
and improve educational outcomes, taking into account regional disparities.	Some Progress	Relevant RRP measures being implemented as of 2021	SDG 4, 10, 11
Increase cooperation between education and businesses with a view to improving the provision of labour market relevant skills and qualifications,	Some Progress	Relevant RRP measures being implemented as of 2021	SDG 4, 8, 9
in particular for information and communication technologies.	Some Progress	Relevant RRP measures being implemented as of 2021	SDG 4, 9
2019 CSR 3	**Some progress**		
Focus investment-related economic policy on fostering innovation,	Some Progress	Relevant RRP measures being implemented as of 2021	SDG 9, 10, 11
resource efficiency	Some Progress	Relevant RRP measures being implemented as of 2021	SDG 6, 10, 11, 12, 15
and energy efficiency,	Some Progress	Relevant RRP measures being implemented as of 2021	SDG 7, 10, 11
upgrading rail freight infrastructure	Some Progress	Relevant RRP measures being implemented as of 2022	SDG 10, 11
and extending electricity interconnections with the rest of the Union, taking into account regional disparities.	Limited Progress	Not applicable	SDG 7, 9, 10, 11, 13
Enhance the effectiveness of policies supporting research and innovation.	Some Progress	Relevant RRP measures being implemented as of 2021	SDG 9
2019 CSR 4	**Some progress**		
Further the implementation of the Law on Market Unity by ensuring that, at all levels of government, rules governing access to and exercise of economic activities, in particular for services, are in line with the principles of that Law	Some Progress	Relevant RRP measures being implemented as of 2022	SDG 9
and by improving cooperation between administrations.	Some Progress	Relevant RRP measures being implemented as of 2021	SDG 9
2020 CSR 1	**Some progress**		
Take all necessary measures, in line with the general escape clause of the Stability and Growth Pact, to effectively address the COVID-19 pandemic, sustain the economy and support the ensuing recovery. When economic conditions allow, pursue fiscal policies aimed at achieving prudent medium-term fiscal positions and ensuring debt sustainability, while enhancing investment.	Not relevant anymore	Not applicable	SDG 8, 16
Strengthen the health system's resilience and capacity, as regards health workers, critical medical products and infrastructure.	Some Progress	Relevant RRP measures being implemented as of 2021	SDG 3
2020 CSR 2	**Some progress**		
Support employment through arrangements to preserve jobs,	Substantial Progress	Relevant RRP measures being implemented as of 2021	SDG 8
effective hiring incentives and	Some Progress	Relevant RRP measures being implemented as of 2023	SDG 8
skills development.	Some Progress	Relevant RRP measures being implemented as of 2021	SDG 4
Reinforce unemployment protection, in particular for atypical workers.	Some Progress	Relevant RRP measures being implemented as of 2022	SDG 1, 2, 10
Improve coverage and adequacy of minimum income schemes and	Some Progress	Relevant RRP measures being implemented as of 2021	SDG 1, 2, 10
family support, as well as	Some Progress	Relevant RRP measures being implemented as of 2021	SDG 1, 2, 10
access to digital learning.	Some Progress	Relevant RRP measures being implemented as of 2021	SDG 4

(Continued on the next page)

Table (continued)

2020 CSR 3	**Some progress**		
Ensure the effective implementation of measures to provide liquidity to SMEs and the selfemployed, including by avoiding late payments.	Substantial Progress	Relevant RRP measures being implemented as of 2021	SDG 8, 9
Front-load mature public investment projects and	Some Progress	Relevant RRP measures being implemented as of 2021	SDG 8, 16
promote private investment to foster the economic recovery.	Some Progress	Relevant RRP measures being implemented as of 2021	SDG 8, 9
Focus investment on the green and digital transition, in particular on fostering research and innovation,	Some Progress	Relevant RRP measures being implemented as of 2021	SDG 9
clean and efficient production and use of energy, energy infrastructure,	Some Progress	Relevant RRP measures being implemented as of 2021	SDG 7, 9, 13
water and waste management and	Some Progress	Relevant RRP measures being implemented as of 2021	SDG 6, 12, 15
sustainable transport.	Some Progress	Relevant RRP measures being implemented as of 2021	SDG 11
2020 CSR 4	**Limited progress**		
Improve coordination between different levels of government and	Limited Progress	Relevant RRP measures being implemented as of 2021	SDG 16
strengthen the public procurement framework to support recovery in an efficient manner.	Limited Progress	Relevant RRP measures being implemented as of 2022	SDG 9
2021 CSR 1	**Some progress**		
In 2022, use the Recovery and Resilience Facility to finance additional investment in support of the recovery while pursuing a prudent fiscal policy. Preserve nationally financed investment.	Full Implementation	Not applicable	SDG 8, 16
When economic conditions allow, pursue a fiscal policy aimed at achieving prudent medium-term fiscal positions and ensuring fiscal sustainability in the medium term.	Some Progress	Not applicable	SDG 8, 16
At the same time, enhance investment to boost growth potential. Pay particular attention to the composition of public finances, on both the revenue and expenditure sides of the budget, and to the quality of budgetary measures in order to ensure a sustainable and inclusive recovery. Prioritise sustainable and growth-enhancing investment, in particular investment supporting the green and digital transition.	Substantial Progress	Not applicable	SDG 8, 16
Give priority to fiscal structural reforms that will help provide financing for public policy priorities and contribute to the long-term sustainability of public finances, including, where relevant, by strengthening the coverage, adequacy and sustainability of health and social protection systems for all.	Limited Progress	Not applicable	SDG 8, 16
2022 CSR 1	**Some Progress**		
In 2023, ensure prudent fiscal policy, in particular by limiting the growth of nationally financed primary current expenditure below medium-term potential output growth, taking into account continued temporary and targeted support to households and firms most vulnerable to energy price hikes and to people fleeing Ukraine. Stand ready to adjust current spending to the evolving situation.	Some Progress	Not applicable	SDG 8, 16
Expand public investment for the green and digital transitions, and for energy security taking into account the REPowerEU initiative, including by making use of the Recovery and Resilience Facility and other Union funds.	Substantial Progress	Not applicable	SDG 8, 16
For the period beyond 2023, pursue a fiscal policy aimed at achieving prudent medium-term fiscal positions and ensuring credible and gradual debt reduction and fiscal sustainability in the medium term through gradual consolidation, investment and reforms.	Some Progress	Not applicable	SDG 8, 16
2022 CSR 2			
Proceed with the implementation of its recovery and resilience plan, in line with the milestones and targets included in the Council Implementing Decision of 13 July 2021.	RRP implementation is monitored by assessing RRP payment requests and analysing reports published twice a year on the achievement of the milestones and targets. These are to be reflected in the country reports.		
Submit the 2021-2027 cohesion policy programming documents with a view to finalising the negotiations with the Commission and subsequently starting their implementation.	Progress on the cohesion policy programming documents is monitored under the EU cohesion policy.		
2022 CSR 3	**Some Progress**		
Increase recycling rates to meet Union targets and promote the circular economy by enhancing coordination among all levels of government and undertaking further investment to meet separate collection of waste and recycling obligations,	Limited Progress	Relevant RRP measures being implemented as of 2022	SDG 6, 10, 11, 12, 15
as well as to enhance water reuse.	Some Progress	Relevant RRP measures being implemented as of 2021	SDG 6, 12, 15
2022 CSR 4	**Limited progress**		
Reduce overall reliance on fossil fuels.	Limited Progress	Relevant RRP measures being implemented as of 2021	SDG 7, 9, 13
Accelerate the deployment of renewable energy, with a focus on decentralised installations and self-consumption, including by further streamlining permitting procedures and improving access to the grid.	Some Progress	Relevant RRP measures being implemented as of 2021	SDG 7, 8, 9, 13
Support complementary investment in storage, network infrastructure,	Limited Progress	Relevant RRP measures being implemented as of 2021	SDG 7, 9, 13
electrification of buildings	Limited Progress	Not applicable	SDG 7
and transport,	Some Progress	Relevant RRP measures being implemented as of 2021	SDG 11
and renewable hydrogen.	Substantial Progress	Relevant RRP measures being implemented as of 2022	SDG 7, 9, 13
Expand energy interconnection capacity.	Limited Progress	Relevant RRP measures being implemented as of 2021	SDG 7, 9, 13
Increase the availability of energy-efficient social and affordable housing, including through renovation.	Limited Progress	Relevant RRP measures planned as of 2022	SDG 1, 2, 7, 10

Note:
* See footnote (16).
** RRP measures included in this table contribute to the implementation of CSRs. Nevertheless, additional measures outside the RRP are necessary to fully implement CSRs and address their underlying challenges. Measures indicated as 'being implemented' are only those included in the RRF payment requests assessed by the European Commission.
Source: European Commission

The Recovery and Resilience Facility (RRF) is the centrepiece of the EU's efforts to help it recover from the COVID-19 pandemic, speed up the twin transition and strengthen resilience against future shocks. The RRF also contributes to implementation of the SDGs and helps to address the Country Specific Recommendations (see Annex 2). Spain submitted its current recovery and resilience plan (RRP) on 30 April 2021. The Commission's positive assessment on 16 June 2021 and Council's approval on 13 July 2021 paved the way for disbursing EUR 69.5 billion in grants under the RRF over the 2021-2026 period.

Since the entry into force of the RRF Regulation and the assessment of the national recovery and resilience plans, geopolitical and economic developments have caused major disruptions across the EU. In order to effectively address these disruptions, the (adjusted) RRF Regulation allows Member States to amend their recovery and resilience plan for a variety of reasons. In line with article 11(2) of the RRF, the maximum financial contribution for Spain was moreover updated on 30 June 2022 to an amount of EUR 77.2 billion in grants. No revision was submitted at the time of publication of this country report yet.

Table A3.1: **Key elements of the Spanish RRP**

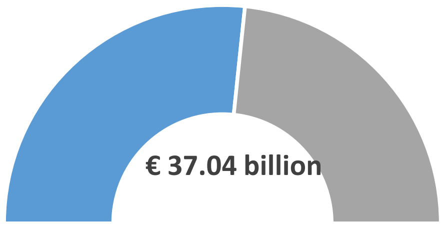
	Current RRP
Scope	Initial plan
CID adoption date	13 July 2021
Total allocation	EUR 69.5 billion in grants (5.8% of 2021 GDP)
Investments and reforms	110 investments and 102 reforms
Total number of milestones and targets	416

Source: RRF Scoreboard

Spain's progress in implementing its plan is published in the Recovery and Resilience Scoreboard ([11]). The Scoreboard also gives an overview of the progress made in implementing the RRF as a whole, in a transparent manner. The graphs in this Annex show the current state of play of the milestones and targets to be reached by Spain and subsequently assessed as satisfactorily fulfilled by the Commission.

EUR 37 billion has so far been disbursed to Spain under the RRF. The Commission disbursed EUR 9 billion to Spain in pre-financing on 17 August 2021, equivalent to 13% of the financial allocation. Spain's first payment request was positively assessed by the Commission, taking into account the opinion of the Economic and Financial Committee, leading to EUR 10 billion being disbursed in financial support (net of pre-financing) on 27 December 2021. The related 52 milestones cover reforms in sustainable mobility, energy efficiency, decarbonisation, connectivity, skills, education, social protection, labour market, taxation and public administration.

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

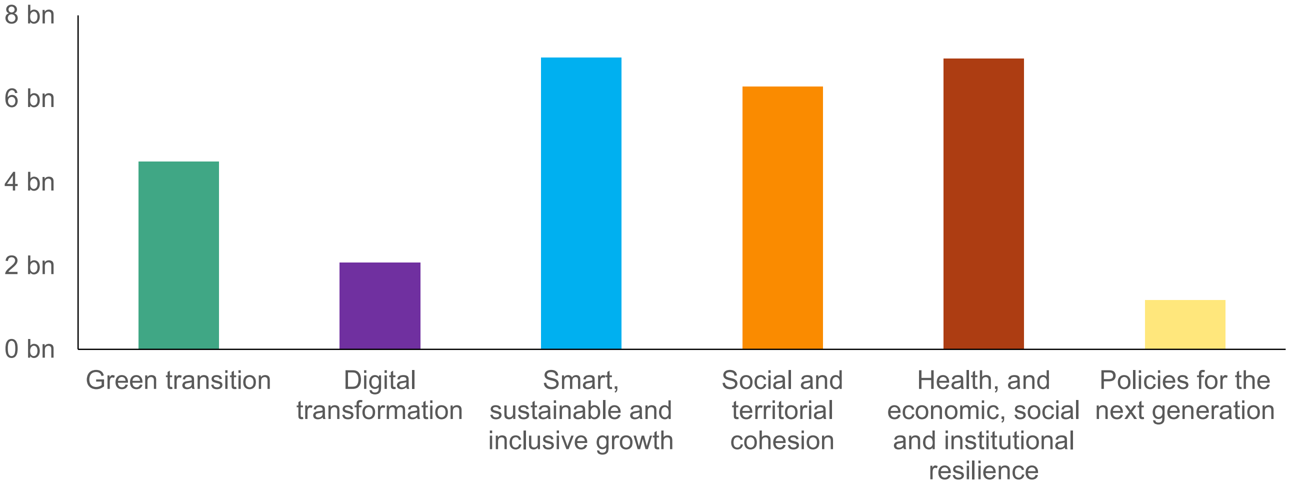


Source: RRF Scoreboard

In April 2022, Spain submitted its second payment request for EUR 12 billion. On 27 June 2022 the Commission published its positive preliminary assessment which after the positive discussion in the committees led to the disbursement of the money on 29 July 2022. The related 40 milestones and targets cover

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

Graph A3.2: **Disbursements per pillar**

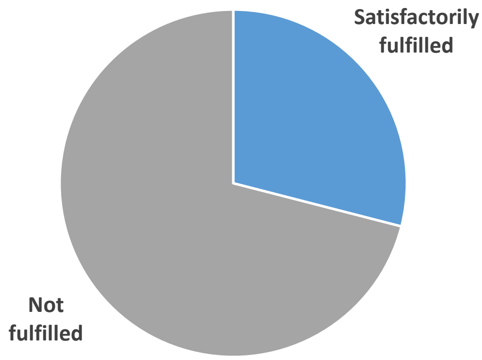


Note: Each disbursement reflects progress in the implementation of the RRF, across the six policy pillars. This graph displays how disbursements under the RRF (excluding pre-financing) relate to the pillars. The amounts were calculated by linking the milestones and targets covered by a given disbursement to the pillar tagging (primary and secondary) of their respective measures.
Source: RRF Scoreboard

several reforms in the areas of the green and just transition, the labour market, pensions, regulated professions, digital connectivity and R&D. Other areas covered are health, education, support for vulnerable groups, entrepreneurship and micro-enterprises, prevention of tax evasion and green taxation, as well as efficient and sustainable public expenditure.

In November 2022, Spain submitted its third payment request for EUR 6 billion. On 17 February 2023 the Commission published its positive preliminary assessment which after the positive discussion in the committees led to the disbursement of the money on 31 March 2023. The related 29 milestones and targets cover several reforms and investments in the areas of the green and digital transitions, pensions, research, development and innovation, education and vocational training. Other areas covered include healthcare, support to vulnerable groups, insolvency procedures, public expenditure quality and the prevention of tax evasion and fraud.

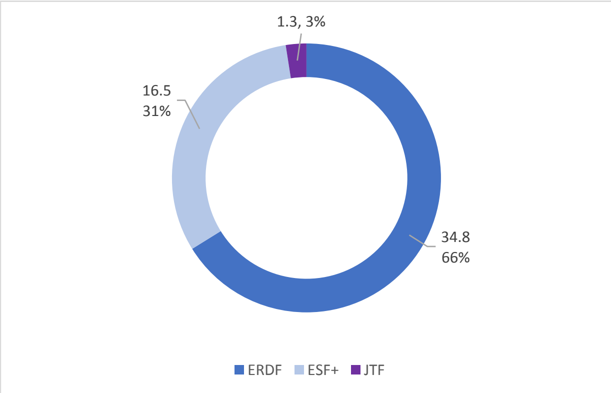
Graph A3.3: **Fulfilment status of milestones and targets**



Note: This graph displays the share of satisfactorily fulfilled milestones and targets. A milestone or target is satisfactorily fulfilled once a Member State has provided evidence to the Commission that it has reached the milestone or target and the Commission has assessed it positively in an implementing decision.
Source: RRF Scoreboard

The EU budget of over EUR 1.2 trillion for 2021-2027 is geared towards implementing the EU's main priorities. Cohesion policy investment amounts to EUR 392 billion across the EU and represents almost a third of the overall EU budget, including around EUR 48 billion invested in line with REPowerEU objectives.

Graph A4.1: **Cohesion policy funds 2021-2027 in Spain : budget by fund**

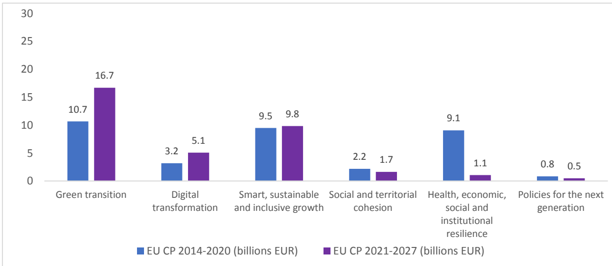


(1) billion EUR in current prices, EU share, % of total (total amount including EU and national co-financing)
Source: European Commission, Cohesion Open Data

In 2021-2027, in Spain, cohesion policy funds (12) **will invest EUR 16.7 billion in the green transition and EUR 5.1 billion in the digital transformation as part of the country's total allocation of EUR 52.6 billion.** In particular, the European Regional Development Fund (ERDF) will boost R&D, innovation and digitalisation by supporting more than 96 000 companies. SMEs lie at the heart of ERDF support to companies, and selective approaches are promoted in line with regional smart strategies. 75% of ERDF energy efficiency investments will be allocated to projects that will lead to a minimum of 30% of primary energy savings. Particular attention should be paid to monitoring the decrease in energy consumption, which is a priority in 2021-2027. The Just Transition Fund will enable further economic diversification and foster job creation in areas most affected by the energy transition while promoting up- and reskilling of workers. This will help Spain fulfil its commitment to phase out the use of coal by 2030.

The European Social Fund Plus (ESF+) is key to supporting investment in people and reforms in the areas of employment, education, and social inclusion. Spain allocated more than EUR 3 billion to education and skills, of which more than EUR 1 billion was dedicated to developing digital skills. Benefits of this funding include: strengthening green and digital skills by aligning vocational education and training (VET) with labour market demand; and supporting self-employment and upskilling in the green and digital economy, with a focus on vulnerable groups.

Graph A4.2: **Synergies between cohesion policy funds and the RRF with its six pillars in Spain**



(1) billion EUR in current prices (total amount, including EU and national co-financing)
Source: European Commission

Of the investments mentioned above, EUR 7.3 billion will be invested in line with the REPowerEU objectives. This is on top of the EUR 2.7 billion dedicated to REPowerEU under the 2014-2020 budget**.** EUR 2.6 billion (2021-2027) and EUR 1.8 billion (2014-2020) is for improving energy efficiency; EUR 4.6 billion (2021-2027) and EUR 0.9 billion (2014-2020) is for renewable energy and low-carbon R&I; and EUR nearly 200 million (2021-2027) is for smart energy systems.

In 2014-2020, cohesion policy funds made EUR 42.4 billion available to Spain (13). Including national financing, the total investment amounts to EUR 54.9 billion - around 0.5% of GDP for 2014-2020.

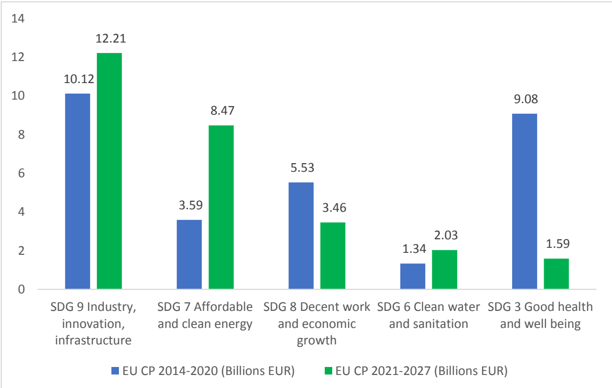
Spain continues to benefit from cohesion policy flexibility to support economic recovery, step up convergence and provide vital support to regions following the

(12) European Regional Development Fund (ERDF), Cohesion Fund (CF), European Social Fund+ (ESF+), Just Transition Fund (JTF) excluding Interreg programmes. Total amount includes national and EU contributions. Data source: [Cohesion Open Data.]

(13) Cohesion policy funds include the ERDF, CF, ESF and the Youth Employment Initiative (YEI) and excludes ETC programmes. According to the 'N+3 rule', the funds committed for 2014-2020 must be spent by 2023. REACT-EU is included in all figures. Data source: [Cohesion Open Data.]

COVID-19 pandemic. The Recovery Assistance for Cohesion and the Territories of Europe instrument (REACT-EU) ([14]) under NextGenerationEU provides EUR 14.5 billion on top of the 2014-2020 cohesion policy allocation for Spain. REACT-EU financed over 89 million COVID-19 vaccines and over 21 000 ventilators for Spain's medical centres. Funding was also provided for short-term work schemes for over 125 000 people. In addition, Cohesion's Action for Refugees in Europe (CARE) supports Spain and its regions in providing emergency assistance to people fleeing from Russia's invasion of Ukraine with a total budget of EUR 260 million. With SAFE (Supporting Affordable Energy), the 2014-2020 cohesion policy funds may also be mobilised by Spain to support vulnerable households, jobs and companies particularly affected by high energy prices.

Graph A4.3: **Cohesion policy funds contribution to the SDGs in 2014-2020 and 2021-2027 in Spain**



(1) 5 largest contributions to SDGs in billion (EUR) current prices
Source: European Commission

In both 2014-2020 and 2021-2027, cohesion policy funds have contributed substantially to the Sustainable Development Goals (SDGs). These funds support 11 of the 17 SDGs, notably SDG 9 'industry, innovation and infrastructure' and SDG 8 'decent work and economic growth' ([15]).

Other EU funds make significant resources available for Spain. The common agricultural policy (CAP) made available EUR 59.9 billion in 2014-2022. It will keep supporting Spain with EUR 31.5 billion in 2023-2027. The two CAP Funds (European Agricultural Guarantee Fund and European Agricultural Fund for Rural Development), contribute to the European Green Deal while ensuring long-term food security. They promote social, environmental and economic sustainability and innovation in agriculture and rural areas, in coordination with other EU funds. The European Maritime and Fisheries Fund made EUR 1.1 billion available to Spain in 2014-2020 and the European Maritime, Fisheries and Aquaculture Fund will make EUR 1.1 billion available in 2021-2027.

Spain also benefits from other EU programmes such as the Connecting Europe Facility (CEF), which under CEF 2 (2021-2027) has so far allocated EU funding of EUR 235 million to 12 specific projects on strategic transport networks. Similarly, Horizon Europe has so far allocated nearly EUR 1.7 billion to Spanish R&I actors, while in the previous programming period, Horizon 2020 earmarked EUR 6.36 billion. The Public Sector Loan Facility under the Just Transition Mechanism makes EUR 65.9 million of grant support available in 2021-2027, which will be combined with loans from the EIB to support investments by public sector entities in just transition regions.

Spain received support under the European instrument for temporary support to mitigate unemployment risks in an emergency (SURE) to finance short-time work schemes and similar measures to mitigate the impact of COVID-19. The Council granted financial assistance to Spain of EUR 21.324 billion in loans, which supported around 30% of workers and 36% of firms in 2020.

The Technical Support Instrument (TSI) supports Spain in designing and implementing growth-enhancing reforms, including the implementation of its recovery and resilience plan (RRP). Spain has received significant support since 2018, including for: (i) setting up a strategic reserve of critical resources based on industrial capabilities to prevent disruptions in supply chains; and (ii) implementing the European Child Guarantee. The TSI is also helping Spain implement specific reforms and investments included in its RRP, e.g. a new governance

([14]) REACT-EU allocation on Cohesion Open Data.

([15]) Other EU funds contribute to the implementation of the SDGs. In 2014-2022, this includes both the European Agricultural Fund for Rural Development (EARDF) and the European Maritime and Fisheries Fund (EMFF).

model for its new strategy on information and communication technologies [16].

[16] Country factsheets on reform support are available here.

This Annex illustrates Spain's relative resilience capacities and vulnerabilities using the Commission's resilience dashboards (RDB) ([17]). Comprising a set of 124 quantitative indicators, the RDB provide broad indications of Member States' ability to make progress across four interrelated dimensions: social and economic, green, digital, and geopolitical. The indicators show vulnerabilities ([18]) and capacities ([19]) that can become increasingly relevant, both to navigate ongoing transitions and to cope with potential future shocks. To this end, the RDB help to identify areas that need further efforts to build stronger and more resilient economies and societies. They are summarised in Table A5.1 as synthetic resilience indices, which illustrate the overall relative situation for each of the four dimensions and their underlying areas for Spain and the EU-27 ([20]).

According to the set of resilience indicators under the RDB, Spain's level of vulnerabilities is generally similar to the EU average. Spain shows medium-low vulnerabilities in the green and digital dimensions of the resilience dashboards, medium vulnerabilities in the geopolitical dimension, and medium-high vulnerabilities in the social and economic dimension. Compared to the EU average, Spain shows higher vulnerabilities in all areas of the social and economic dimension. It has lower vulnerabilities than the EU average in the areas of 'climate change mitigation and adaptation', digitalisation of the public space, 'cybersecurity' and most areas in the geopolitical dimension.

Compared to the EU average, Spain shows a similar yet slightly lower level of capacities across all RDB indicators. It exhibits high resilience capacities in the digital dimension, medium-high capacities in the green dimension, and medium capacities in the social and economic and the geopolitical dimensions. Spain shows above-average capacities in the areas of digitalisation of the personal and public space, but has significant room for improving capacities in 'economic and financial stability and sustainability', 'raw material and energy supply' and 'financial globalisation', among others.

Table A5.1: **Resilience indices summarising the situation across RDB dimensions and areas**

Dimension/Area	Vulnerabilities		Capacities	
	ES	EU-27	ES	EU-27
Social and economic	Medium-high	Medium	Medium	Medium-high
Inequalities and social impact of the transitions	Medium-high	Medium	Medium	Medium-high
Health, education and work	Medium-high	Medium	Medium-high	Medium-high
Economic & financial stability and sustainability	High	Medium-high	Medium	Medium-high
Green	Medium-low	Medium	Medium-high	Medium-high
Climate change mitigation & adaptation	Medium-low	Medium	Medium	Medium-high
Sustainable use of resources	Medium	Medium	Medium-high	Medium-high
Ecosystems, biodiversity, sustainable agriculture	Medium	Medium	Medium	Medium
Digital	Medium-low	Medium	High	Medium-high
Digital for personal space	Medium	Medium	High	Medium-high
Digital for industry	Medium	Medium	Medium-high	Medium-high
Digital for public space	Medium-low	Medium	High	Medium
Cybersecurity	Medium-low	Medium	Medium-high	Medium-high
Geopolitical	Medium	Medium	Medium	Medium
Raw material and energy supply	Medium-low	Medium	Medium-low	Medium
Value chains and trade	Low	Not available	Medium-low	Medium-low
Financial globalisation	Medium-low	Medium-low	Medium-low	Medium-high
Security and demography	Medium	Medium	Medium-high	Medium-high

Vulnerabilities Index: High; Medium-high; Medium; Medium-low; Low; Not available

Capacities Index: High; Medium-high; Medium; Medium-low; Low; Not available

(1) Data are for 2021, and EU-27 refers to the value for the EU as a whole. Data underlying EU-27 vulnerabilities in the area 'value chains and trade' are not available as they comprise partner concentration measures that are not comparable with Member States' level values.
Source: JRC Resilience Dashboards - European Commission

([17]) For details see https://ec.europa.eu/info/strategy/strategic-planning/strategic-foresight/2020-strategic-foresight-report/resilience-dashboards_en; see also 2020 Strategic Foresight Report (COM(2020) 493).

([18]) Vulnerabilities describe features that can exacerbate the negative impact of crises and transitions, or obstacles that may hinder the achievement of long-term strategic goals.

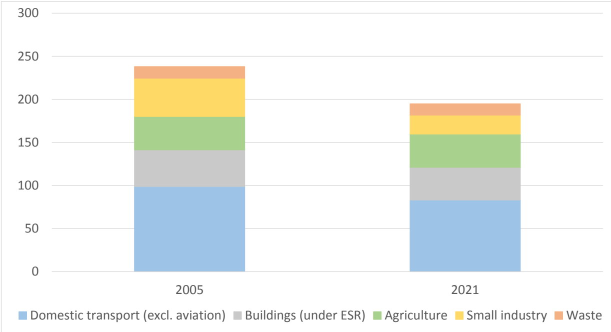
([19]) Capacities refer to enablers or abilities to cope with crises and structural changes and to manage the transitions.

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

Spain's green transition requires continued action on several aspects including improving energy efficiency, climate adaptation and the protection of biodiversity. Implementation of the European Green Deal is underway in Spain; this Annex provides a snapshot of the key areas involved ([21]).

Spain has not yet implemented all the planned climate policy measures it needs to reach its 2030 climate target for the effort sharing sectors ([22]). Data for 2021 on greenhouse gas emissions in these sectors are expected to show that the country generated slightly less than its annual emission allocations ([23]). Current policies are projected to reduce these emissions by -18% relative to 2005 levels in 2030. This is not sufficient to reach the effort sharing target even before the target was raised to meet the EU's 55% objective, let alone Spain's new target to reduce emissions by -37.6% ([24]). Spain's additional measures tabled would bring a reduction in emissions of 38%, exceeding the new target. In its recovery and resilience plan (RRP), Spain has allocated 40% of its Recovery and Resilience Facility grants to key reforms and investments to attain the climate objectives ([25]). Spain's climate law aims to reduce economy-wide greenhouse gas emissions in 2030 by -23% compared to 1990. This translates into emission reductions of -39% for effort sharing sectors and -61% for ETS sectors, both compared to 2005 ([26]).

Graph A6.1: **Thematic – greenhouse gas emissions from the effort sharing sectors in Mt CO2eq, 2005-2021**



Source: European Environmental Agency.

Spain needs to boost the capacity of its land use sector to achieve its net carbon removal target. Net removals have been static over the past years with forests contributing the biggest share of net carbon removals. For 2030, Spain's land use, land use change and forestry (LULUCF) net removals target implies the removal of 43 635 kt CO_2eq (see Table A6.1) ([27]).

Fossil fuels still make up a substantial share of Spain's energy mix, but renewable energy is set to grow fast. In 2021, oil provided for a quarter of Spain's energy mix, and natural gas for 25%, while 18% came from renewable sources, (see Graph A6.2). Spain's electricity mix is already highly decarbonised,

([21]) The overview in this Annex is complemented by the information provided in Annex 7 on energy security and affordability, Annex 8 on the fair transition to climate neutrality and environmental sustainability, Annex 9 on resource productivity, efficiency and circularity, Annex 11 on innovation, and Annex 19 on taxation.

([22]) Member States' greenhouse gas emission targets for 2030 ('effort sharing targets') were increased by Regulation (EU) 2023/857 (the Effort Sharing Regulation) amending Regulation (EU) 2018/842, aligning the action in the concerned sectors with the objective to reach EU-level, economy-wide greenhouse gas emission reductions of at least 55% relative to 1990 levels. The Regulation sets national targets for sectors outside the current EU Emissions Trading System, notably: buildings (heating and cooling), road transport, agriculture, waste, and small industry. Emissions covered by the EU ETS and the Effort Sharing Regulation are complemented by net removals in the land use sector, regulated by Regulation (EU) 2018/841 (the Land Use, Land Use Change and Forestry (LULUCF) Regulation) amended by Regulation (EU) 2023/839.

([23]) Spain's annual emission allocations for 2021 were some 197.5 Mt CO_2eq, and its approximated 2021 emissions were at 194.8 Mt (see European Commission, *Accelerating the transition to climate neutrality for Europe's security and prosperity: EU Climate Action Progress Report* 2022, SWD(2022)343).

([24]) See the information on the distance to the 2030 climate policy target in Table A6.1. Existing and additional measures as of 15 March 2021.

([25]) For example, investments in sustainable, secure and connected mobility and hydrological planning to address water scarcity. Many measures planned for 2021 and 2022 have been completed, including reforms on agriculture, biodiversity, and renewable capacity, and investments on sustainable mobility.

([26]) Under Spain's national energy and climate plan (NECP). An update of the plan, mandated by Regulation (EU) 2018/1999 (the Governance Regulation), is underway.

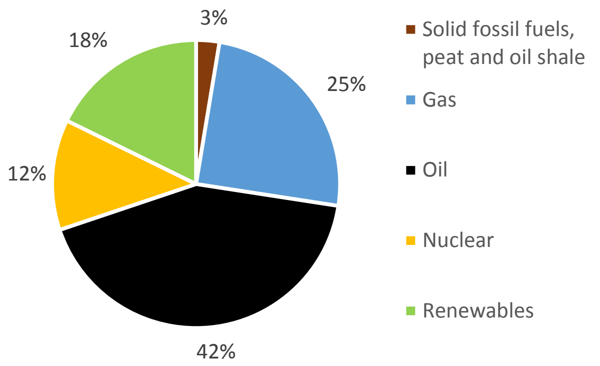
([27]) This value is indicative and will be updated in 2025 (as mandated by Regulation (EU) 2023/839).

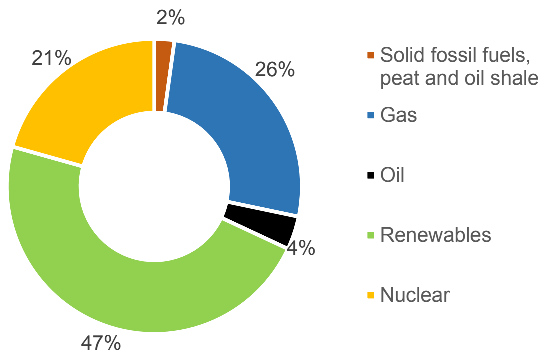
with 48% coming from renewable sources in 2021. Spain's target of 42% of share of energy from renewable sources in gross final energy consumption by 2030 included in the NECP was considered sufficiently ambitious [28]. Spain will need to increase its renewable energy target in the updated NECP to reflect the more ambitious EU climate and energy targets in the Fit for 55 Package and in the REPowerEU Plan. The plan envisages phasing out coal and decommissioning the coal power plants by 2030. A tripartite agreement in 2020 makes Spain a pioneer in implementing a socially responsible transition [29].

Renewable energy is expected to play a central role to decarbonise Spain's energy system. Five storage projects in its RRP, accounting for at least 600 MW overall, aim to address grid stability and capacity challenges. The plan includes actions on renewable energy generation and making the electricity system more flexible, decentralised and dynamic, including by establishing energy communities. It focuses on developing renewable energy (including offshore wind and self-consumption) and on renewable energy and solar technologies for thermal needs of buildings, services, and industry.

Swift implementation of actions to improve energy efficiency in Spain's recovery and resilience plan are required if Spain is to achieve the objectives in its national energy and climate plan. The plan aims to reduce primary energy consumption by 39.5% in 2030. In turn, its recovery and resilience plan includes measures to help attain this target, such as those for irrigation, tourism, industry, mobility, agriculture, and livestock. It also includes an action plan to promote urban rehabilitation and regeneration to help double the building renovation rate. In addition, it also includes the entry into force of its urban agenda and a long-term renovation strategy for energy rehabilitation in the building sector, aimed at reducing final energy consumption in buildings by 36.6% by 2030. Furthermore, the RRP also includes a programme on energy-efficient social housing with an associated cost of EUR 1 billion. In the context of implementing the RRP, Spain has also adopted a framework for 'one-stop shops' to accompany households and communities of owners to renovate residential buildings, and has plans for energy efficiency in public buildings, with an additional EUR 1 billion allocated to achieve this objective.

Graph A6.2: **Energy mix (top) and Electricity mix (bottom), 2021**





Source: 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

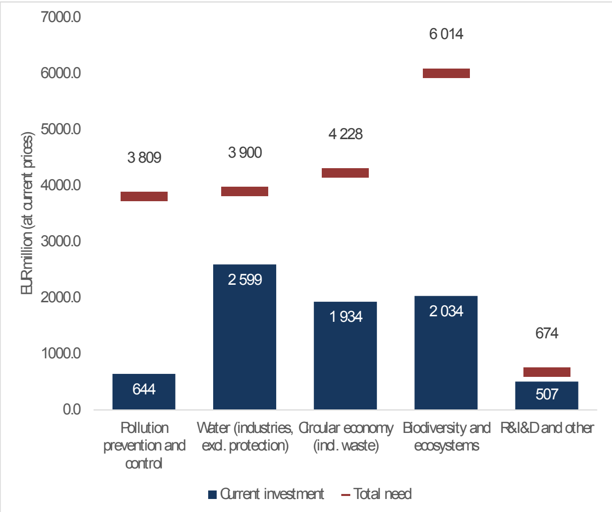
Significant policy action will make transport cleaner, while air pollution in urban centres requires further attention. Spain's strategy for safe, sustainable, and connected mobility (from 2021) will continue to guide how transport policy is implemented in the coming

(28) In line with the Regulation (EU) 2018/1999 (the Governance Regulation), the reference quantity used in the NECP for the share of renewable energy in EU Member States' energy consumption is gross final energy consumption.

(29) On further aspects of the just transition, see Annex 8.

years. Actions included in its RRP will transform urban and metropolitan transport and complete the Trans-European Transport Network. But in rural public transport, insufficient infrastructure and access remain a concern (see Annex 8). Spain will promote the development and use of sustainable alternative fuels for maritime transport and aviation, in line with the FuelEU maritime and the ReFuelEU aviation initiatives. At the same time, individual transport exacerbates seasonal problems with air pollution and traffic congestion in major metropolitan areas in Spain, notably Madrid and Barcelona, leading to health and economic costs that need to be mitigated.

Graph A6.3: **Thematic – environmental investment needs and current investment, p.a. 2014-2020**



Source: European Commission.

Spain would benefit from investing more in environmental protection and in measures protecting biodiversity, combatting desertification and addressing pollution [30]. Between 2014 and 2020, environmental investment needs were estimated to be at least EUR 18.6 billion while investment stood at around EUR 7.7, leaving a gap of at least EUR 10.9 billion per year (see Graph A6.3) [31]. Spain has the largest terrestrial EU Natura 2000 network, covering 27.3% of its territory [32]. Sufficient resources are yet to be allocated to its protection and management. Some marine designations are still needed. Spain would benefit from investing in wastewater collection and treatment, water supply infrastructure, and the monitoring of its water reserves [33]. It could also exploit the potential of water reuse (see also Annex 9).

Climate change is affecting many sectors in Spain with adaptation challenges concerning water management in particular [34]**.** Affected sectors include mobility, energy, the built environment, agriculture, forestry, and tourism. They depend on water, which is becoming increasingly scarce [35]. Heat-related mortality and morbidity are projected to rise significantly. Spain's RRP includes measures to address the natural environment and resources, as well as climate adaptation of coastal natural areas. Climate adaptation through sustainable water management in Spain requires restoring terrestrial, marine, and freshwater ecosystems.

Spain provides fossil fuel and other environmentally harmful subsidies that could be considered for reform, while ensuring food and energy security and mitigating social effects. In 2021, Spain spent EUR 3 billion on fossil fuel subsidies, putting low-carbon alternatives at a disadvantage. Environmentally harmful subsidies have been identified, via an initial assessment, in the agriculture, forestry and fishing, electricity, gas, steam and air conditioning, transportation and storage, mining and quarrying sectors. Examples of such subsidies include the reduced VAT rate for fertilisers and pesticides, the excise tax refund for diesel fuel used in agriculture, the reduced energy tax rate for light fuel oil used in mobile machinery, the excise tax exemption on

(30) Environmental objectives include pollution prevention and control, desertification prevention and monitoring, water management and industries, circular economy and waste, biodiversity and ecosystems (European Commission, 2022, Environmental Implementation Review, country report Spain)

(31) When also accounting for needs estimated at EU level only (e.g., water protection, higher circularity, biodiversity strategy).

(32) In 2021, Spain had 28.0% terrestrial protected areas (Natura 2000 and nationally designated areas), against the EU average of 26.4% (European Environment Agency, 2023, Natura 2000 Barometer).

(33) European Commission, 2022, Environmental Implementation Review.

(34) European Environmental Agency, Advancing towards climate resilience in Europe, forthcoming.

(35) According to the 6th IPCC climate adaptation report, in southern Europe, more than a third of the population will be exposed to water scarcity at 2°C.

the use of natural gas, the reimbursement of excise duty on diesel used in freight and other categories of passenger transport or the excise tax exemption and tax relief for natural gas for industrial consumers ([36]). A mapping of all environmentally harmful subsidies by Spain would help prioritise candidates for reform.

Spain has potential to rely more on environmental taxes (see Annex 19). In 2022, Spain reformed the tax on fluorinated gases to discourage their use and reduce tax avoidance. Further green taxation measures, e.g. on single-use plastics packaging and landfilling, incineration and co-incineration of waste, have been implemented under the RRP.

([36]) Fossil fuel figures in EUR of 2021 from the 2022 State of the Energy Union report. Initial assessment of environmentally harmful subsidies done by the Commission in the 2022 toolbox for reforming environmentally harmful subsidies in Europe, using OECD definitions, and based on the following datasets: OECD Agriculture Policy Monitoring and Evaluations; OECD Policy Instruments for the Environment (PINE) Database; OECD Statistical Database for Fossil Fuels Support; IMF country-level energy subsidy estimates. Annex 4 of the toolbox contains detailed examples of subsidies on the candidates for reform.

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

			2005	2017	2018	2019	2020	2021	'Fit for 55' 2030 target/value	Distance WEM	Distance WAM
Progress to policy targets	Greenhouse gas emission reductions in effort sharing sectors [1]	Mt CO_2eq; %; pp	236.0	-15%	-14%	-14%	-22%	-	-37.7%	-19.7	0.3
	Net carbon removals from LULUCF [2]	kt CO_2eq	-44 382	-45 307	-46 139	-45 229	-44 095	-44 522	-43635	n/a	n/a

			2005	2017	2018	2019	2020	2021	National contribution to 2030 EU target
Progress to policy targets	Share of energy from renewable sources in gross final consumption of energy [3]	%	8%	17%	17%	18%	21%	21%	42%
	Energy efficiency: primary energy consumption [3]	Mtoe	136.0	124.9	124.3	120.6	105.0	112.1	98.5
	Energy efficiency: final energy consumption [3]	Mtoe	98.1	84.7	86.7	86.5	73.8	80.3	73.6

			SPAIN 2016	SPAIN 2017	SPAIN 2018	SPAIN 2019	SPAIN 2020	SPAIN 2021	EU 2019	EU 2020	EU 2021
Fiscal and financial indicators	Environmental taxes (% of GDP)	% of GDP	1.9	1.8	1.8	1.8	1.8	1.8	2.4	2.2	2.2
	Environmental taxes (% of total taxation) [4]	% of taxation	5.5	5.4	5.3	5.1	4.7	4.6	5.9	5.6	5.5
	Government expenditure on environmental protection	% of total exp.	2.0	2.1	2.1	2.1	1.8	2.0	1.7	1.6	1.6
	Investment in environmental protection [5]	% of GDP	0.2	0.2	0.2	0.2	0.2	-	0.4	0.4	0.4
	Fossil fuel subsidies [6]	EUR2021bn	3.9	4.0	4.2	4.5	3.0	3.0	53.0	50.0	-
	Climate protection gap [7]	score 1-4					0.9	1.2			1.5
Climate	Net greenhouse gas emissions	1990 = 100	112.9	120.9	119.3	113.2	94.0	101.0	76.0	69.0	72.0
	Greenhouse gas emission intensity of the economy	kg/EUR10	0.30	0.31	0.30	0.27	0.26	0.26	0.31	0.30	0.26
	Energy intensity of the economy	kgoe/EUR10	0.11	0.11	0.11	0.11	0.10	-	0.11	0.11	-
Energy	Final energy consumption (FEC)	2015=100	102.1	105.3	107.7	107.5	91.6	99.8	102.9	94.6	-
	FEC in residential building sector	2015=100	93.9	94.3	99.4	94.6	95.3	96.6	101.3	101.3	106.8
	FEC in services building sector	2015=100	103.3	106.5	108.2	108.8	100.5	106.0	100.1	94.4	100.7
Pollution	Smog-precursor emission intensity (to GDP) [8]	tonne/EUR10	1.1	1.1	1.1	1.0	1.0	-	0.9	0.9	-
	Years of life lost due to air pollution by PM2.5	per 100.000 inh.	421.9	465.4	351.3	352.6	347.9	-	581.6	544.5	-
	Years of life lost due to air pollution by NO_2	per 100.000 inh.	183.7	208.6	173.4	159.7	98.7	-	309.6	218.8	-
	Nitrates in ground water	mg NO_3/litre	-	-	-	-	-	-	21.0	20.8	-
Biodiversity	Land protected areas	% of total	27.5	27.9	-	27.5	28.0	28.0	26.2	26.4	26.4
	Marine protected areas	% of total	7.9	-	-	12.0	-	12.0	10.7	-	12.1
	Organic farming	% of total utilised agricultural area	8.5	8.7	9.3	9.7	10.0	10.8	8.5	9.1	-

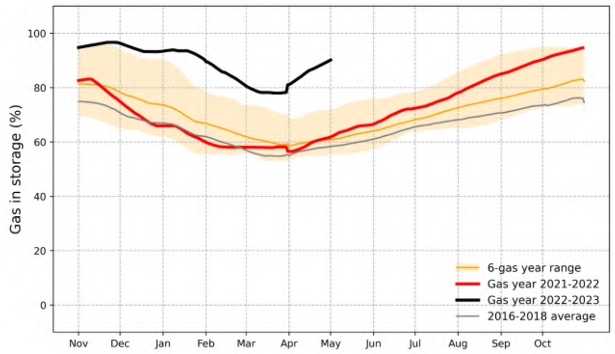
			2017	2018	2019	2020	2021	2022	2020	2021	2022
Mobility	Share of zero-emission vehicles [9]	% in new registrations	0.3	0.5	0.8	2.1	2.8	3.7	5.4	8.9	10.7
	Number of AC/DC recharging points (AFIR categorisation)		-	-	-	8826	11996	24960	188626	330028	432518
	Share of electrified railways	%	63.7	63.8	63.7	64.3	n/a	64.3	56.6	n/a	56.6
	Hours of congestion per commuting driver per year		25.6	24.8	22.1	22.2	n/a	n/a	28.7	n/a	n/a

Sources: (1) Historical and projected emissions, as well as Member States' climate policy targets and 2005 base year emissions under the Effort Sharing Decision (for 2020) are measured in global warming potential (GWP) values from the 4th Assessment Report (AR4) of the Intergovernmental Panel on Climate Change (IPCC). Member States' climate policy targets and 2005 base year emissions under the Effort Sharing Regulation (for 2030) are in GWP values from the 5th Assessment Report (AR5). The table above shows the base year emissions 2005 under the Effort Sharing Decision, using AR4 GWP values. Emissions for 2017-2021 are expressed in percentage change from 2005 base year emissions, with AR4 GWP values. 2021 data are preliminary. The table shows the 2030 target under Regulation (EU) 2023/857 that aligns it with the EU's 55% objective, in percentage change from 2005 base year emissions (AR5 GWP). Distance to target is the gap between Member States' 2030 target (with AR5 GWP values) and projected emissions with existing measures (WEM) and with additional measures (WAM) (with AR4 GWP values), in percentage change from the 2005 base year emissions. Due to the difference in global warming potential values, the distance to target is only illustrative. The measures included reflect the state of play as of 15 March 2021.
(2) Net removals are expressed in negative figures, net emissions in positive figures. Reported data are from the 2023 greenhouse gas inventory submission. 2030 value of net greenhouse gas removals as in Regulation (EU) 2023/839 amending Regulation (EU) 2018/841 (LULUCF Regulation) – Annex IIa, kilotons of CO2 equivalent, based on 2020 submissions.
(3) Renewable energy and energy efficiency targets and national contributions are in line with the methodology established under Regulation (EU) 2018/1999 (Governance Regulation).
(4) Percentage of total revenue from taxes and social contributions (excluding imputed social contributions). Revenue from the EU Emissions Trading System is included in environmental tax revenue.
(5) Expenditure on gross fixed capital formation for the production of environmental protection services (abatement and prevention of pollution) covering government, industry, and specialised providers.
(6) European Commission, Study on energy subsidies and other government interventions in the European Union, 2022 edition.
(7) The climate protection gap refers to the share of non-insured economic losses caused by climate-related disasters. This indicator is based on modelling of the current risk from floods, wildfires and windstorms as well as earthquakes, and an estimation of the current insurance penetration rate. The indicator does not provide information on the split between the private/public costs of climate-related disasters. A score of 0 means no protection gap, while a score of 4 corresponds to a very high gap (EIOPA, 2022).
(8) Sulphur oxides (SO2 equivalent), ammonia, particulates < 10 µm, nitrogen oxides in total economy (divided by GDP).
(9) Battery electric vehicles (BEV) and fuel cell electric vehicles (FCEV).

Spain's high exposure to fossil fuel price developments, provides a strong incentive to accelerate the clean energy transition. Before Russia invaded Ukraine, Spain had limited exposure to Russian gas and oil, well below the EU average. However, it is highly dependent on imported fossil fuels in general. This makes its economy particularly sensitive to global price developments, requiring it to step up efforts on the energy transition. This Annex ([37]) sets out actions carried out by Spain to achieve the REPowerEU objectives, including through the implementation of its recovery and resilience plan, in order to improve energy security and affordability, while accelerating the clean energy transition, and contributing to enhancing the EU's competitiveness in the clean energy sector ([38]).

Security of gas supply has been ensured in Spain in challenging circumstances; moreover, its gas infrastructure can contribute to the overall security of supply in Europe. Spain fulfilled its gas storage obligations last winter, reaching 94.8% by 1 November 2022 (well above the EU legal obligation of 80%), and ended the heating season with a filling gas storage at 85.8% by 15 April 2023 ([39]) ([40]). Spain operates four underground storage facilities ([41]) with a total capacity of about 3.4 billion cubic metres (bcm), representing 10% of its total yearly demand. Algeria, the main supplier, stopped providing gas to the Iberian Peninsula via the Gazoduc Maghreb-Europe (GME) pipeline in November 2021, while increasing export capacity of the Medgaz pipeline up to 11bcm from the previous 8 bcm. However, given Spain´s diversified gas supplies, the decrease of supplies via the GME pipeline did not pose significant risks. Spain has the largest fleet of liquefied natural gas (LNG) terminals in the EU, with seven in total. As a result, Spain was the EU's second biggest LNG importer in 2022, importing 32.6 bcm . Full disruption of Russian gas would not severely impact the Spanish gas system, as 12.1% of Spain's gas imports (5.1 bcm) came from Russia in 2022 supplied via LNG.

Graph A7.1: **Underground gas storage levels in Spain**



Source: Gas Infrastructure Europe (Last update 2 May 2023)

The security of supply of the gas and electricity systems are closely interlinked, and Spain has adopted a comprehensive plan with demand response measures. Electricity security in Spain still relies heavily on gas-fired combined cycle power plants (Annex 6). Seasonal weather conditions (droughts) contributed to an increase of gas consumption for gas-fired generation, to compensate for the fall in hydropower generation in 2022. Spain adopted the '*Plan Más Seguridad Energética (+SE)*' that includes 73 energy security measures covering six areas: i) savings and energy efficiency; ii) energy system transformation; iii) expansion of protection for people, particularly the most vulnerable; iv) fiscal measures; v) industry transformation through renewables and hydrogen; and vi) solidarity with other Member States. This comes on top of existing measures adopted such as fuel switching for coal-fired power plants, biomethane production, limits on heating and air conditioning, and the energy efficiency

(37) It is complemented by Annex 6 as the European Green Deal focuses on the clean energy transition, by Annex 8 on actions taken to mitigate energy poverty and tprotect he most vulnerable ones, and by Annex 9 as the transition to a circular economy will unlock significant energy and resource savings, further strengthening energy security and affordability, and by Annex 12 on industry and single market complementing ongoing efforts under the European Green Deal and REPowerEU.

(38) in line with the Green Deal Industrial Plan COM(2023) 62 final, and the proposed Net-Zero Industry Act COM(2023) 161 final

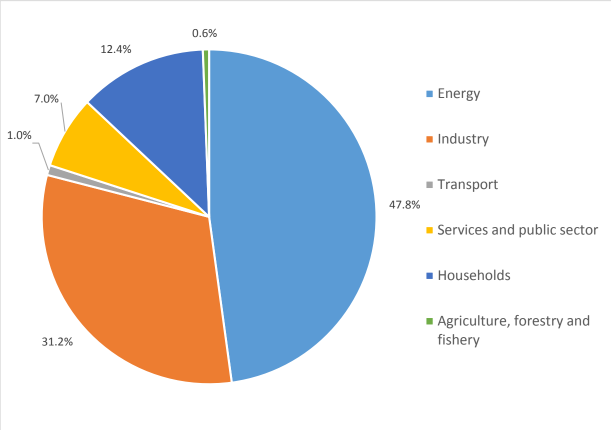
(39) Regulation of the European Parliament and of the Council amending Regulations (EU) 2017/1938 and (EC) No 715/2009 with regard to gas storage .

(40) Spain can count the stocks of LNG in its LNG facilities for its filling target. If taken into account, Spain's storage level goes up to 146.7% (Article 6(a).5 of the Gas Storage Regulation).

(41) Spain has four underground storage facilities: Gaviota (offshore), Serrablo, Yela (these are managed by Enagas), and Marismas (managed by Naturgy Almacenamientos Andalucia).

inspection campaign. Over the period August 2022 – March 2023, 11% of gas consumption has been saved in Spain compared to the previous 5-years average.

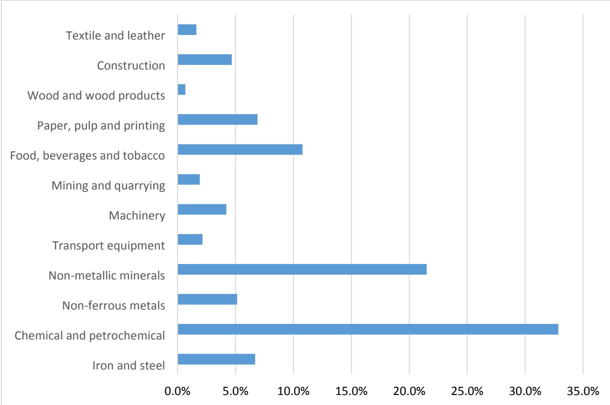
Graph A7.2: **Share of gas consumption per sector, 2021**



Source: Eurostat

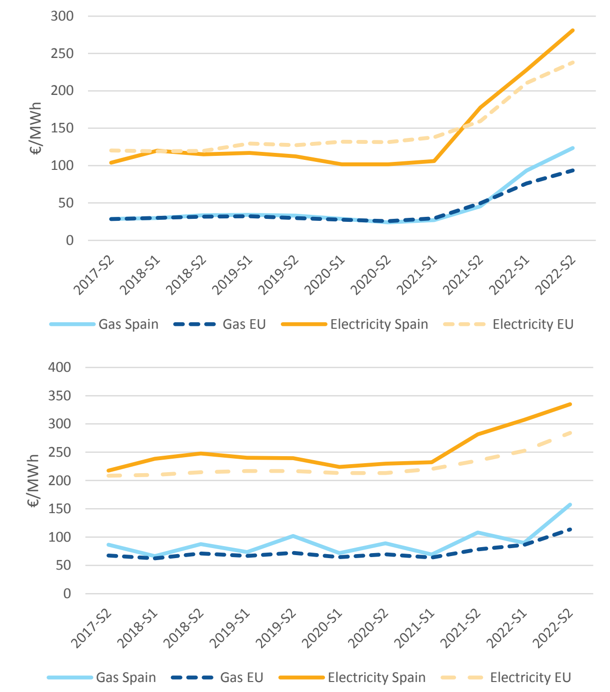
Spain is upgrading its grid infrastructure, but further investments can accommodate a higher share of renewable electricity. As part of its recovery and resilience plan, Spain will invest to digitalise its grid and improve energy storage to ease the integration of renewable energy sources. It also aims to speed up permitting procedures (Annex 12). With a deployment rate of around 90%, Spain is an EU front runner in rolling out intelligent metering systems. However, its electricity cross-border interconnection level of 5.35% in 2022 is still significantly below the interconnection target of 10% for 2020 and 15% for 2030. Progress on Projects of Common Interest with Portugal and France is expected to contribute to increasing interconnection levels, with commissioning of all ongoing electricity priority projects by 2030, namely the Biscay Bay electricity interconnection, the two Pyrenean crossings and the electricity interconnection between Portugal and Spain. In October 2022, the French and Portuguese heads of state and the Spanish head of government issued a joint statement proposing the creation of a Green Energy Corridor with a focus on hydrogen.

Graph A7.3: **Gas consumption per industrial sector, 2021 (% of total gas consumption in industry)**



Source: Eurostat

Graph A7.4: **Spain´s retail energy prices for industry (top) and households (bottom)**



On electricity: the band consumption is DD for households and ID for industry
(2) On gas, the band consumption is D2 for households and I4 for industry

Source: Eurostat

Despite the mechanisms introduced by Spain to mitigate soaring energy prices; households, in particular low-income families, and industries are being severely impacted. In Spain, the share of gas used in dwellings is almost 12.4% of the gas consumption in the country, putting households and their ability to cover basic needs such as heating or transport at risk ([42]). Similarly, the surge in energy prices has had a considerable impact on Spanish industry, which accounts for 31.2% of the gas consumption in the country (Graph A7.2). Sectors such as the metallurgical, chemical, wood and paper industries are highly exposed to energy shocks and are experiencing growing pressure to either raise their prices to safeguard margins or reduce production due to the high share of energy consumption.

Spain has high ambitions to transform its energy system, and further policy support could harness its potential to decarbonise the economy. Spain's deployment of renewable energy reached a total of 67.9 GW in 2022, increasing by 5.9 GW compared to 2021. Most of this growth was in solar photovoltaic (+28.1% in 2022), reaching 20.5 GW and wind (+5.0% in 2022), reaching 29.3 GW ([43]). This growth was built on an improved regulatory framework, in particular Royal Decree Laws 244/2019 and 18/2022. Spain has also taken measures on permitting procedures for renewable energy sources, by shortening the consultation periods and creating accelerated procedures for well-defined cases. Moreover, Spain has taken measures to facilitate self-consumption of renewable energy, by increasing the maximum distance between the installation and consumers, as well as promoting energy communities. There is still potential to further explore key sectors to meet the country´s renewables penetration and decarbonisation targets. This would include in particular a further upscaling of its biomethane production. Starting from a production of 0.36bcm in 2021, Spain has high additional potential capacity to produce biomethane by 2030 (approx. 4.1 bcm/year). This would allow Spain to replace approximately 13% of its current natural gas consumption with biomethane. Spain will need to increase its renewable energy target in the updated National Energy and Climate Plan to reflect the more ambitious EU climate and energy targets in the Fit for 55 Package and in the REPowerEU Plan

Spain has a strong manufacturing base of low-carbon technologies and components (wind, solar thermal and solar photovoltaics), which the government aims to strengthen due to decarbonisation objectives. Spain is among the top 10 countries in the world in the production of wind energy components and is among the top European countries exporting heat pumps worldwide. The transition to clean energy is mineral-intensive and will require a substantial supply of many critical minerals (see Annex 5). Apart from wind turbines and heat pumps, Spanish companies are also among the biggest European manufacturers of electrolysers and smart meters, and there are major Spanish players in the batteries research and innovation (R&I) field. Regarding clean energy jobs ([44]), these are more evenly spread along the value chain and a significant share comes also from the scientific and technical activities. One third of the jobs ([45]) is related to bioenergy (mainly solid biomass), solar PV is responsible for over 30 thousand jobs, and wind energy for almost 24 thousand. The figures for hydropower and concentrated solar power are also remarkable, almost 10 and over 5 thousand respectively.

Spain is in a position to support private, but most importantly public investment in Research and Innovation (R&I). Public investment in R&I, an EU Energy Union priority ([46]), has decreased considerably: from above 0.015% before 2013 (peaking at 0.028% in 2012) to a range below 0.01% since 2016 (between 0.007% - 0.009%) remaining at minimum levels also in 2020 (as a share of GDP). As for private R&I spending in Energy Union topics, there has been also a decreasing trend: from 0.05% of GDP between 2010-2013 to 0.03-0.04% since 2014, remaining at the lower end over the last years. Renewable

(42) Annex 8 looks at the impact of soaring energy prices on the most vulnerable households.

(43) IRENA, Renewable capacity statistics 2023.

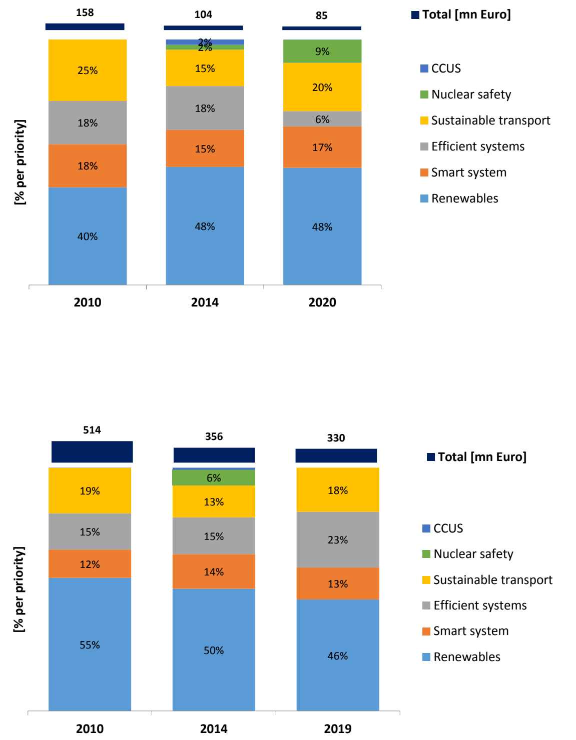
(44) Clean Energy Technology Observatory (CETO) Overall Strategic Analysis of Clean Energy Technology in the European Union (2022) and JRC based on Business Survey data from DG ECFIN and Skills-OVATE database by Cedefop and Eurostat.

(45) Data from IRENA and ILO (2022), Renewable energy and jobs: Annual review 2022, International Renewable Energy Agency, Abu Dhabi and International Labour Organization, Geneva. https://www.irena.org/publications/2022/Sep/Renewable-Energy-and-Jobs-Annual-Review-2022

(46) Renewables, smart systems, efficient systems, sustainable transport, carbon capture, utilisation and storage, and nuclear safety, COM(2015) 80 final (Energy Union Package).

energy R&I funding constituting the major share over time (see Graph A7.5. There is also a downward trend in venture capital invested in climate tech start-ups and scale-ups (2.6% in 2021 versus 8.7% in 2020, as a percentage of total venture capital invested) (47) and a strong shift of these investments from energy generation and grid to transport and mobility. More public and private investment in clean energy R&I, scale-up and affordable deployment is of pivotal importance. It is also important for bridging the gap between R&I and market uptake, helping boost EU competitiveness. In order to facilitate the introduction of innovative solutions into the electricity market, a framework was put in place for regulatory sandboxes in 2022 (48). Spain is carrying out a number of checks on products covered by ecodesign and energy labelling, that may be too low. This generates concerns with respect to the level playing field among economic operators and uncertainty as to the compliance levels of the concerned products, and therefore possible missed energy and CO2 savings. (49) Implementing the reforms and investments planned in the Spanish recovery and resilience plan will speed up the decarbonisation of industry (Annex 12).

Graph A7.5: **Public (top) and Private (bottom) R&I investment in Energy Union R&I priorities**



Source: JRC SETIS (2022)

(47) JRC elaboration based on PitchBook data (06/2022)

(48) Royal Decree 568/2022.

(49) The internet-supported information and communication system for the pan-European market surveillance

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

ENERGY DEPENDENCE

	SPAIN				EU			
	2018	2019	2020	2021	2018	2019	2020	2021
Import Dependency [%]	74%	75%	68%	69%	58%	61%	57%	56%
of Solid fossil fuels	80%	89%	55%	106%	44%	44%	36%	37%
of Oil and petroleum products	99%	102%	99%	96%	95%	97%	97%	92%
of Natural Gas	101%	101%	97%	100%	83%	90%	84%	83%
Dependency from Russian Fossil Fuels [%]								
of Solid fossil fuels	23%	33%	55%	30%	40%	44%	49%	47%
of Oil and petroleum products	2%	2%	2%	5%	30%	27%	26%	25%
of Natural Gas	2%	9%	10%	9%	40%	40%	38%	41%

ELECTRICITY

	2015	*2016*	2017	2018	2019	2020	2021	2022
Gross Electricity Production (GWh)	280,911	274,772	275,726	274,452	273,257	263,373	-	-
Combustible Fuels	128,947	113,618	133,002	118,149	117,125	93,778	-	-
Nuclear	57,196	58,633	58,039	55,766	58,349	58,299	-	-
Hydro	31,368	39,865	21,070	36,803	26,874	33,998	-	-
Wind	49,325	48,905	49,127	50,896	55,647	56,444	-	-
Solar	13,859	13,643	14,397	12,744	15,103	20,667	-	-
Geothermal	0	0	0	0	0	0	-	-
Other Sources	0	0	0	0	20	27	-	-
Net Imports of Electricity (GWh)	-133	7667	9169	11102	6862	3280	852	-
As a % of electricity available for final consumption	0%	3%	4%	5%	3%	1%	0%	-
Electricity Interconnection (%)	-	-	5.80%	6.71%	6.5%	6.5%	5.0%	5.4%

DIVERSIFICATION OF GAS SUPPLIES

	2015	2016	2017	2018	2019	2020	2021	2022
Gas Consumption (in bcm)	28.2	28.8	31.3	31.1	35.5	32.1	33.8	32.5
Gas Imports - by type (in bcm)	45.9	46.0	51.0	49.7	58.6	52.8	57.1	-
Gas imports - pipeline	32.4	32.4	34.6	34.8	37.2	32.5	37.0	-
Gas imports - LNG	13.5	13.6	16.4	14.9	21.4	20.4	20.2	-
Gas Imports - by main source supplier (in bcm) (1)								
Algeria	23.1	21.4	19.1	19.4	13.4	9.9	17.9	-
United States	0.0	0.2	1.5	0.6	8.2	10.2	10.8	-
Nigeria	7.7	9.4	8.8	8.2	8.5	7.9	8.5	-
Russia	0.0	0.0	0.0	1.7	6.3	6.8	6.4	-
Others	15.1	15.1	21.5	19.8	22.2	18.1	13.5	-

	2019	2020	2021	2022
LNG Terminals				
Number of LNG Terminals (2)	6	6	6	7
LNG Storage capacity (m3 LNG)	3,308,670	3,308,670	3,316,500	3,316,500
Underground Storage				
Number of storage facilities	4	4	4	4
Operational Storage Capacity (bcm)	3.39	3.5	3.5	3.5

CLEAN ENERGY

	2019	2020	2021	2022
VC investments in climate tech start-ups and scale-ups (EUR Mln) (3)	94.5	153.2	107.2	n.a.
as a % of total VC investments in Spain	7.3%	9.5%	2.7%	n.a.
Research & Innovation spending in Energy Union R&i priorites (2)				
Public R&I (EUR mln)	102.1	84.9	n.a.	n.a.
Public R&I (% GDP)	0.008%	0.007%	n.a.	n.a.
Private R&I (EUR mln)	329.8	n.a.	n.a.	n.a.
Private R&I (% GDP)	0.03%	n.a.	n.a.	n.a.

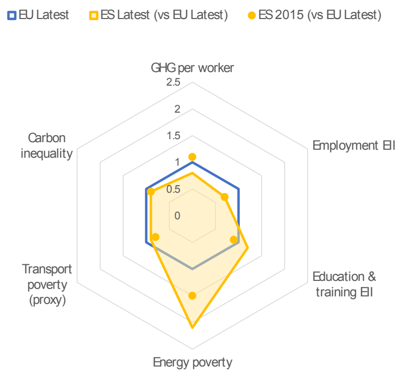
(1) The ranking of the main supliers is based on the latest available figures (for 2021)
(2) FSRU included
(3) Venture Capital investments include Venture Capital deals (all stages) and Private Equity Growth/Expansion deals (for companies that have previously been part of the portfolio of a VC investment firm).
Source: Eurostat, Gas Infrastructure Europe (Storage and LNG Transparency Platform), JRC SETIS (2022), JRC elaboration based on PitchBook data (06/2022)

This Annex monitors Spain's progress in ensuring a fair transition towards climate neutrality and environmental sustainability, notably for workers and households in vulnerable situations. The number of jobs in the green economy has quickly risen in recent years in Spain. Upskilling and reskilling of workers in declining and transforming sectors has increased to some extent, contributing to a fair green transition in line with the Council Recommendation ([50]). Yet further development of green skills remains key to a fair transition and the implementation of REPowerEU. Spain's recovery and resilience plan (RRP) outlines crucial reforms and investments for a fair green transition ([51]), complementing the territorial just transition plans and actions supported by the European Social Fund Plus (ESF+).

Employment in Spain's sectors most affected by the green transition remains overall stable while the green economy is expanding, but workers in declining activities need active support. The greenhouse gas (GHG) emissions intensity of Spain's workforce declined from 14.9 to 11.4 tonnes per worker between 2015 and 2021, and in 2021 was below the EU average of 13.7 tonnes (see Graph A8.1 and Table A8.1). Overall, in 2021 employment in Spain's energy-intensive industries (EII) represented a stable share of 2.2% of total employment (in 2020: 2.1% vs 3.0% in the EU). Employment in mining and quarrying has fallen by 13.5% since 2015 (to around 19 000 workers), along with the decline of coal and lignite mining especially in the regions of Asturias, Aragón and Castilla y León. Total jobs in the environmental goods and services sector grew by 22.4% (to 438 333) during 2015-20 (EU: +8.3%), reaching 2.2% of total employment, equal to the EU average (see Annex 9 for circular jobs specifically). The job vacancy rate in construction, which is a key sector for the green transition, is relatively low (0.5% vs 4.0% in EU in 2022) ([52]), which is in contrast with the perception in almost half of companies in the sector (49% - Q4 2022) of labour shortages as negatively affecting their economic activity. At least 25% of ESF+ subsidies for self-employment of young people under 30 are planned to be earmarked for entrepreneurial projects in the green economy.

Upskilling and reskilling in declining and transforming sectors slightly increased. Skills are key for smooth labour market transitions and preserving jobs in transforming sectors. In energy-intensive industries, workers' participation in education and training has increased from 9.3% in 2015 to 12.5% in 2022 and is above the EU average (10.4%). In Spain, 31% of citizens believe they do not have the necessary skills to contribute to the green transition (EU: 38%) ([53]) (cf. Annex 15). To address this challenge, specific investment under the RRF and the Just Transition Mechanism provides training for reskilling workers in regions affected by the transition, together with a broader training offer at national level and flexibility mechanisms to encourage in-company training. In Spain, approximately 6% of ESF+ funding contributes to green skills and jobs. For instance, the 'Empleaverde' programme, co-financed by the ESF, provides training and professional guidance to step up the creation of green and related jobs.

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



Source: Eurostat, EMPL-JRC GD-AMEDI/AMEDI+ projects and World Inequality Database (see Table A8.1).

Energy poverty indicators have worsened significantly in recent years and the spike in energy prices can be expected to aggravate the situation. The share of the population unable to keep their homes

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

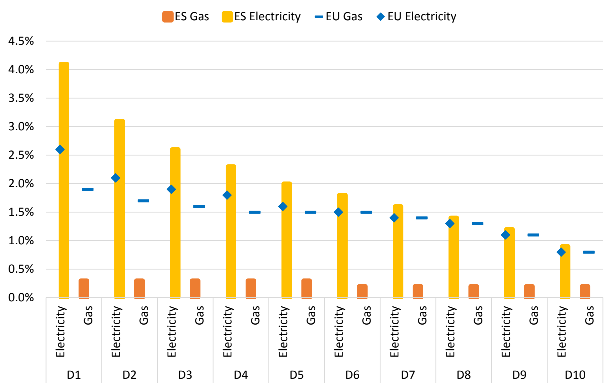
([51]) See also 2022 Country Report (Annex 6) and Annex 3 for an overview.

([52]) Eurostat (JVS_A_RATE_R2)

([53]) Special Eurobarometer 527. Fairness perceptions of the green transition (May – June 2022).

adequately warm increased from 10.6% in 2015 to 14.2% in 2021 (well above the EU average of 6.9% in 2021) ([54]). In particular, 27.7% of the population at risk of poverty (AROP) in 2021 (EU: 16.4% in 2021) and 16% of lower middle-income households (in deciles 4-5) were affected in 2021 (EU: 8.2% in 2021). Before the energy price hikes, an estimated 10.4% of the total population and 28.0% of the (expenditure-based) AROP population had residential expenditure budget shares on electricity, gas, and other fuels ([55]) above 10% of their household budget (still below the estimated EU average of 26.9% and 48.2%, respectively).

Graph A8.2: **Distributional impacts of energy prices due to rising energy expenditure (2021-2023)**



Mean change of energy expenditure as a percentage (%) of total expenditure per income decile (D) due to observed price changes (August 2021 – January 2023 relative to the 18 months prior), excl. policy support and behavioural responses.
Source: EMPL-JRC GD-AMEDI/AMEDI+ projects, based on Household Budget Survey 2015 and Eurostat inflation data for CP0451 and CP0452.

The increased energy prices in 2021-2023 negatively affect household budgets, in particular for low-income groups. As a result of energy price changes during the August 2021 to January 2023 period relative to the 18 months prior (cf. Annex 7), in the absence of policy support and behavioural responses, the fraction of individuals living in households which spend more than 10% of their budget on energy would have increased by 13.0 pps for the whole population and by 23.4 pps among the (expenditure-based) AROP population (16.4 pps and 19.1 pps in the EU, respectively) ([56]). Expenditure shares of low and lower-middle income groups would have increased the most for electricity, while gas price impacts are low and similar across the various income groups in Spain, as shown in Graph A8.2. Among the (expenditure-based) AROP population, individuals living in households with budget shares for private transport fuels ([57]) above 6% would have increased by 4.8 pps (EU average increase: 5.3 pps) to 34.4% in January 2023 due to the increase in transport fuel prices (EU average: 37.1%). In that regard, the RRP includes measures to promote the renovation of residential dwellings. These are expected to achieve significant energy savings, generate employment and support low-income households ([58]).

Access to public transport displays an urban-rural divide. Citizens perceive public transport to be relatively available (63% vs 55% in the EU), affordable (66% vs 54% in the EU) and of good quality (72% vs 60% in the EU). As regards these perceptions, rural areas in Spain perform worse than urban areas, yet still better when compared to rural areas in the EU overall ([59]). The average carbon footprint of the top 10% of emitters among the population in Spain is about 4.5 times higher than that of the bottom 50% (see Graph A8.1), i.e. slightly less pronounced than the EU average (5.0 times). In Spain, the average levels of air pollution in 2020 stood above the EU average (10 vs 11.2 µg/m PM2.5), with 59% of the population living in regions exposed to critical levels of air pollution ([60]), leading to significant health impacts, in particular on vulnerable groups, and 16 980 premature deaths annually ([61]).

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

([55]) Products defined according to the European Classification of Individual Consumption according to Purpose (ECOICOP): CP045.

([56]) EMPL-JRC GD-AMEDI/AMEDI+ ; see details in the related technical brief.

([57]) ECOICOP: CP0722.

([58]) See 2022 Country Report Annex 6 and 3.

([59]) EU (rural): 46%, 48%, 56% respectively. Special Eurobarometer 527.

([60]) Two times higher than the recommendations in the WHO Air Quality Guidelines (annual exposure of 5µg/m3)

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

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

Indicator	Description	ES 2015	ES Latest	EU Latest
GHG per worker	Greenhouse gas emissions per worker - CO2 equivalent tonnes	14.9	11.4 (2021)	13.7 (2021)
Employment EII	Employment share in energy-intensive industries, including mining and quarrying (NACE B), chemicals (C20), minerals (C23), metals (C24), automotive (C29) - %	2.2	2.1 (2020)	3 (2020)
Education & training EII	Adult participation in education and training (last 4 weeks) in energy-intensive industries - %	9.3	12.5 (2022)	10.4 (2022)
Energy poverty	Share of the total population living in a household unable to keep its home adequately warm - %	10.6	14.2 (2021)	6.9 (2021)
Transport poverty (proxy)	Estimated share of the AROP population that spends over 6% of expenditure on fuels for personal transport - %	29.6	34.4 (2023)	37.1 (2023)
Carbon inequality	Average emissions per capita of top 10% of emitters vs bottom 50% of emitters	4.5	4.4 (2020)	5 (2020)

Source: Eurostat (env_ac_ainah_r2, nama_10_a64_e, ilc_mdes01), EU Labour Force Survey (break in time series in 2021), EMPL-JRC GD-AMEDI/AMEDI+ projects and World Inequality Database (WID).

ANNEX 9: RESOURCE PRODUCTIVITY, EFFICIENCY AND CIRCULARITY

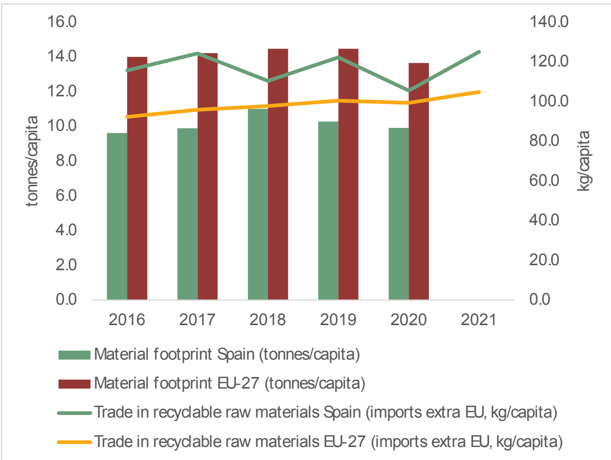
The circular economy transition is key to delivering on the EU's climate and environmental goals and provides large socio-economic benefits. It spurs job growth, innovation and competitiveness and fosters resilience and resource security. The circularity transition of industry, the built environment and agri-food can generate significant environmental improvements (see Annex 6), as they rank among the most resource-intensive systems.

Spain's circular economy transition is insufficient to meet the EU's circular economy goals. The EU's new circular economy action plan (CEAP) aims at doubling circular material use by 2030. Spain's circular use of material fluctuated from 8.2% in 2016 to 8% in 2021. It remains below the EU average of 11.7% in 2021. The CEAP also aims to significantly decrease the EU's material footprint. Spain's material footprint is below the EU average (13.7 tonnes per head in 2020) and the country has already met its target to reduce its consumption of resources by 30% between 2030 and 2010, having achieved a 29.5% reduction since 2010. The labour market benefits of the circular transition remain limited, with minor growth in direct circular jobs since 2016. As regards health and safety in circular jobs, fatal accidents in waste management and materials recovery are above the average of all economic sectors in Spain but below the EU average for this sector ([62]).

Spain recently adopted new policies to address circular economy challenges, but more measures are needed. In June 2020 Spain adopted a comprehensive circular economy strategy: 'España Circular 2030'. It aims to update, among others, the norms on construction and demolition waste. Spain has also approved the new Law 7/2022 on waste and contaminated soils for a circular economy, which includes measures on single-use packaging and creates new taxes on waste management, among other measures. However, the 2016-2022 national framework plan for waste management (PEMAR), the national prevention programme and many regional waste management plans still need revising.

The recycling performance has modestly improved over recent years. With a municipal waste recycling rate of 36.7% in 2021, Spain has missed the EU target for recycling 50% by 2020. Spain is at risk of missing the EU's municipal waste recycling target for 2025 and has a long way to go to reach the landfill reduction target for 2035. 52% of Spain's municipal waste was still landfilled in 2021, more than double the EU average (23%), and illegal landfilling has not been eradicated, diverting materials and resources that could be reused, remanufactured or recycled. Spain will need to make further efforts to meet the more ambitious recycling targets for the period up to 2035 through improvements in separate collection and treatment of waste with a view to recycling, in particular for biowaste.

Graph A9.1: **Trend in material use**

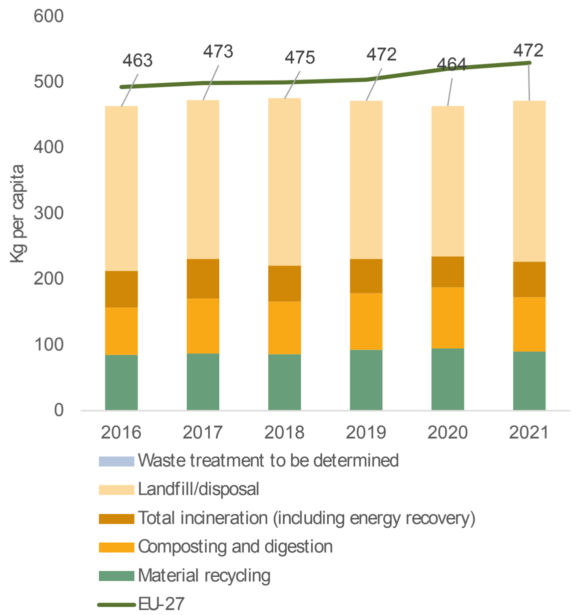


Source: Eurosta
Source:

The industrial system is increasingly circular. The economy, particularly industry, is more efficient at using materials than the EU average, with a resource productivity of 3.0 purchasing power standard per kilogramme vs 2.3 for the EU in 2021, further increasing Spain's resilience (see Annex 5). However, resource productivity has decreased since 2016, indicating significant potential to boost repair, reuse and the use of secondary raw materials. There remains scope to Improve water management, including completing the urban wastewater treatment infrastructure.

([62]) Eurostat [HSW_N2_02] for NACE Rev. 2 sector E38; 4.67 fatal accidents p. 100 000 employed in 2018-2020 vs 1.93 for all sectors in HU; 6.33 in the EU-27 for sector E38

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



Total incineration (including energy recovery) data missing in 2020 and 2021.
Source: Eurostat

The built environment system continues to exacerbate the depletion of resources, despite recent improvements. The recovery rate of construction and demolition waste has decreased since 2016 and remains below the EU average (73% vs 89%). Soil sealing progressed between 2015 and 2018 at a faster rate than the EU average. There is scope for renovating existing buildings and improving their use instead of building new ones, as well as increasing the share of secondary raw materials used in construction. The Basque Country's 'Ley de administración ambiental y circularidad en la construcción' sets a promising example, as it mandates that 40% of materials used in public construction projects must be recycled or reused.

The agri-food system has yet to efficiently manage water resources. Spain's composting and anaerobic digestion per head has fluctuated since 2016 but remained below the EU average in 2021 at 83 kg per head vs 100 kg, which was not in line with best practice. Increasing anaerobic digestion could enhance Spain's strategic autonomy by generating biomethane and/or producing organic fertilisers. Spain's warm climate and low rainfall partially explain high water abstraction figures, but there remains scope to use more efficient farming techniques.

There remains a financing gap in the circular economy, including waste management. Additional investments will be required to address growing needs. The financing gap was estimated at EUR 2.3 billion per year between 2014 and 2020. Over this period, investment needs were estimated to be at least EUR 4.2 billion per year while

Table A9.1:**Overall and systemic indicators on circularity**

AREA	2016	2017	2018	2019	2020	2021	EU-27	Latest year EU-27
Overall state of the circular economy								
Material footprint (tonnes/capita)	9.6	9.9	11.0	10.3	9.9	-	13.7	2020
YoY growth in persons employed in the circular economy (%)[1]	2.0	0.0	-1.5	2.5	-	-	2.9	2019
Water exploitation index plus (WEI+) (%)	6.6	13.5	6.7	8.1	-	-	3.6	2019
Industry								
Resource productivity (purchasing power standard (PPS) per kilogram)	3.0	3.1	2.9	3.1	2.8	3.0	2.3	2021
Circular material use rate (%)[2]	8.2	8.8	9.0	9.6	9.3	8.0	11.7	2021
Recycling rate (% of municipal waste)	33.9	36.1	34.8	38.0	40.5	36.7	49.6	2021
Built environment								
Recovery rate from construction and demolition waste (%)[3]	79.0	-	75.0	-	73.0	-	89.0	2020
Soil sealing index (base year = 2006)[4]	107.2	-	110.7	-	-	-	108.3	2018
Agri-food								
Food waste (kg per capita)[5]	-	-	-	-	90.0	-	131.0	2020
Composting and digestion (kg per capita)	72.0	84.0	80.0	86.0	93.0	83.0	100.0	2021

(1) Persons employed in the circular economy only tracks direct jobs in selected sub-sectors of NACE codes E, C, G and S; (2) the circular material use rate measures the share of material recovered and fed back into the economy in overall material use, including composting and digestion; (3) the recovery rate of construction and demolition waste includes waste which is prepared for reuse, recycled or subject to material recovery, including through backfilling operations; (4) soil sealing: 2016 column refers to 2015 data; (5) food waste includes primary production, processing and manufacturing, retail and distribution, restaurants and food services, and households.
Source: Eurostat, European Environment Agency.

investment baselines were EUR 1.9 billion per year (see Annex 6).

Digital transformation is key to ensuring a resilient and competitive economy. In line with the Digital Decade Policy Programme, and in particular with the targets in that Programme for digital transformation by 2030, this Annex describes Spain's performance on digital skills, digital infrastructure/connectivity and the digitalisation of businesses and public services. Where relevant, it makes reference to progress on implementing the Recovery and Resilience Plan (RRP). Spain allocates 28% of its total RRP budget to digital (EUR 19.6 billion) ([63]).

The Digital Decade Policy Programme sets out a pathway for Europe's successful digital transformation by 2030. The Programme provides a framework for assessing the EU's and Member States' digital transformation, notably via the Digital Economy and Society Index (DESI). It also provides a way for the EU and its Member States to work together, including via multi-country projects, to accelerate progress towards the Digital Decade digital targets and general objectives ([64]). More generally, several aspects of digital transformation are particularly relevant in the current context. In 2023, the European Year of Skills, building the appropriate skillset to make full use of the opportunities that digital transformation offers is a priority. A digitally skilled population increases the development and adoption of digital technologies and leads to productivity gains ([65]). Digital technologies, infrastructure and tools all play a role in the fundamental transformation needed to adapt the energy system to the current structural challenges ([66]).

Spain's main challenge in relation to the DESI dimension of human capital is a lack of ICT specialists. However, Spain performs well on at least basic digital skills and above basic digital skills (38% versus 26%). On advanced digital skills, the country scores in line with the EU average for ICT graduates (4.0% vs 3.9%) and female ICT specialists (both at 19%) but performs below the EU average on the ICT specialists indicator. The shortage of ICT specialists is a productivity-constraining factor that particularly affects small and medium-sized enterprises (SMEs) and micro-enterprises, which is a significant challenge for Spain. The country has already implemented some RRP measures focusing on improving digital skills for citizens and SMEs, and increasing the number of ICT specialists (e.g. the National Digital Competences Plan). Under this plan, some initiatives have been launched to promote digital skills for citizens (e.g. the public-private initiative Generation D programme) and to help SMEs hire digital transition experts (i.e. the Agents of Change programme). Improvements in digital education are being made by programmes aimed to improve teachers' digital skills and equip schools with digital devices and tools. However, there is still room for additional, complementary measures to increase the number of ICT specialists.

Spain is one of the EU's best performers on digital connectivity. The country performs particularly well on fixed very high capacity network (VHCN) and fibre to the premises (FTTP) coverage but has been only a mid-level performer on overall 5G coverage so far. This is mainly due to delays in auctioning all 5G pioneer bands. As part of its RRP, Spain assigned the 700MHz band in October 2021, and the 26GHz band was auctioned in December 2022. This is expected to accelerate 5G coverage in the country. In addition, as part of its RRP, in 2022 Spain approved a new general telecommunications law that promotes and facilitates investment in very high capacity networks. It also adopted targeted measures to accelerate 5G deployment (e.g. a temporary reduction in 5G spectrum taxation for 2022 and 2023).

The low level of advanced digitalisation of SMEs is also a major challenge for Spain. The rate of SMEs with at least a basic level of digital intensity ([67]) is slightly below the EU

([63]) The share of financial allocations that contribute to digital objectives has been calculated using Annex VII of the RRF Regulation.

([64]) The Digital Decade targets as measured by DESI indicators and complementary data sources are integrated to the extent currently available and/or considered particularly relevant in the MS-specific context.

([65]) See for example OECD (2019): OECD Economic Outlook, Digitalisation and productivity: A story of complementarities, [OECD Economic Outlook, Volume 2019 Issue 1 | OECD iLibrary (oecd-ilibrary.org)](https://www.oecd-ilibrary.org).

([66]) The need and possible actions for a digitalisation of the energy system are laid out in the Communication 'Digitalisation the energy system – EU action plan' (COM(2022)552.

([67]) The digital intensity score is based on counting how many out of 12 selected technologies (e.g. use an ERP or a CRM average and Spanish SMEs lag behind in the integration of advanced technologies, such as the cloud or big data. This gap, combined with a lack of ICT specialists, makes it difficult for SMEs – micro-enterprises in particular – to attract talent and benefit from the digital economy. The investments included in the RRP are expected to increase the share of firms with a basic level of digital intensity and boost the adoption of advanced digital technologies. Examples of RRP measures already implemented include the adoption of the National Strategy for Artificial Intelligence, which aims to improve the productivity of Spanish firms by using artificial intelligence. The Digitalisation of SMEs 2021-2025 plan provides voucher programmes (i.e. Digital Kit programme) to help digitalise SMEs and set up Digital Innovation Hubs. However, there is still a low level of R&D intensity in the ICT sector in Spain, and its R&D expenditure by business enterprises is far below the EU average ([68]). This constrains the productivity and competitiveness of Spanish firms, especially SMEs.

Spain performs satisfactorily on digitalisation of public services. The country is at the forefront of digital public services in the EU and continues to update its services and infrastructure, including through the RRP, to respond to rapid development of technology and individual needs. One example is the Plan for the Digitalisation of Spain's Public Administration 2021-2025, which includes a measure to increase interoperability between central and regional government IT platforms. In addition, the 'My Citizen Folder' app allows citizens to easily access certain digital public services and information. Spain has one eID means, the Spanish ID card (DNIe), notified at level of assurance 'high' under the eIDAS regulation. On access to electronic health records Spain scores well above the EU average with a score of 83 out of 100.

software) are used by enterprises. A basic level requires usage of at least 4 technologies.

([68]) 2022 PREDICT Dataset: The EU ICT sector and its R&D performance. JRC Digital Economy. July 2022.

Table A10.1:**Key Digital Decade targets monitored by DESI indicators**

	Spain DESI 2021	Spain DESI 2022	Spain DESI 2023	EU DESI 2023	Digital Decade target by 2030 (EU)
Digital skills					
At least basic digital skills	**NA**	**64%**	**64%**	**54%**	**80%**
% individuals		2021	2021	2021	2030
ICT specialists (1)	**3.9%**	**4.1%**	**4.1%**	**4.5%**	**20 million**
% individuals in employment aged 15-74	2020	2021	2021	2021	2030
Digital infrastructure/connectivity					
Fixed Very High Capacity Network (VHCN) coverage	**92%**	**94%**	**93%**	**73%**	**100%**
% households	2020	2021	2022	2022	2030
Fibre to the Premises (FTTP) coverage (2)	**85%**	**89%**	**91%**	**56%**	**-**
% households	2020	2021	2022	2022	2030
Overall 5G coverage	**13%**	**59%**	**82%**	**81%**	**100%**
% populated areas	2020	2021	2022	2022	2030
5G coverage on the 3.4-3.8 GHz spectrum band	**NA**	**NA**	**39%**	**41%**	**-**
% populated areas			2022	2022	2030
Digitalisation of businesses					
SMEs with at least a basic level of digital intensity	**NA**	**NA**	**68%**	**69%**	**90%**
% SMEs			2022	2022	2030
Big data (3)	**9%**	**9%**	**9%**	**14%**	**75%**
% enterprises	2020	2020	2020	2020	2030
Cloud (3)	**NA**	**27%**	**27%**	**34%**	**75%**
% enterprises		2021	2021	2021	2030
Artificial Intelligence (3)	**NA**	**8%**	**8%**	**8%**	**75%**
% enterprises		2021	2021	2021	2030
Digitalisation of public services					
Digital public services for citizens	**NA**	**87**	**86**	**77**	**100**
Score (0 to 100)		2021	2022	2022	2030
Digital public services for businesses	**NA**	**94**	**91**	**84**	**100**
Score (0 to 100)		2021	2022	2022	2030
Access to e-health records	**NA**	**NA**	**83**	**71**	**100**
Score (0 to 100)			2023	2023	2030

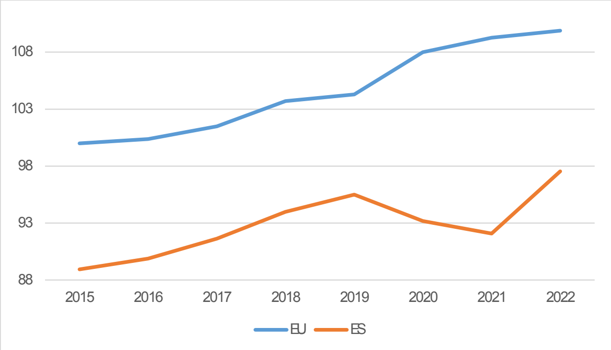
(1) The 20 million target represents about 10% of total employment.
(2) The Fibre to the Premises coverage indicator is included separately as its evaluation will also be monitored separately and taken into consideration when interpreting VHCN coverage data in the Digital Decade.
(3) At least 75 % of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

Source: Digital Economy and Society Index

This Annex provides a general overview of the performance of Spain's research and innovation system, which is essential for delivering the twin green and digital transition.

Spain is a 'moderate innovation performer' and the gap between its performance and the overall performance of the EU is widening. According to the 2022 edition of the European Innovation Scoreboard ([69]), while the country's overall performance is slightly better than in 2021, it is still just 88.8% of the EU average for 2022 (Graph A11.1).

Graph A11.1: **Innovation performance 2015-2022**



Source: European Innovation Scoreboard, 2022

R&D intensity ([70]) was 1.43% in 2021, below the European average and far from the national target for 2020 (2%) ([71]). While this indicator has now regained the levels achieved in 2010, research and innovation (R&I) investment is still subdued, with low expenditure both by the public and the private sectors. Public expenditure on R&D ([72]) was 0.62% of GDP in 2021, rising from 0.58% in 2015, but still below the EU average (0.76%). Private R&D expenditure also remains low, at 0.80% of GDP in 2021, half the EU average ([73]).

The Spanish recovery and resilience plan (RRP), with estimated investments of over EUR 11 billion in R&I over the 2022-2024 period, will help address this underinvestment. General investment in boosting the system's R&I capacity and targeted measures in health, energy, industrial development ([74]), with significant R&I-related investment, will be a quantitative step forward and help deliver the long-term EU objectives.

The full potential of the private sector in contributing to the Spanish innovation system remains untapped. Business-science linkages are weak and research commercialisation is limited ([75]). The European Innovation Scoreboard 2022 shows the limited extent to which small and medium-sized enterprises are involved in cooperation in innovation and, despite some recent progress, their R&I capacity is still low, both on product and process innovation. Even though venture capital expenditure improved between 2015 and 2022 ([76]), investment in innovative companies per head remains below EU levels ([77]). In addition, the share of researchers working in the business sector is below the EU average ([78]).

While the reforms and targeted investments in the Spanish RRP aim to support private innovation and strengthen knowledge transfer ([79]), additional action would help further improve Spain's innovation performance. The RRP will provide incentives and will improve the framework conditions as well as the mechanisms and resources for steering risk capital towards technological start-ups. However, a recent study by the Commission and the OECD ([80]) has provided

([69]) 2022 European Innovation Scoreboard (EIS), Country profile: Spain https://ec.europa.eu/assets/rtd/eis/2022/ec_rtd_eis-country-profile-es.pdf. The EIS provides a comparative analysis of innovation performance in EU countries, including the relative strengths and weaknesses of their national innovation systems (also compared to the EU average).

([70]) Defined as gross domestic expenditure on R&D as a percentage of GDP.

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

([72]) Source: Eurostat.

([73]) 1.49% in 2021 (source: Eurostat).

([74]) These measures are complemented by R&I-related investments in other sectors, such as agri-food and fisheries.

([75]) OECD Report on Knowledge Transfer (December 2021).

([76]) Source: EIS 2022.

([77]) Source: venture capital funding per head from European VC Pulse Check H1 2022 (dealroom.co – Silicon Valley Bank, August 2022): European Pulse Check H1 2022 (dealroom.co).

([78]) Source: elaboration on Eurostat data (2021), researchers working in the business sector. EU average: 56% / ES: 39%.

([79]) 'Investment 5 (C17.I5): Knowledge transfer' – which is linked to the reform of the Science Law.

([80]) OECD Report on Knowledge Transfer (December 2021).

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

Spain	2010	2015	2019	2020	2021	EU average (1)
Key indicators						
R&D intensity (GERD as % of GDP)	1.36	1.22	1.25	1.41	1.43	2.26
Public expenditure on R&D as % of GDP	0.66	0.58	0.54	0.62	0.62	0.76
Business enterprise expenditure on R&D (BERD) as % of GDP	0.70	0.64	0.70	0.78	0.80	1.49
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	9.3	9.2	9.1	:	:	9.8
Patent Cooperation Treaty patent applications per billion GDP (in PPS)	1.7	1.5	1.4	:	:	3.3
Academia-business cooperation						
Public-private scientific co-publications as % of total publications	5.0	5.7	6.3	6.1	6.3	7.1
Public expenditure on R&D financed by business enterprise (national) as % of GDP	0.050	0.034	0.035	:	:	0.054
Human capital and skills availability						
New graduates in science & engineering per thousand pop. aged 25-34	11.1	15.9	15.3	15.6	:	16.0
Public support for business enterprise expenditure on R&D (BERD)						
Total public sector support for BERD as % of GDP	0.156	0.116	:	:	:	0.194
R&D tax incentives: foregone revenues as % of GDP	0.027	0.029	:	:	:	0.100
Green innovation						
Share of environment-related patents in total patent applications filed under the Patent Cooperation Treaty (%)	16.2	13.8	12.9	:	:	13.3
Finance for innovation and economic renewal						
Venture capital (market statistics) as % of GDP	0.021	0.028	0.046	0.053	0.075	0.074
Employment in fast-growing enterprises in 50% most innovative sectors	3.2	4.8	6.1	:	:	5.5

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

further recommendations to improve science-business linkages. These

recommendations include improving the governance of public research organisations to make them more performance-based and increasing the level of professionalisation of knowledge intermediation services. The Spanish Government approved a follow-up plan based on these recommendations in December 2022, but some measures still need to be fully implemented ([81]).

The governance of R&I policies in Spain, a shared responsibility between national authorities and the regions, remains weak. The coordination in designing, implementing and evaluating R&I policies has not improved. Although the Spanish R&I system has historically been characterised by this dual governance, with policy responsibilities and roles for both the central government and the regions, the fragmentation and overlaps of R&I initiatives persist, with higher information and administrative costs for potential beneficiaries ([82]). Coordination in this multilayer governance arrangement has been limited to aspects linked to the managing of structural and investment R&I funds ([83]).

The RRP aims to improve the coordination between the central government and the regions, but the structural impact needs to be assessed. The new Spanish strategy for science, technology and innovation, the investment in the supplementary R&I plans, co-

([81]) The 'Plan de transferencia y colaboración' includes measures that will be implemented between 2023 and 2025.

([82]) OECD Report on Knowledge Transfer (December 2021).

([83]) Europeanisation of Public Policies in Spain (2022).

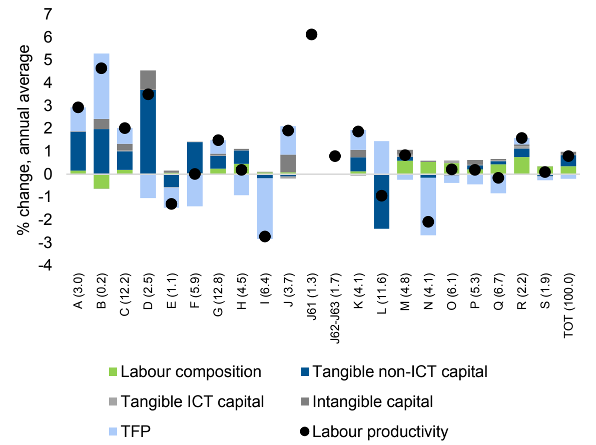
financed by the autonomous communities, the Cervera Network Programme, and the approved reform of Science and Innovation Law are expected to improve the R&I system's governance. It will be important to assess their implementation, undertaking complementary actions where needed.

Moderate productivity growth is an endemic problem for the Spanish economy. In recent years, Spanish productivity (GDP per hour worked) has grown albeit at a decreasing growth rate and more slowly than peer EU economies. Productivity growth kept up with the EU average growth rate until 2014 but since then it has declined to 90% of the EU average in 2022 ([84]). The contribution of total factor productivity ([85]) to productivity growth also slightly decreased up to 2019 ([86]). The slow-down in productivity in the years before COVID-19 was mainly due to low productivity growth in industry (see Graph A12.1). Spain has not yet established the National Productivity Board, which would contribute to foster productivity policies.

Productivity performance across sectors has varied significantly in the last two decades. While mining, textiles, energy, information, and communications show levels of average annual growth in labour productivity above 3%, other sectors like water supply, construction, transport and accommodation and food services are experiencing negative average annual growth in labour productivity (see Graph A12.1). The poor performance of transport and accommodation and food services (whose productivity has been decreasing by more than 2% over the last two decades) is worrying because of the large weight of these sectors in the economy, in particular tourism (estimated to account for 8% of GDP and 11.4% of employment in 2021) ([87]).

Strengthening the integration of Spain's economy into the EU single market will improve resilience and increase competitiveness. Spain is a big economy whose trade integration in the single market for goods and services is below the EU average (ES 22.1% vs 45.8% EU in 2022) ([88]). In this new geopolitical scenario, a stronger single market is needed to ensure long-term sustainable competitiveness. The effective implementation of RRP measures in Spain (e.g., better regulatory environment, effective implementation of market unity within Spain, reduction of late payments, reduction of barriers in some business services including civil engineers and tourist guides ([89]), improve access to credit, public procurement mechanisms, upskilling and reskilling) enhance the single market in Spain.

Graph A12.1: **Labour productivity by sector, average annual growth 2000-19**



Sectoral codes: A Agriculture; B Mining; C Manufacturing; D Energy; E Water supply; F Construction; G Wholesale and retail trade; H Transport; I Accommodation and food services; J Information and communication; K Financial; L Real estate; M Professional and scientific services; N Administrative and support services; O Public administration; P Education; Q Health; R Arts and entertainment; S Other services
Source: EUKLEMS & INTANProd database, 2021 edition

Market fragmentation, within Spain, continues to be a major obstacle to raising productivity. The Spanish recovery and resilience plan (RRP) includes reforms to strengthen the functioning of the single market i.a. law 'on Business Creation and Growth' ([90]), and reforms under the public procurement law aiming to improve the functioning of public procurement system.

The share of firms reporting business regulation as a major obstacle for their long-term investment is significantly higher in Spain than the EU average (60.5% vs 29.6% in

([84]) Eurostat. Hourly productivity in PPS (EU=1), percentage of the EU.

([85]) TFP is typically related to technological advancement.

([86]) AMECO total factor productivity. EC calculations. Hourly productivity in PPS (EU=1), percentage of the EU.

([87]) INE : https://www.ine.es/en/prensa/cst_2021_en.pdf

([88]) https://single-market-scoreboard.ec.europa.eu/competitiveness/integration_en

([89]) Communication on updating the reform recommendations for regulation in professional services, COM(2021)385

([90]) Create and Growth Law, in particular Chapter III "Better Regulation". Milestone 191 of Spanish Recovery and Resilience Plan (RRP). Entered into force 28/09/2022

2022). ([91]) Moreover, 57% of surveyed investors ([92]) are fairly or very unconfident that their investments are protected by the law and the courts in Spain.

In certain Autonomous Communities, retail regulatory barriers continue to hamper competition. Spain is among the most restrictive Member States as regards retail regulatory frameworks, in particular for retail operations. ([93])

Low productivity in Spain might be partially explained by the difficulties SMEs experience in scaling up, which reduces their ability to innovate, export, adopt IT, hire a more educated workforce (including people with managerial skills) and achieve economies of scale. Small companies tend to experience lower productivity than large ones. The average of EU companies is 24% larger than in Spain. Spain is among the MS with the greatest weight of small companies in the business park ([94]).

A better regulation, with less size-dependent regulatory thresholds ([95]), less administrative burden would help increase the size of SMEs. Finally diversifying financial instruments ([96]), would help SMEs scale-up, in particular in the current financial situation of increasing interest rates.

SMEs have an essential role in the green and digital transformation of the Spanish economy (they comprise 99.9% of all companies, 68.2% of people employed and 56.1% of value added) ([97]). According to the business confidence indicator, 27.3% of SMEs are pessimistic about the performance of their business ([98]). Registrations of new companies are below the EU average (106.2 vs 121.2 in 2022) while bankruptcies are higher than the EU average (221.6 vs 86.8 in 2022), a figure that increased significantly after temporary COVID-19 support measures were withdrawn (Table A12.1).

The share of SMEs experiencing late payments (Table A12.1) in the past 6 months is below EU average (36.4 % vs 43 % in 2022). Nonetheless in 2021 SMEs still waited to receive payments longer than legally required, both from other firms (70 days vs the 60 days by law 15/2010) and from public administrations, particularly those at local level (61 days vs the 30 days by law 15/2010) ([99]). With Law “Create and Grow” in RRP, there has been some progress in the fight against late payments, but more needs to be done. It is necessary to establish a regime to ensure proper enforcement of these rules.

(91) EIB survey: Impact of regulation on long-term investment, % of firms reporting business regulation as major obstacle.

(92) 81% of them answered that ‘Frequent changes in legislation or concerns about quality of the law-making process’ was the reason for the distrust. For more information, please see EU Justice Scoreboard.

(93) European Commission, Retail Restrictiveness Indicator (2022 update),

(94) CEPYME Spanish Confederation of SMEs https://cepyme.es/crecimiento-empresarial-diciembre-2022/

(95) IMF Art IV published in January 2023

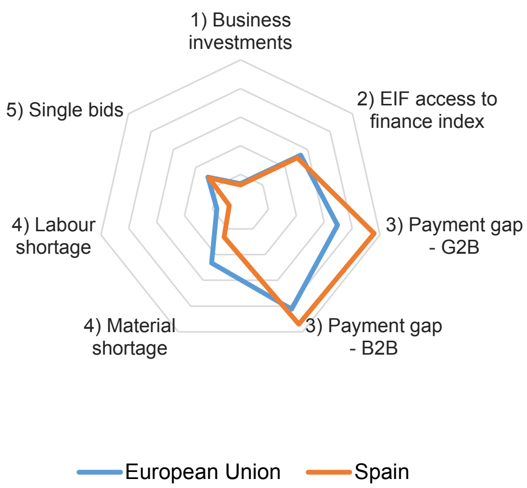
(96) Spain is relying more on loans than on equity, according to the EIF Access finance - Loan, Composite - Equity, Composite

(97) SME Performance Review 2021/2022 - Spain country sheet https://ec.europa.eu/docsroom/documents/50704.

(98) INE - Spanish National Statistics Institute; BCI – Business Confidence Indicator.

(99) Report on Late payments: Plataforma Multisectorial contra la Morosidad. https://pmcm.es/informe-morosidad-2021/.

Graph A12.2: **Business environment and productivity drivers**



Source: 1) % of GDP, 2021 Eurostat;
2) composite indicator, 2021 European Investment Fund access to finance index;
3) average payment delay in number of days, 2022 Intrum;
4) % of firms in manufacturing facing constraints, 2022 European Commission business consumer survey;
5) proportion of contracts awarded with a single bidder, 2022 Single Market Scoreboard.

Implementing the reforms and investment planned in the Spanish RRP represents a historic opportunity for a successful twin transition of the Spanish economy. Support for industry and businesses in their recovery from multiple crises including , high energy prices and in their transition to climate neutrality and sustainability requires a dedicated focus on: scaling up companies, digitalisation of SMEs (Annex10), R&D and innovation (Annex 10), skills mismatches (Annex 4), supply chain disruptions, access to critical raw materials (Annex 5), speed up permitting procedures, to scale up manufacturing of clean technologies to make sure that Spain is well-equipped for the clean-energy transition ([100]) (Annex 7 and 9).

([100]) Net Zero Industry Act (NZIA)

Table A12.1:**Industry and the single market**

	POLICY AREA	INDICATOR NAME	2018	2019	2020	2021	2022	EU27 average (*)
HEADLINE INDICATORS	Economic Structure	Net private investment, level of private capital stock, net of depreciation, % GDP (1)	4.5	5	2.9	2.5	3	**3.7**
		Net public investment, level of public capital stock, net of depreciation, % GDP (1)	-0.3	-0.2	0	0.2	0.4	**0.4**
		Real labour productivity per person in industry (% yoy)(2)	-2.1	-1.3	-9.7	8.9	1.1	**1.4**
	Cost competitive-ness	Nominal unit labour cost in industry (% yoy)(2)	3.1	1.5	10	-3.7	0.6	**2.9**
RESILIENCE	Shortages	Material shortage (industry), firms facing constraints, % (3)	3	5	7	17	26	**47**
		Labour shortage using survey data (industry), firms facing constraints, % (3)	6	3	4	5	8	**28**
		Vacancy rate (business economy)(4)	0.6	0.5	0.4	0.6	0.7	**3.1**
	Strategic dependencies	Concentration in selected raw materials, Import concentration index based on a basket of critical raw materials (5)	0.16	0.15	0.14	0.16	0.17	**0.18**
		Installed renewables electricity capacity, % of total electricity produced (6)	51.5	54.6	57.7	60.5	n.a.	**50.9**
SINGLE MARKET	Single Market integration	EU trade integration, % (7)	18.5	18.3	17.0	19.5	22.1	**45.8**
	Restrictions	EEA Services Trade Restrictiveness Index (8)	0.04	0.04	0.04	0.04	0.04	**0.05**
	Public procurement	Single bids, % of total contractors (9)	22	27	28	27	28	**29**
BUSINESS ENVIRONMENT - SMEs	Investment obstacles	Impact of regulation on long-term investment, % of firms reporting business regulation as major obstacle (10)	55.4	58.8	63.6	64.1	60.5	**29.6**
	Business demography	Bankruptcies, Index (2015=100)(11)	83.8	91	84.4	135.4	221.6	**86.8**
		Business registrations, Index (2015=100) (11)	100.9	99.7	83.8	107.6	106.2	**121.2**
	Late payments	Payment gap - corporates B2B, difference in days between offered and actual payment (12)	n.a	21	12	16	n.a.	**13**
		Payment gap - public sector, difference in days between offered and actual payment (12)	n.a	24	11	22	n.a.	**15**
		Share of SMEs experiencing late payments in past 6 months, % (13)	n.a	40.3	40.6	33.9	36.4	**43**
	Access to finance	EIF Access to finance index - Loan, Composite: SME external financing over last 6 months, index values between 0 and 1 (14)	0.78	0.82	0.91	0.85	n.a.	**0.46**
		EIF Access to finance index - Equity, Composite: VC/GDP, IPO/GDP, SMEs using equity, index values between 0 and 1 (14)	0.15	0.11	0.11	0.18	n.a.	**0.23**

(1) last available year
Source: (1) AMECO, (2) Eurostat, (3) ECFIN BCS, (4) Eurostat, (5) COMEXT and Commission calculations, (6) Eurostat, (7) Eurostat, (8) OECD, (9) Single Market Scoreboard, (10) EIB survey, (11) Eurostat: (12) Intrum, (13) SAFE Survey, (14) EIF SME Access to Finance Index

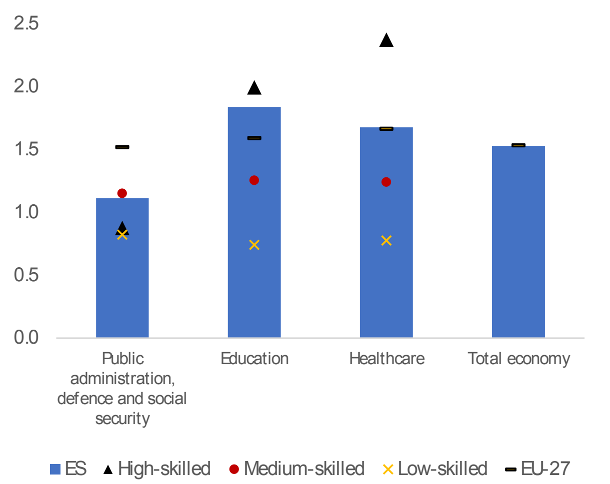
This Annex outlines the performance of Spain's public administration, which is essential for providing services and carrying out reforms. After the COVID-19 crisis, perceptions of government effectiveness in Spain fell further below the EU average, reaching its lowest point since 2011 (101). Spain has launched several reforms under its recovery and resilience plan (RRP) to resolve some long-standing challenges in policymaking, coordination between levels of government, public sector employment, financial management and service delivery. Digital transformation of the public administration is higher than the EU average (see Annex 10).

Spain's core civil service is ageing fast. The indicators show an older workforce among public administration, defence and social security workers (Graph A13.1), compared to the education and healthcare sectors, the whole economy and the EU-27 average. Competitions to enter the civil service test knowledge, with little attention to skills. Following the recruitment freezes in the public sector over the last decade, employment on temporary contracts has spiked. Recent amendments to the employment laws, required under the RRP, aim to reverse this trend. Modernisation of the selection process by introducing competency frameworks, also planned under the RRP, has been launched, but with a delay. At territorial level, the programme "First Professional Experience in Public Administration" focuses on attracting young unemployed persons in areas related to public services.

The justice system faces efficiency challenges. In particular, the time it takes to resolve civil and commercial cases in the Supreme Court remains very long (888 days in 2020, the second highest in the EU after Italy). Against this backdrop, the government has tabled several legislative proposals in parliament to make the justice system more efficient (102).

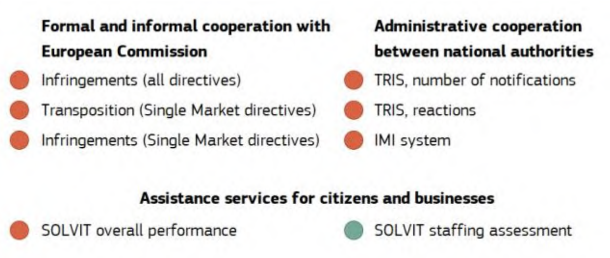
Spain's implementation of single market rules requires attention. It lags in most indicators that measure the performance of single market governance tools (Graph A13.2).

Graph A13.1: **Spain. Ratio of 25-49- to 50–64-year-olds by sector and occupation**



(1) A lower ratio denotes a more aged civil service.
Source: European Commission, based on the 2022 Labour Force Survey

Graph A13.2: **Spain. Performance on the single market scoreboard governance tools**



Red denotes a poor performance; green, a good performance. TRIS: Technical Regulation Information System; IMI: Internal Market Information System
Source: Single market scoreboard

Regulatory fragmentation, limited ex-post evaluation of policies and frequent use of emergency procedures to adopt laws weaken the quality of Spain's legislation. First, over time Spain's public administrations have noticeably increased their capacity to adopt legislation, especially regional governments (Graph A13.3a). The available literature (103) connects lower rates of company creation, company productivity and judicial effectiveness to the increasing volume and complexity of Spain's legislation and to

(101)Worldwide Governance Indicators, 2021.

(102) For a more detailed analysis of the performance of the justice system in Spain, see the 2023 EU Justice Scoreboard (forthcoming) and the country chapter for Spain in the 2023 Rule of Law Report (forthcoming).

(103)See De Lucio, J., Mora-Sanguinetti, J.S. 2022. Drafting "better regulation": The economic cost of regulatory complexity. Journal of Policy Modelling, volume 44, 2022

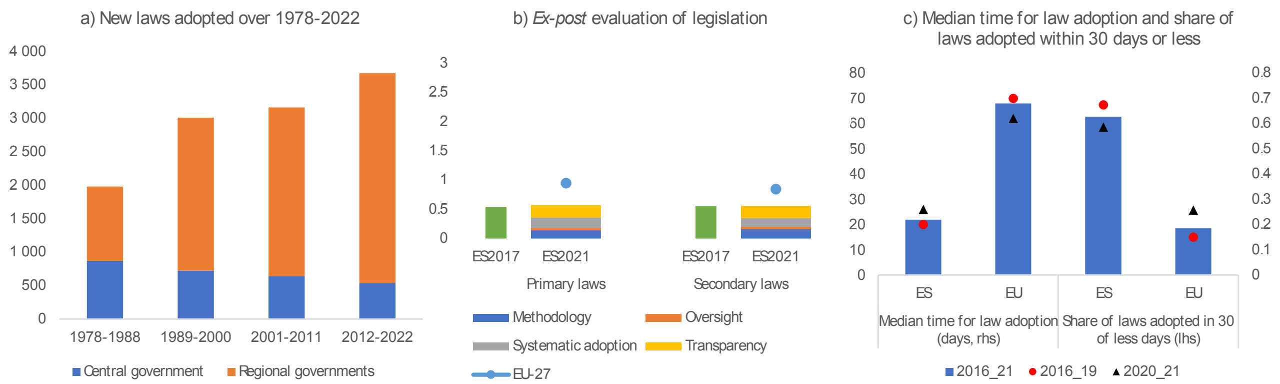
Table A13.1: **Public administration indicators**

ES	Indicator ([1])	2017	2018	2019	2020	2021	2022	EU-27([2])
	E-government and open government data							
1	Share of individuals who used the internet within the last year to interact with public authorities (%)	61.5	65.4	63.3	67.3	72.7	n/a	64.8
2	E-government benchmark overall score ([3])	n/a	n/a	n/a	77.8	78.8	79.5	72.9
3	Open data and portal maturity index	n/a	0.9	0.9	0.9	1.0	0.9	0.8
	Educational attainment level, adult learning, gender parity and ageing							
4	Share of public administration employees with tertiary education (levels 5-8, %)	55.0	54.8	57.2	57.8	58.2 (b)	60.7	52.0
5	Participation rate of public administration employees in adult learning (%)	14.0	15.1	15.0	14.1	20.2 (b)	22.5	16.9
6	Gender parity in senior civil service positions ([4])	42.6	21.6	17.6	14.2	13.8	3.0	11.0
7	Ratio of 25-49 to 50-64 year olds in NACE sector O	1.3	1.3	1.2	1.1	1.0 (bd)	1.1 (d)	1.5
	Public financial management							
8	Medium term budgetary framework index	0.8	0.8	0.8	0.9	0.9	n/a	0.7
9	Strength of fiscal rules index	1.8	1.9	1.9	1.9	2.0	n/a	1.5
	Evidence-based policy making							
10	Regulatory governance	1.61	n/a	n/a	n/a	1.76	n/a	1.7

([1]) High values denote a good performance, except for indicator # 6. ([2]) 2022 value. If not available, the 2021 value is shown. ([3]) Measures the user centricity and transparency of digital public services as well as the existence of key enablers for the provision of those services. ([4]) Defined as the absolute value of the difference between the percentage of men and women in senior civil service positions. Flags: (b) break in time series; (d) definition differs; (u) low reliability.
Source: ICT use survey, Eurostat (# 1); E-government benchmark report (# 2); Open data maturity report (# 3); Labour Force Survey, Eurostat (# 4, 5, 7), European Institute for Gender Equality (# 6); Fiscal Governance Database (# 8, 9); OECD Indicators of Regulatory Policy and Governance (# 10).

regulatory fragmentation. Second, ex post evaluation of legislation, which help ensure that it remains up to date and fit for purpose, is less advanced compared to the EU-27 average (Graph A13.3b). Third, Spain adopts legislation in parliament rapidly due to the very frequent use of emergency procedures. Unlike in other EU countries, the COVID-19 pandemic led to no increase in the use of such procedures (Graph A13.3c). Reforms under Spain's RRP seek to improve the evaluation of public policies by creating a national evaluation agency and strengthening the policy evaluation planning. Other measures aim to increase the transparency of and engagement in 'sectoral conferences', where the central and regional governments coordinate policies.

Graph A13.3: **Spain. a) Number of new primary laws adopted; b) Performance in ex post evaluation of legislation; c) Median time to adopt laws and share of laws adopted within 30 days or less**



Source: European Commission based on Boletín Oficial del Estado (a) and national parliament's websites (c). OECD Indicators of Regulatory Policy and Governance (iREg) indicators (b).

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

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

The Spanish labour market made a robust recovery in 2021 and 2022, but several challenges persist, including risks stemming from Russia's war of aggression against Ukraine. The employment rate recovered from the COVID-19 crisis, in line with economic activity, reaching a peak of 69.9% in Q2-2022 and stabilising at 69.3% in Q4-2022. However, it remains well below the EU average of 74.9%. The unemployment rate decreased in Q4-2022 by 0.5 percentage points (pps) year-on-year to 12.9%, but it is still double the EU average of 6.1%. The youth unemployment rate is also double the EU average (29.4% vs 14.5%), despite decreasing 1.8 pps in the same period. The Spanish labour market faces a persistent challenge with a high share of precarious employment relationships. As part of its recovery and resilience plan (RRP), Spain passed a comprehensive reform of the legislation on fixed-term contracts in December 2021 and one on hiring incentives in January 2023, which are expected to increase permanent and quality employment. Following these reforms, the share of temporary employees in the private sector decreased rapidly (from 23.6% in 2021 to 18.5% in 2022). However, the share of fixed-term contracts in the public sector remains high (31.4% in 2022). Overall, the share of people with temporary contracts (20.8% vs 12.9% in 2022), as well as that of those younger than 30 (45.7% vs 35.6% in 2022) is still higher than the EU average, although with a decreasing tendency in both cases.

Following an increase during the COVID-19 crisis, long-term unemployment declined, but remains a major challenge. The long-term unemployment rate improved in 2022 (falling 1 pps from Q4-2021 to Q4-2022), but it is still double the EU average (4.8% vs 2.2%). Moreover, 22.7% of unemployed people were in very long-term unemployment (i.e. for 24 months or more) in Q4 2022. To address these issues, under its RRP, Spain has passed a new employment law to increase the participation of private and local entities in active labour market policies. The European Social Fund Plus (ESF+) will continue to support the more vulnerable with specific measures such as integrated paths for labour market insertion (EUR 950 million). At the same time, improving the effectiveness of public employment services, also via continued evaluation, remains a priority. Addressing these challenges would support progress towards the 2030 national employment rate target of 76%.

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

Policy area	Headline indicator	
Equal opportunities and access to the labour market	Early leavers from education and training (% of population aged 18-24, 2021)	13.9
	Share of individuals who have basic or above basic overall digital skills (% of population aged 16-74, 2021)	64.2
	Youth NEET rate (% of population aged 15-29, 2021)	12.7
	Gender employment gap (percentage points, 2021)	10.9
	Income quintile ratio (S80/S20, 2021)	6.2
Dynamic labour markets and fair working conditions	Employment rate (% of population aged 20-64, 2021)	69.5
	Unemployment rate (% of active population aged 15-74, 2021)	12.9
	Long term unemployment (% of active population aged 15-74, 2021)	5
	GDHI per capita growth (2008=100, 2021)	97.7
Social protection and inclusion	At risk of poverty or social exclusion rate (% of total population, 2021)	27.8
	At risk of poverty or social exclusion rate for children (% of population aged 0-17, 2021)	33.4
	Impact of social transfers (other than pensions) on poverty reduction (% reduction of AROP, 2021)	30.5
	Disability employment gap (percentage points, 2021)	15.9
	Housing cost overburden (% of total population, 2021)	9.9
	Children aged less than 3 years in formal childcare (% of population under 3-years-old, 2021)	55.3
	Self-reported unmet need for medical care (% of population 16+, 2021)	1.1

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

(1) Update of 27 April 2023. 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 2023. 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.
Source: Eurostat

The rates of early leavers from education and training and of young people not in education, employment or training (NEETs) have declined, but challenges persist, including the participation of low-qualified adults in learning. The youth NEET rate is still high (12.7% in 2022 vs 11.7% in the EU) but is improving, down from 17.3% in 2020. Initiatives such as the Programme for orientation, progress and educational enrichment, PROA+ (*Programa para la orientación, avance y enriquecimiento educativo)*, supported by the Recovery and Resilience Facility (RRF) and the European Social Fund (ESF+), have helped strengthen individual student support and reduce the number of early school leavers (see also Annex 15). The share of adults (aged 25-64) participating in learning activities over the past 4 weeks stood at 14.4% in 2021 (higher than 10.8% in the EU) but is three times lower among low-qualified people (5.2%). The RRF and ESF+ also support training activities to strengthen the digital and green transitions. This is expected to contribute to achieving the ambitious national target of at least 60% of adults participating in training every year by 2030 (starting from 30.4% in 2016).

Skills mismatches are high, in a context of limited but increasing labour shortages. A large share of tertiary educated workers (36% in 2020 vs an EU average of 24.2%) are employed in low-skilled occupations. Although limited in comparison with other EU countries, in Q4-2022, businesses' perception of labour shortages as negatively affecting their economic activity was notably high in sectors like hospitality (62%) and construction (49%), which is in contrast with the relatively high unemployment rate and relatively low job vacancy rate (0.9% vs 2.8% EU average in Q4-2022). To tackle skills mismatches, under the RRP, Spain passed a new VET law that should contribute to increase the enrolment in VET programs more in line with labour market needs, and is investing in upskilling and reskilling activities, including of employees on short-time work schemes, notably under the new RED mechanism (a permanent scheme to stabilise employment against cyclical or sectoral crises). Spain still faces challenges in relation to the certification of skills with 46% of workers lacking professional certificates, although it has streamlined the certification procedure. The government set a goal to provide 3.3 million workers with proof of qualifications by 2024. Spain has introduced initiatives to address skills mismatches and provide the population with digital skills (starting from an already good overall level of basic digital skills) and green skills. These include 'Digitalizate', funded under the RRF. The ESF/ESF+ supports training and certification efforts on a complementary basis.

Social indicators worsened in 2021, pointing to social inclusion challenges. Even though measures to protect households were taken, the COVID-19 crisis significantly increased overall income inequalities in 2021 (income 2020) and led to a drop in gross disposable household income per capita. Although measures were taken to protect vulnerable households from the increase in energy prices (see also Annex 8) and increase the minimum wage, the current inflationary trend, together with contained wage increases and the tightening of financial conditions to address inflation may further deteriorate the purchasing power of low- and middle-income households. The share of people at risk of poverty or social exclusion (AROPE), at 27.8%, is one of the highest in the EU (6.1 pps above the EU average in 2021), especially for children (33.4% vs 24.4% in the EU). Non-EU-born people are particularly vulnerable as the AROPE gap between them and people born in Spain is 34.2 pps (vs 22 pps in the EU). Their in-work poverty rate is also the highest in the EU (34.2% vs 20.8% in the EU). Housing affordability is a concern as the housing cost overburden rate is high (9.9% vs 7.5% in the EU), especially among tenants renting at market prices (40.9% vs 21.2% in the EU). Under the RRP, Spain is investing EUR 2 billion to construct at least 20 000 energy-efficient social rental housing units by 2026. The ESF+ will also support housing for children via the deinstitutionalisation of children living in institutions.

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

Indicators	Latest data	Trend (2015-2022)	National target by 2030	EU target by 2030
Employment (%)	69.5 (2022)		76	78
Adult learning[1] (%)	30.4 (2016)		60	60
Poverty reduction[2] (thousands)	+871 (2021)		-2 815	-15 000

(1) Adult Education Survey, adults in learning in the past 12 months.
(2) Number of persons at risk of poverty or social exclusion (AROPE), reference year 2019.
Source: Eurostat, DG EMPL

The social protection system's effectiveness remains limited but is improving. The impact of social transfers (excluding pensions) on reducing poverty increased from 23.4% in 2020 to 30.5% in 2021, but it remains far below the EU average of 37.1%, especially for children (24.5% vs 43.1% in the EU in 2021). Despite substantial progress, the take-up of the national minimum income scheme is incomplete (67% of the 850 000 target claimants). New supplements for children as well as the new employment activation system are expected to prevent poverty traps and alleviate child poverty ([104]). Temporary employees remain much more vulnerable to material and social deprivation than standard employees (20% vs 6.9%). The share of registered short-term unemployed people receiving unemployment benefits/assistance was 45% (EU: 57%). Overall, there is scope for greater social policy action to achieve Spain's national target of 2.815 million fewer people at risk of poverty or social exclusion by 2030 (compared to 2019), including 713 000 children.

([104]) The minimum income reform is expected to increase labour market participation of people in the first quartile, especially women, and decrease poverty, particularly extreme poverty, at a very small budget cost. Results by the Joint Research Centre, based on the EUROMOD model, and the EUROLAB model for labour supply reactions (for details of the latter, see Narazani, E., Colombino, U. and Bianey P., "EUROLAB: A Multidimensional Labour Supply-Demand Model for EU Countries", European Commission, 2021)

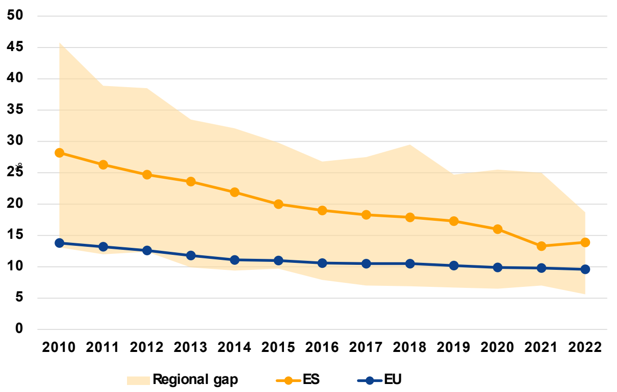
This Annex outlines the main challenges for Spain's education and training system in light of the EU-level targets and other contextual indicators under the European Education Area strategic framework, based on the 2022 Education and Training Monitor.

Teacher shortages are becoming a major challenge. The teacher population is ageing and 23% of teachers have temporary contracts. Teacher shortages are already pronounced in certain subjects (STEM in particular). To address the challenges, the government approved Royal Decree 270/2022 ([105]) aiming to reduce the rate of interim teachers to below 8%. The government also aims to make teaching careers more attractive; a thorough reform is under preparation.

Spain aims to improve access to early childhood education and care (ECEC) in all regions. The participation rate of children in ECEC is one of the highest in the EU. For children older than 3, it was 97.2% in 2020 (EU: 93.0%) and 41.1% for children under 3 (EU: 18.5%). However, access for the younger age group varies greatly across regions due to the scarcity of free places and lack of common criteria at national level to guarantee access for the most vulnerable ([106]). The national recovery and resilience plan (RRP) includes the creation of 60 000 affordable public ECEC places for children below the age of 3 by Q4/2024, notably in areas of higher risk of poverty or social; exclusion and rural areas.

Educational outcomes reflect regional disparities. The rate of early leavers from education and training (ELET) stood at 13.9% in 2022 (0.6 percentage points (pps) higher than in 2020), and above the EU average (9.6%) (see Graph A15.1). This increase seem to indicate a halt to the downward trend in recent years. The evolution of ELET rates has also not been consistent across all regions, with some regions showing further decreases, while others face increases of over 2 pps. Although significant disparities among Spanish regions still remain, the regional gap on ELET rates decreases, ranging from 5.6% to 18.7%. Student performance in basic skills also differs significantly by region, with a gap equivalent to at least one year of schooling ([107]). Initiatives such as the 'Programa de orientación, avance y enriquecimiento educativo' (PROA+), supported by the Recovery and Resilience Facility and the European Social Fund (ESF), have helped strengthen students' individual support, contributing to reducing early school leaving.

Graph A15.1: **Early leavers from education and training, 2010 and 2022**



Source: Eurostat and INE-EDUCABASE (national data)

Spain is promoting digital education. With the support of the Recovery and Resilience Facility, Spain is improving school connectivity, providing laptops to socio-economically disadvantaged students, creating digital labs and interactive digital classrooms, and providing teachers with digital training. Digital education is further included as a key competence in the new curricula. The new competence-based curricula for compulsory education and baccalaureate were approved in March-April 2022 as part of the RRP ([108]).

While tertiary education attainment is high, the number of graduates in science, technology, engineering and mathematics (STEM) is decreasing. In 2022, tertiary education attainment stood at 50.5% (1.8 pps more than in 2021), above the EU average (42.0%) and

([105]) https://www.boe.es/diario_boe/txt.php?id=BOE-A-2022-6048

([106]) Otero-Mayer, A.; Vélaz-de-Medrano, C.; and Expósito-Casas, E. (2021), Evaluation of the educational quality in cycle 0-3: state of question (Evaluación de la calidad educative en el ciclo 0-3: estado de la cuestión), in Revista de Educación 394. DOI: 10.4438/1988-592X-RE-2021-394-506.

([107]) Ministry of Education and Vocational Training (MEFP) (2019), Informe PISA 2018. Informe Español. Volumen 1. https://www.educacionyfp.gob.es/inee/evaluaciones-internacionales/pisa/pisa-2018/pisa-2018-informes-es.html

([108]) Royal Decrees 157/2022, 217/2022, 243/2022

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

Indicator			Target	2015 Spain	2015 EU27	2022 Spain	2022 EU27
[1]Participation in early childhood education (age 3+)			96%	96.8%	91.9%	97.2% [2020]	93.0% [2020]
[2]Low achieving 15-year-olds in:		Reading	< 15%	16.2%	20.0%	23.2% [2018]	22.5% [2018]
		Mathematics	< 15%	22.2%	22.3%	24.7% [2018]	22.9% [2018]
		Science	< 15%	18.3%	21.1%	21.3% [2018]	22.3% [2018]
Early leavers from education and training (age 18-24)	[3]Total		< 9 %	20.0%	11.0%	13.9%	9.6%
	[3] *By gender*	*Men*		24.0%	12.5%	16.5%	11.1%
		Women		15.8%	9.4%	11.2%	8.0%
	[4] *By degree of urbanisation*	*Cities*		17.0%	9.6%	11.9%	8.6%
		Rural areas		24.6%	12.2%	14.4%	10.0%
	[5] *By country of birth*	*Native*		17.5%	10.0%	11.2%	8.3%
		EU-born		37.2%	20.7%	28.9%	20.3%
		Non EU-born		32.4%	23.4%	26.8%	22.1%
[6]Equity indicator (percentage points)				:	:	16.2 [2018]	19.3 [2018]
[7]Exposure of VET graduates to work based learning	Total		≥ 60% (2025)	:	:	98.4%	60.1%
Tertiary educational attainment (age 25-34)	[8]Total		45%	41.0%	36.5%	50.5%	42.0%
	[8] *By gender*	*Men*		34.9%	31.2%	44.1%	36.5%
		Women		47.0%	41.8%	57.0%	47.6%
	[9] *By degree of urbanisation*	*Cities*		47.3%	46.2%	55.6%	52.2%
		Rural areas		31.9%	26.9%	42.9%	30.2%
	[10] *By country of birth*	*Native*		45.7%	37.7%	56.7%	43.0%
		EU-born		28.0%	32.7%	36.4%	39.5%
		Non EU-born		20.2%	27.0%	31.4%	35.7%
[11]Share of school teachers (ISCED 1-3) who are 50 years or over				35.2%	38.3%	35.5% [2020]	39.2% [2020]

Source: (1,3,4,5,7,8,9,10,11)= Eurostat, 2= OECD (PISA); 6 = European Commission (Joint Research Centre). Notes: Data is not yet available for the remaining EU-level targets under the European Education Area strategic framework, covering underachievement in digital skills and participation of adults in learning. The equity indicator shows the gap in the share of underachievement in reading, mathematics and science (combined) among 15-year-olds between the lowest and highest quarters of socio-economic status.

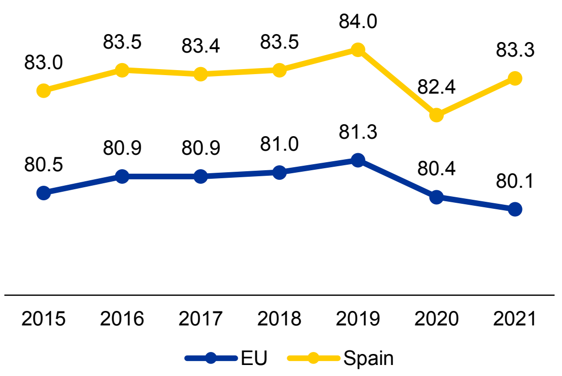
the EU-level target (45%). However, STEM subjects, in particular ICT, did not profit from this positive trend, leading to risks of skills mismatches and shortages. The proportion of STEM graduates decreased from 25.4% in 2015 to 20.8% in 2020, and is marked by a significant gender gap. While 54% of all tertiary students are women, they only represent 29% of all STEM graduates. Overall participation in lifelong learning activities remains fairly limited (see Annex 14).

ANNEX 16: HEALTH AND HEALTH SYSTEMS

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

Life expectancy in Spain is among the highest in the EU and has partially rebounded after it fell in 2020. This reflects the significant decrease in COVID-19 mortality in ([109]). Spain fares comparatively well in avoiding deaths from treatable causes. Circulatory systems diseases, cancer and COVID-19 are the leading causes of death.

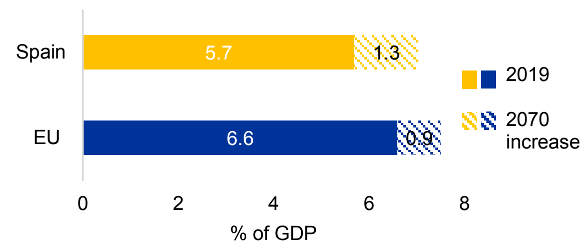
Graph A16.1: **Life expectancy at birth, years**



Source: Eurostat database

Health spending relative to GDP in Spain was slightly below the EU average in 2020. Spending per capita on outpatient care is below the EU average, whereas spending on outpatient medicines is above the EU average. In 2020, total healthcare spending increased to 10.7% of GDP. This is in line with the upward trend in all Member States in 2020. In Spain, this increase is largely due to the severe GDP contraction (by more than 11%, compared to 5.6% in the EU overall). This is also corroborated by the fact that the share of health spending in total public spending remained stable at 14.5%. The public share of health spending is comparatively low (73.3% in 2020). Public spending on health is projected to increase by 1.3 percentage points (pps) of GDP by 2070 (compared to 0.9 pps for the EU overall), raising long-term fiscal sustainability concerns (see Annex 21).

Graph A16.2: **Projected increase in public expenditure on healthcare over 2019-2070**



AWG reference scenario
Source: European Commission / EPC (2021)

Spending on prevention in Spain amounted to 3.2% of total spending on healthcare in 2020, compared to 3.4% for the EU overall. Even if between 2020 and 2019, spending on prevention in Spain increased by around 56%, compared to a 26% increase for the EU overall, strengthening further preventive care is a precondition for efficiency gains. Across the EU, this increase was primarily driven by spending on disease detection, surveillance, control and response programmes as part of the public health response to COVID-19. Another action to safeguard public health in Spain is the ongoing rationalisation of the use of antimicrobials, as part of broader efforts to foster the rational use of medicines.

Spain faces shortages and an uneven distribution of health workers. The number of nurses is low, and shortages have a negative impact on primary care. Working conditions remain an issue, with increasing use of temporary contracts (41.9% of all health workers in 2020, up from 28.5% in 2012). Royal Decree Law 12/2022 of 5th July modifies the status of health professionals and includes measures to reduce temporary contracts. However, its impact remains to be assessed. Since the start of the COVID-19 pandemic, special recruitment schemes have largely responded to the surge in demand. The percentage of the workforce aged over 55 is quite high in Spain: 32% of doctors and 21% of nurses, which may exacerbate shortages if the number of graduates, especially of doctors, does not increase. Spain has a small number of hospital beds, which has remained stable for

([109]) Based on data provided directly by Member States to ECDC under the European Surveillance System (data current as of 13 April 2023)

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

	2017	2018	2019	2020	2021	EU average (latest year)
Treatable mortality per 100 000 population (mortality avoidable through optimal quality healthcare)	65.5	64.6	62.6	62.2	NA	91.7 (2020)
Cancer mortality per 100 000 population	226.6	221.9	218.3	214.5	NA	242.2 (2020)
Current expenditure on health, % GDP	9.0	9.0	9.1	10.7	NA	10.9 (2020)
Public share of health expenditure, % of current health expenditure	70.5	70.2	70.6	73.3	NA	81.2 (2020)
Spending on prevention, % of current health expenditure	2.1	2.1	2.2	3.2	NA	3.4 (2020)
Acute care beds per 100 000 population	250	249	248	251	NA	387.4 (2019)
Doctors per 1 000 population *	3.9	4.0	4.4	4.6	NA	3.9 (2020)
Nurses per 1 000 population *	5.7	5.9	5.9	6.1	NA	8.3 (2020)
Consumption of antibacterials for systemic use in the community, daily defined dose per 1 000 inhabitants per day (total consumption for CY and CZ) **	25.0	24.6	23.3	18.2	18.5	14.5 (2021)

Note: The EU average is weighted for all indicators, except for (*) and (**), for which the EU simple average is used. The simple average for (*) uses data for 2020 or most recent year if former not available. Doctors' density data refer to practising doctors in all countries except EL, PT (licensed to practice) and SK (professionally active). Nurses' density data refer to practising nurses in all countries except FR, PT, SK (professionally active) and EL (nurses working in hospitals only).
Source: Eurostat; except: ** ECDC

a decade. The COVID-19 pandemic put a strain on acute and intensive care beds.

Through its recovery and resilience plan (RRP), Spain plans to invest EUR 1.7 billion (2.5% of the RRP's total value) in healthcare. A set of measures related to innovation in the health sector have started to be implemented. Pending measures include reforms to expand health coverage, and reforms of the healthcare workforce, of the digital health infrastructure, and of pharmaceutical policies (rational use of medicines, innovative pharmaceuticals). Investments to renew hospital equipment have started, and the government has adopted an action plan for the modernisation of primary and community care and a public health strategy. The Digital Health Strategy, adopted in 2021 established a framework for digitalisation of healthcare, including related RRP investments. Training and health promotion measures have started to be implemented. For primary care, investments under the RRP are limited to EUR 230 million (digitalisation).

The action plan for the modernisation of primary care adopted under the RRP aims to expand roles, activities and resources of primary care. Effective implementation of the plan hence will depend on appropriate investment in staff, infrastructure and facilities. According to OECD health statistics [110], primary care represented only 13% of total spending on healthcare in Spain in 2020 and is on a downward trend, decreasing from 14.5% in 2002 and 14% in 2019. Moreover, there are substantial disparities in investment levels for primary care at subnational level. Nurse shortages in particular hamper the delivery of primary care, with a large variation in nurse staffing levels across regions. Measures to attract more students to pursue medical careers and to foster recruitment and retention appear relevant in this context.

(110)OECD Health Statistics, 2022.

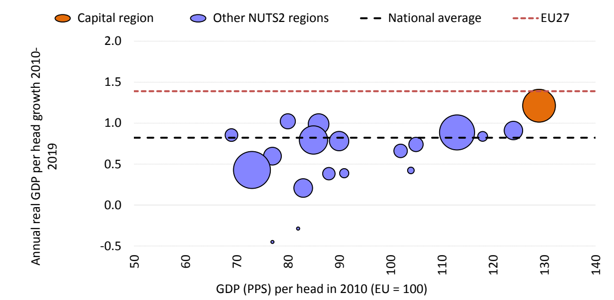
ANNEX 17: ECONOMIC AND SOCIAL PERFORMANCE AT REGIONAL LEVEL

This Annex showcases the economic and social regional dynamics in Spain, providing an update on economic, social and territorial cohesion in and among the Spanish regions compared with the EU as a whole and the main regional economic recovery challenges.

Regional disparities in Spain remain high. Most Spanish regions registered negative average growth between 2011 and 2020, significantly affecting the economic and social development perspectives of the country. Disparities in GDP per capita increased after the 2008 economic crisis and only started to decline in 2014. They nevertheless remained larger than in the pre-crisis period.

In 2020, only three regions had a GDP per capita above the EU average: Comunidad de Madrid (114%), País Vasco (108%) and Comunidad Foral de Navarra (104%). The GDP per capita in Comunidad de Madrid was almost twice that of Andalucía (63%) and the Canarias (62%). Annual GDP per capita growth in 2011-2020 was particularly low in the Canarias (Spain's only EU outermost region) and in the Illes Balears (both 1.9%). Extremadura (0.30%), Galicia (0.13%), Castilla y León (0.08%) and Región de Murcia (0.05%) also experienced growth.

Graph A17.1: **GDP per capita (2010) and GDP growth (2010-2019) - Spain**

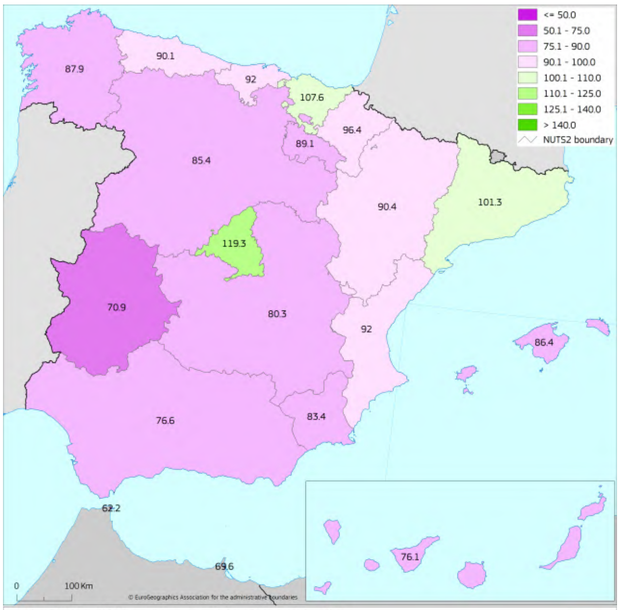


(1) Bubble size corresponds to population size in 2019
Source: Eurostat, DG REGIO elaboration

Regional disparities in GDP per capita are linked to territorial disparities in labour productivity. Labour productivity in Spain (measured as gross value added per person employed) was at 93% of the EU average of 100 in 2021. Productivity was highest in País Vasco (106%), Comunidad de Madrid (103%) and Comunidad Foral de Navarra (101%). It was below 85 in Andalucía (82%), Melilla (82%), Extremadura (81%) Región de Murcia (80%), and the Canarias (79%),

Most Spanish regions rank below the EU average on competitiveness. The exceptions are Comunidad de Madrid, País Vasco and Cataluña (see Map A17.1).

Map A17.1:**Regional competitiveness index 2022**



Spain, Regional Competitiveness Index 2.0, 2022 edition

There are considerable differences in regional innovation performance. Only two regions are strong innovators (País Vasco and Comunidad de Madrid), while most regions in Spain are classified as moderate innovators. The best-performing region, País Vasco, performs twice as well as the worst-performing regions, the Canarias and the Illes Balears ([111]). As assessed by the regional innovation scoreboard 2021, the lowest innovation performance was in the Illes Balears, Extremadura, Castilla La Mancha and Andalucía. Despite investment efforts, the last three of these regions were lagging behind and did not show a positive trend; they are instead going backwards in their development and growth and are categorised as 'less developed regions' in the 2021-2027 programming period. R&D expenditure was low in Spain in 2019 at 1.3% of GDP (the EU average was 2%) and was concentrated in the richest regions, with País Vasco reaching 2.0% of GDP. Expenditure was particularly low in Castilla-La

([111]) Source: Regional Innovation Scoreboard (2021)

Table A17.1:**Selected indicators at regional level – Spain**

	GDP per head (PPS)	Productivity (GVA (PPS) per person employed)	Real productivity growth	GDP per head growth	Population growth	Unemployment rate	R&D expenditure	At-risk-of-poverty or social exclusion	Early school leavers	Regional Competitiveness Index (RCI)
	Index, EU27 = 100, 2021	Index, EU27 = 100, 2021	Average % change on the preceding year, 2010-2020	Average % change on the preceding year, 2011-2020	Average annual change per 1000 residents, 2011-2020	% of active population, 2021	% of GDP, 2019	% of population, 2021	% of population aged 18-24, 2021	Index - values range 0-100, 2019
European Union	100	100	0	1		7	2	22	10	57
España	83	93	-0.18	-0.34	1.6	14.8	1.3	27.8	13.3	43.6
Galicia	77	90	0.38	0.13	-2.8	11.7	1.0	25.2	8.1	40.2
Principado de Asturias	76	91	-0.45	-0.49	-6.0	12.5	0.8	26.3	11.8	43.2
Cantabria	78	93	-0.18	-0.46	-1.2	11.5	0.8	21.4	6.4	47.4
País Vasco	108	106	-0.03	-0.31	0.1	9.8	2.0	16.0	4.8	63.6
Comunidad Foral de Navarra	101	101	0.09	-0.16	3.2	10.6	1.7	14.7	9.1	51.9
La Rioja	89	96	-0.40	-0.61	-1.5	11.5	0.8	21.3	12.9	41.0
Aragón	94	96	-0.19	-0.24	-1.0	10.2	0.9	20.0	12.4	41.8
Comunidad de Madrid	114	103	-0.17	-0.16	5.5	11.6	1.7	21.6	10.7	70.8
Castilla y León	80	90	0.01	0.08	-6.5	11.4	1.3	23.1	12.4	37.6
Castilla-La Mancha	67	89	0.16	-0.16	-2.4	15.6	0.6	32.5	15.5	30.2
Extremadura	62	81	-0.01	0.30	-4.1	19.5	0.7	38.7	14.0	19.0
Cataluña	98	98	-0.23	-0.47	2.4	11.6	1.5	22.3	14.8	53.5
Comunitat Valenciana	73	88	-0.26	-0.32	1.0	15.9	1.1	30.6	12.8	41.2
Illes Balears	81	90	-0.85	-1.86	11.1	14.8	0.4	22.4	15.4	37.3
Andalucía	62	82	-0.25	-0.43	2.0	21.7	0.9	38.7	17.7	27.2
Región de Murcia	69	80	0.30	0.05	3.6	14.3	1.0	33.8	17.3	31.1
Ciudad de Ceuta	69	87	-0.27	-0.44	2.3	26.6		43.0	25.5	17.6
Ciudad de Melilla	63	82	-0.45	-0.56	6.3	19.8		35.2	22.8	6.7
Canarias	62	79	-1.29	-1.90	8.3	23.2	0.5	37.8	11.8	26.8

Source: Eurostat, EDGAR database

Mancha (0.6%), the Canarias (0.5%) and the Illes Balears (0.4%).

The Spanish labour market still displays significant regional disparities. The employment rate exceeded 70% in the wealthiest regions, reaching 74.2% in Comunidad de Madrid and also La Rioja and Aragón (both over 73%) but remained below 60% in Andalucía, the Canarias and Ciudad Autónoma de Ceuta. Overall, Spain's average unemployment rate of 14.8% was the second highest in the EU (the average EU rate was 7.0%). Unemployment rates were lowest (10-11%) in País Vasco, Aragón and Comunidad Foral de Navarra but exceeded 20% in regions such as the Canarias (23%), Andalucía (22%) and Ciudad Autónoma de Ceuta (26.6%). High unemployment rates occur in regions with a less well-educated labour force and a high level of early school leavers (e.g. Andalucía where the level of early school leavers was 17.7%).

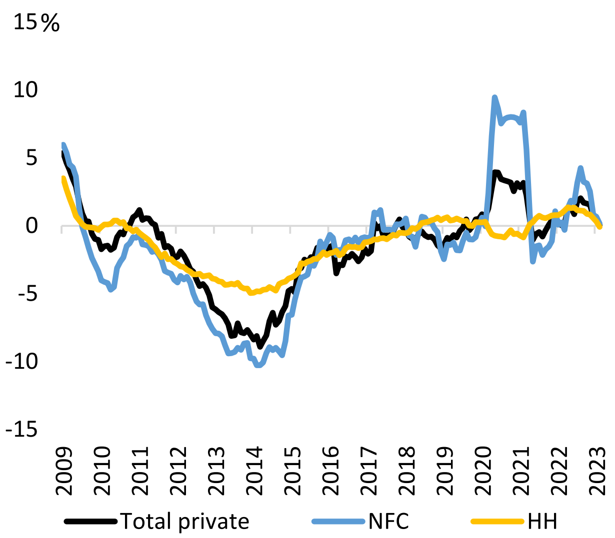
Regional disparities persist in terms of poverty, with urbanised areas suffering the most following the COVID-19 outbreak. The share of people at risk of poverty or social exclusion varied significantly between the Spanish regions in 2021. More than one third of the population in Ciudad Autónoma de Ceuta, Extremadura, Andalucía and the Canarias were at risk of poverty or social exclusion but below 20% in Comunidad Foral de Navarra and País Vasco. The number of people at risk of poverty or social exclusion steadily decreased in rural areas in Spain and continued to fall between 2019 and 2021 (from 29.5% to 27.6%) but increased in both cities (from 24.3% to 26.6%) and towns and suburbs (from 26.4% to 30.1%). The poverty risk is greater in urban areas. However, the population decline of inland and rural areas was much faster in 2021 and continues to greatly reduce the inhabitants in these areas. This impacts their long-term sustainable growth prospects.

Marked disparities persist between mainland Spain and the outermost region of Canarias, and the autonomous cities of Ceuta and Melilla. The GDP per capita of the Canarias was 62% of the EU average in 2021 and 63% and 69% in the autonomous cities of Ceuta and Melilla respectively. The geographical situation of Canarias, Ceuta and Melilla has a direct impact on their performance and causes them to lag behind other Spanish regions in many areas, such as unemployment, risk of poverty, productivity and innovation. Continuous and targeted policy action is therefore required. In addition, immigration poses a particular challenge in the Canarias and the autonomous cities of Ceuta and Melilla, and is placing their social services under pressure.

Spain has a large and predominately bank-based financial sector, with banks being the main financial intermediaries. The banking sector is largely domestically owned (95% of total assets), with the 10 largest banking groups under the supervision of the Single Supervisory Mechanism accounting for roughly 90% of banking-sector assets. Two large banking groups (Santander and BBVA) have substantial international activities, operating in Latin America, the United Kingdom and Turkey. Supported by two large mergers in 2021, the consolidation of the banking sector has led to a reduction in the number of branches and employees and to lower costs after the expansion experienced in previous years. Financing on capital markets received a new impetus in 2021, as the market funding ratio increased to 44.2% – the highest level since 2017 – while stock market capitalisation increased significantly compared to the previous year. Meanwhile, sustainable financing also expanded in 2021, as Spanish corporates issued significantly more green, social or sustainable bonds. The volume of green-bond issuance doubled compared to 2020 and reached EUR 17.4 billion in 2021. The Spanish treasury's large issuance of green bonds (EUR 5 billion) in September 2021 contributed markedly to this increase in the volume of issuances.

The banking sector remains resilient, while asset quality has improved. The public guarantee schemes and borrower relief measures (moratoria on loan repayments) have safeguarded the asset quality of Spanish banks, which continued to improve in the first few months of 2022. Due to non-performing loan (NPL) disposals and write-offs, the NPL ratio decreased further, and fell to 2.6% at the end of Q3-2022, the lowest level since March 2009, but above the EU average of 1.8%. Moreover, Stage-2 loans ([112]) also declined in the first half of 2022. The liquidity position of banks remains reassuring, although the conditions for retail and wholesale market access have deteriorated slightly in recent months. Meanwhile, the reliance of banks on European Central Bank (ECB) financing has declined in 2022 due to the partial repayment of the TLTRO. Profitability continued to be robust in the third quarter of 2022, with return on equity slightly above 10%, despite the absence of the one-off item (Bankia-CaixaBank merger) that influenced the strong results in 2021. After strengthening in 2020 and 2021, banking-sector capitalisation declined by 0.9 percentage points in Q3-2022 compared with the end of 2021. Overall, Spanish banks continue to have lower capital buffers than their EU peers, with the second lowest common equity tier 1 ratio in the EU (Table A18.1).

Graph A18.1: **Evolution of credit activity**



Source: ECB.

The second-round effects of higher inflation and interest rates are likely to put some strain on asset quality. The hike in interest rates will gradually pass through to borrowers' average cost of debt. The increase in inflation coupled with the rise in interest rates is likely to affect the debt-repayment capacity of borrowers, in particular those that are more vulnerable and those in the more energy-intensive sectors. For households, banks have increasingly switched to fixed-rate mortgage lending for new mortgages. Nevertheless, roughly 73% of the stock of mortgages still have variable interest rates. Moreover, loans backed by state guarantees from the State-owned development bank *Instituto de Crédito Oficial* (ICO) granted to the corporate sector after the onset of the COVID-19 pandemic are an additional source of vulnerability, as the

([112]) According to the classification by the International Financial Reporting Standards 9 (IFRS 9).

Table A18.1: **Financial soundness indicators**

	2017	2018	2019	2020	2021	2022	EU	Median
Total assets of the banking sector (% of GDP)	234.3	219.7	214.9	258.8	248.8	227.9	276.8	207.9
Share (total assets) of the five largest banks (%)	63.7	68.5	67.4	66.4	69.3	-	-	68.7
Share (total assets) of domestic credit institutions (%)[1]	95.5	95.3	95.2	95.0	95.0	95.1	-	60.2
NFC credit growth (year-on-year % change)	0.2	-1.9	0.0	7.9	1.1	0.6	-	9.1
HH credit growth (year-on-year % change)	-0.5	0.4	0.2	-0.6	0.8	0.6	-	5.4
Financial soundness indicators:[1]								
- non-performing loans (% of total loans)	4.4	3.7	3.1	2.8	2.9	2.6	1.8	1.8
- capital adequacy ratio (%)	15.4	15.4	15.7	16.8	17.3	16.4	18.6	19.8
- return on equity (%)[2]	7.0	8.2	6.7	-3.5	10.2	10.1	6.1	6.6
Cost-to-income ratio (%)[1]	52.6	53.3	53.4	50.2	52.1	48.2	60.6	51.8
Loan-to-deposit ratio (%)[1]	89.3	90.6	92.6	85.5	82.8	83.7	88.6	78.0
Central bank liquidity as % of liabilities	7.9	7.9	6.1	10.9	11.5	5.6	-	2.9
Private sector debt (% of GDP)	139.2	133.1	129.3	148.1	139.1	-	-	120.7
Long-term interest rate spread versus Bund (basis points)	123.8	102.5	91.3	88.6	72.1	103.9	-	93.3
Market funding ratio (%)	40.9	42.1	43.6	43.1	44.3	-	50.8	40.0
Green bonds issued to all bonds (%)	0.4	0.6	1.0	1.3	2.3	2.9	3.9	2.3

1-3 | 4-10 | 11-17 | 18-24 | 25-27 — Colours indicate performance ranking among 27 EU Member States.

(1) Last data: Q3 2022.
(2) Data is annualized.
Source: ECB, Eurostat, S&P Global Capital IQ Pro.

NPL ratio for these exposures surpasses the system-wide NPL ratio. ([113])

The slowdown in lending activity observed in 2021 continued in 2022. In the first quarter of 2022, lending to non-financial corporations (growth by 4.2% year-on-year) outpaced lending to households (up by 1.2% year-on-year). Lending to non-financial corporations and to the sectors most impacted by the COVID-19 pandemic has continued to benefit from the support of government guarantees granted by the ICO. Mortgage lending continued to benefit from favourable housing-market conditions and low interest rates in the first months of 2022. Nevertheless, due to the normalisation of monetary policy, the cost of lending has also increased. The one-year Euribor rose to 3.53% in February 2023, up from 1.25% in August. Since February 2022, the one-year Euribor increased by 3.87 percentage points. Meanwhile, reversing the increasing trend from the previous year, private-sector debt decreased markedly in 2021 to roughly 139% of GDP, the lowest level since 2019.

Following a strong 2021, the housing market saw continued growth in house prices and sales volumes in the first quarter of 2022. After an increase of 6.4% year-on-year in Q4-2021, house prices accelerated again in Q1-2022, rising by 8.5% year-on-year. On the back of the improved macroeconomic environment and favourable financing conditions, property transactions also increased further in Q1-2022 and surpassed the pre-pandemic level. The number of properties purchased in Q1-2022 was 22% above the level recorded in Q1-2019, while housing supply grew at a much slower pace, as the construction of new homes could not meet the growth in demand. Nevertheless, credit standards remained broadly unchanged in 2021 and tightened only slightly in 2022. Although the housing market in Spain warrants close monitoring, developments do not indicate an overvaluation of house prices that would require a tightening of the current macro-prudential policy stance. The Bank of Spain has maintained the countercyclical capital buffer at zero.

([113]) The NPL ratio for the ICO-backed loans increased to 6% in Q3-2022, up from 3.5% at the end of 2021.

ANNEX 19: TAXATION

This Annex provides an indicator-based overview of Spain's tax system. It includes information on the tax structure (the types of tax that Spain derives most of its revenue from), the tax burden on workers, and the progressivity and redistributive effect of the tax system. It also provides information on tax collection and compliance.

Spain's tax revenues are relatively low in relation to GDP, with the highest contribution coming from labour taxation. Table A19.1 shows that Spain's tax revenues as a percentage of GDP were below the EU aggregate in 2021, even though they increased by 1.4 percentage points (pps) compared with 2020. The share of labour taxes as a proportion of both GDP and of total tax revenues was slightly below the EU aggregate in 2021, as were revenues from consumption taxes and environmental taxes (see Table A19.1 and Graph A19.1). The performance of the tax system should be viewed in the context of a high public deficit and a high debt-to-GDP ratio. In order to increase tax revenues more use can be made of tax bases other than labour income and there is room to apply the 'polluter pays' principle more extensively (see also Annex 6). Revenues from property taxes were relatively high as a percentage of both GDP and total tax revenues, but revenues from recurrent property taxes, which are among the taxes least detrimental to growth, were closer to the EU aggregate.

Spain's Recovery and Resilience Plan (RRP) includes tax reforms based on recommendations by a committee of experts to help bring Spain's revenue-to-GDP ratio closer to the EU average; strengthen corporate, wealth and environmental taxation; reduce tax exemptions and modernise the tax system. However, against the background of high inflation, the government has adopted tax cuts for 2023, mostly targeted to low- and medium-income households and to small and medium-sized enterprises, while increasing taxation on the wealthiest (including those with a high income from capital).

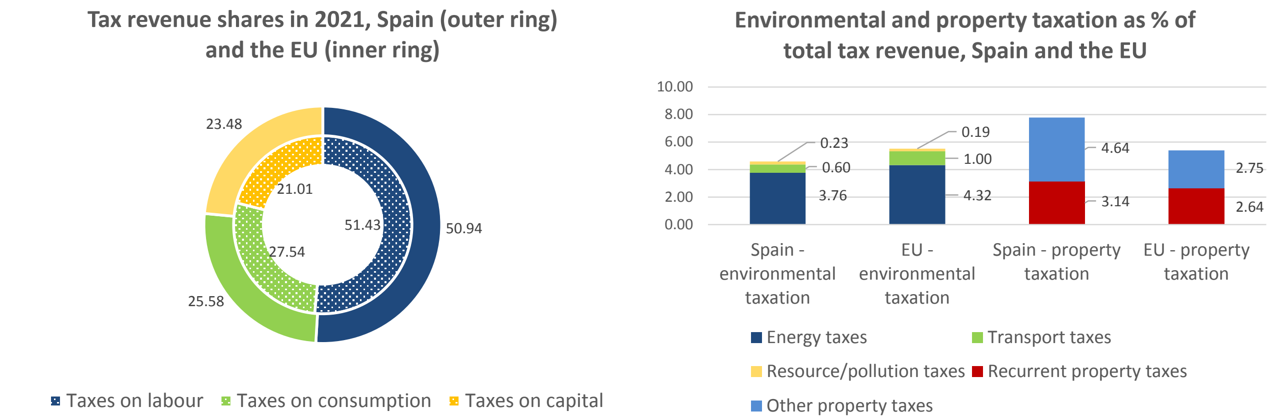
Spain's labour tax burden is more progressive than the EU average. Graph A19.2 shows that the labour tax wedge for Spain in 2022 was lower than the EU average for single people at 50% of the average wage and close to the EU average at higher wage levels. Second earners at a wage level of 67% of the average wage are subject to a tax wedge close to the EU average. Spain's RRP includes a reform to make the tax system even more progressive. The average forward-looking effective tax rates on corporate income were considerably above the EU average in

Table A19.1: **Taxation indicators**

		Spain					EU-27				
		2010	2019	2020	2021	2022	2010	2019	2020	2021	2022
Tax structure	Total taxes (including compulsory actual social contributions) (% of GDP)	31.3	34.8	37.0	38.4		37.9	39.9	40.0	40.6	
	Labour taxes (as % of GDP)	16.6	17.5	19.9	19.5		20.0	20.7	21.3	20.9	
	Consumption taxes (as % of GDP)	8.1	9.4	9.2	9.8		10.8	11.1	10.7	11.2	
	Capital taxes (as % of GDP)	6.6	7.8	7.9	9.0		7.1	8.1	8.0	8.5	
	Total property taxes (as % of GDP)	2.1	2.6	2.7	3.0		1.9	2.2	2.2	2.2	
	Recurrent taxes on immovable property (as % of GDP)	1.0	1.1	1.3	1.2		1.1	1.2	1.2	1.1	
	Environmental taxes as % of GDP	1.6	1.8	1.8	1.8		2.4	2.4	2.2	2.2	
Progressivity & fairness	Tax wedge at 50% of average wage (Single person) (*)	30.5	27.9	27.9	27.9	28.3	33.9	32.3	31.9	32.1	31.7
	Tax wedge at 100% of average wage (Single person) (*)	39.7	39.4	39.0	39.5	39.5	41.0	40.1	39.9	39.6	39.7
	Corporate income tax - effective average tax rates (1) (*)		23.3	23.3	23.3			19.5	19.4	19.1	
	Difference in Gini coefficient before and after taxes and cash social transfers (pensions excluded from social transfers) (2) (*)	7.3	7.2	6.9	8.5		8.6	7.7	8.1	7.8	
Tax administration & compliance	Outstanding tax arrears: total year-end tax debt (including debt considered not collectable) / total revenue (in %) (*)		8.3	9.5				31.6	40.7		
	VAT Gap (% of VAT total tax liability, VTTL)		6.1	4.7				11.0	9.1		

(1) Forward-looking effective tax rate (OECD).
(2) A higher value indicates a stronger redistributive impact of taxation.
(*) EU-27 simple average
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 of the European Union, 2021, https://data.europa.eu/doi/10.2778/843047 and the *Data on Taxation* webpage, https://ec.europa.eu/taxation_customs/taxation-1/economic-analysis-taxation/data-taxation_en.
For more details on the VAT gap, see European Commission, Directorate-General for Taxation and Customs Union, *VAT gap in the EU: report 2022*, Publications Office of the European Union, 2022, https://data.europa.eu/doi/10.2778/109823.
Source: European Commission, OECD.

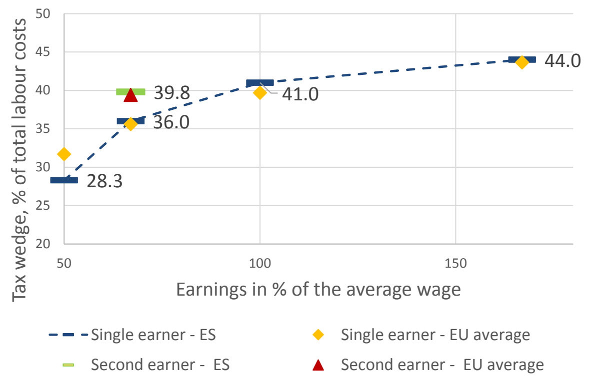
Graph A19.1: **Tax revenues from different tax types as % of total taxation revenue**



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

2021.

Graph A19.2: **Tax wedge for single and second earners as a % of total labour costs, 2022**



Note: Second earners are members of a family with the primary earner earning 100% of the average wage and no children. For the methodology of the tax wedge for second earners see OECD (2016) “Taxing Wages 2014-2015”
Source: European Commission

Spain performs relatively well in tax compliance and tax administration. Spain is doing well on digitalising its tax administration, which can help reduce tax arrears as well as cut compliance costs. Outstanding tax arrears stood at 9.5% of total net revenues in 2020 and significantly below the EU-27 average of 40.7%, although the average is inflated by very large values in a few Member States. The Annual Report on Taxation 2022 highlights scope for improvement in the rate of filing personal income tax returns online ([114]). The VAT gap (an indicator of the effectiveness of VAT enforcement and compliance, where a low gap indicates high effectiveness) decreased by 1.4 pps to 4.7% from 2019 to 2020 and was clearly below the EU-wide gap of 9.1% in 2020. Spain’s RRP includes measures to further strengthen both the tax system and the tax administration (e.g. measures to prevent and combat tax fraud, including approval of a law on combating tax fraud; modernisation of the national tax agency; improving assistance to taxpayers and international cooperation by increased use of digital tools).

([114])European Commission, Directorate-General for Taxation and Customs Union, *Annual report on taxation 2022: review of taxation policies in the EU Member States*, Publications Office of the European Union, 2022.

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

							forecast	
	2004-07	2008-12	2013-19	2020	2021	2022	2023	2024
Real GDP (y-o-y)	3.6	-1.3	2.0	-11.3	5.5	5.5	1.9	2.0
Potential growth (y-o-y)	3.6	1.2	0.4	0.1	0.6	1.1	1.2	1.5
Private consumption (y-o-y)	3.9	-2.0	1.4	-12.2	6.0	4.4	0.9	2.3
Public consumption (y-o-y)	5.7	1.4	0.8	3.5	2.9	-0.7	1.7	0.6
Gross fixed capital formation (y-o-y)	5.7	-8.5	3.5	-9.7	0.9	4.6	2.2	4.2
Exports of goods and services (y-o-y)	4.6	1.0	4.0	-19.9	14.4	14.4	4.1	3.3
Imports of goods and services (y-o-y)	8.3	-5.2	3.7	-14.9	13.9	7.9	2.8	4.2
Contribution to GDP growth:								
Domestic demand (y-o-y)	4.9	-3.0	1.6	-8.3	4.2	3.3	1.3	2.3
Inventories (y-o-y)	0.0	-0.2	0.2	-0.8	1.0	-0.2	0.0	0.0
Net exports (y-o-y)	-1.3	1.8	0.2	-2.2	0.3	2.4	0.6	-0.3
Contribution to potential GDP growth:								
Total Labour (hours) (y-o-y)	1.6	0.1	-0.1	0.0	0.3	0.6	0.7	0.9
Capital accumulation (y-o-y)	1.7	0.7	0.3	0.3	0.3	0.3	0.4	0.4
Total factor productivity (y-o-y)	0.3	0.4	0.2	-0.1	0.0	0.2	0.2	0.2
Output gap	3.4	-4.3	-3.4	-9.8	-5.4	-1.3	-0.6	-0.2
Unemployment rate	9.2	19.1	19.8	15.5	14.8	12.9	12.7	12.4
GDP deflator (y-o-y)	3.8	0.5	0.7	1.2	2.3	4.3	4.4	2.9
Harmonised index of consumer prices (HICP, y-o-y)	3.2	2.3	0.7	-0.3	3.0	8.3	4.0	2.7
HICP excluding energy and unprocessed food (y-o-y)	2.8	1.6	0.8	0.6	0.7	5.2	4.9	2.5
Nominal compensation per employee (y-o-y)	3.2	2.0	0.9	0.5	2.7	3.2	4.9	4.0
Labour productivity (real, hours worked, y-o-y)	0.6	1.7	0.6	0.0	-1.6	1.3	0.5	0.0
Unit labour costs (ULC, whole economy, y-o-y)	3.4	0.4	0.5	8.6	-0.3	0.6	3.8	3.1
Real unit labour costs (y-o-y)	-0.5	-0.1	-0.2	7.3	-2.5	-3.6	-0.6	0.1
Real effective exchange rate (ULC, y-o-y)	2.2	-1.6	-0.5	2.8	0.1	-3.2	-1.5	-0.5
Real effective exchange rate (HICP, y-o-y)	1.5	-0.1	0.0	0.1	0.7	-1.3	.	.
Net savings rate of households (net saving as percentage of net disposable income)	3.1	4.6	2.8	13.7	9.6	.	.	.
Private credit flow, consolidated (% of GDP)	27.1	-0.7	-2.5	4.7	2.5	.	.	.
Private sector debt, consolidated (% of GDP)	166.6	198.3	150.1	148.1	139.1	.	.	.
of which household debt, consolidated (% of GDP)	73.5	83.2	65.8	62.7	58.4	.	.	.
of which non-financial corporate debt, consolidated (% of GDP)	93.1	115.1	84.3	85.4	80.8	.	.	.
Gross non-performing debt (% of total debt instruments and total loans and advances) (1)	.	4.4	4.9	2.5	2.6	.	.	.
Corporations, net lending (+) or net borrowing (-) (% of GDP)	-3.9	6.1	6.2	2.8	4.0	6.4	7.0	6.6
Corporations, gross operating surplus (% of GDP)	20.4	23.8	23.9	21.2	21.5	24.4	25.3	25.2
Households, net lending (+) or net borrowing (-) (% of GDP)	-4.5	-0.2	1.1	8.4	4.8	-0.1	-0.4	-0.9
Deflated house price index (y-o-y)	9.7	-8.2	1.6	2.2	1.5	0.6	.	.
Residential investment (% of GDP)	11.3	6.9	4.6	5.9	5.4	5.5	.	.
Current account balance (% of GDP), balance of payments	-7.8	-3.9	2.2	0.6	1.0	0.6	1.6	1.5
Trade balance (% of GDP), balance of payments	-5.0	-0.9	3.3	1.5	1.5	1.4	.	.
Terms of trade of goods and services (y-o-y)	0.5	-0.9	0.0	2.2	-0.9	-6.5	1.0	0.5
Capital account balance (% of GDP)	0.6	0.4	0.4	0.5	0.9	0.9	.	.
Net international investment position (% of GDP)	-70.5	-91.3	-85.9	-85.7	-71.5	-60.5	.	.
NENDI - NIIP excluding non-defaultable instruments (% of GDP) (2)	-39.5	-71.8	-60.2	-52.1	-39.5	-30.8	.	.
IIP liabilities excluding non-defaultable instruments (% of GDP) (2)	121.0	155.2	157.6	188.2	180.9	164.8	.	.
Export performance vs. advanced countries (% change over 5 years)	6.6	-4.2	0.1	-6.6	-6.4	.	.	.
Export market share, goods and services (y-o-y)	-2.7	-3.8	1.0	-10.5	2.0	10.2	1.4	-0.5
Net FDI flows (% of GDP)	4.0	0.1	0.6	1.6	-1.4	0.4	.	.
General government balance (% of GDP)	1.3	-9.3	-4.6	-10.1	-6.9	-4.8	-4.1	-3.3
Structural budget balance (% of GDP)	.	.	-2.2	-3.7	-3.6	-4.0	-3.7	-3.2
General government gross debt (% of GDP)	40.7	62.7	101.7	120.4	118.3	113.2	110.6	109.1

(1) Domestic banking groups and stand-alone banks, EU and non-EU foreign-controlled subsidiaries and EU and non-EU foreign-controlled branches.
(2) Net international investment position (NIIP) excluding direct investment and portfolio equity shares.
Source: Eurostat and ECB as of 2 May 2023, where available; European Commission for forecast figures (Spring forecast 2023).

This Annex assesses fiscal sustainability risks for Spain over the short, medium and long term. It follows the same multi-dimensional approach as the European Commission's 2022 Debt Sustainability Monitor, updated based on the Commission 2023 spring forecast.

1 - Short-term risks to fiscal sustainability are low overall. The Commission's early-detection indicator (S0) does not signal major short-term fiscal risks (Table A21.2) ([115]). Government gross financing needs are expected to remain large at around 20% of GDP in the short term (i.e. over 2023-2024), although declining compared with the recent peak in 2020 (Table 1). Financial markets' perceptions of sovereign risk are investment grade, as confirmed by the main rating agencies.

2 - Medium-term risks to fiscal sustainability are high overall.

The DSA for Spain shows that, under the baseline, the government debt ratio is projected to remain at a high level over the medium term (at 106% of GDP in 2033), despite a decline until 2029 (Table 1) ([116]) ([117]). The assumed structural primary balance (a deficit of 0.8% of GDP) contributes to these developments. It appears plausible compared with past fiscal performance, indicating that the country has room for corrective action. At the same time, the baseline projection benefits until 2031 from a still favourable (although declining) nominal interest-growth rate differential, notably thanks to the favourable impact of NextGenerationEU, with real GDP growth at around 1.0% over 2025-2033. This differential is projected to turn slightly unfavourable in 2032. Government gross financing needs are expected to remain large over the projection period, reaching around 20% of GDP in 2033, close to the level forecast for 2024.

The baseline projection is stress-tested against four alternative scenarios to assess the impact of changes in key assumptions (Graph 1). For Spain, reverting to a historical fiscal position under the 'historical structural primary balance (SPB)' scenario would slightly worsen the government debt trajectory. If the SPB gradually converged its historical 15-year average (-1.1% of GDP), the projected debt-to-GDP ratio would be about 2 pps. higher than in the baseline by 2033. A permanent worsening of the macro-financial conditions, as reflected under the 'adverse interest-growth rate differential' scenario (with a differential 1 pp. higher than the baseline) would result in a persistently higher debt ratio, by around 9 pps. of GDP by 2033, as compared with the baseline. A temporary worsening of financial conditions, as reflected in the 'financial stress' scenario (with. a temporary increase of interest rates by 2.4 pps.), would also lead to a higher public debt-to-GDP ratio (+2 pps. by 2033) compared with the baseline. The 'lower structural primary balance' scenario (with the SPB level permanently 0.4 pp. lower than in the baseline) would also lead to a higher government debt-to-GDP ratio (+4 pps. by 2033) compared with the baseline.

Additionally, stochastic debt projections point to high risk ([118]). These projections point to 32% probability of the debt ratio in 2027 being greater than in 2022, entailing high risk given the initial high debt level (Graph 2). In addition, such shocks point to significant

([115]) The So is a composite indicator of short-term risk of fiscal stress. It is based on a wide range of macro-financial and fiscal variables that have proven to perform well in the past in detecting situations of upcoming fiscal stress.

([116]) The assumptions underlying the Commission's 'no-fiscal-policy-change' baseline notably comprise: (i) a structural primary deficit, before ageing costs, of 0.8% of GDP as of 2024; (ii) inflation converging linearly towards the 10-year forward inflation-linked swap rate 10 years ahead (which refers to the 10-year inflation expectations 10 years from now); (iii) the nominal short- and long-term interest rates on new and rolled over debt converging linearly from current values to market-based forward nominal rates by T+10 (as for all Member States); (iv) real GDP growth rates from the Commission 2023 spring forecast until 2024, followed by EPC/OGWG 'T+10 methodology' projections between T+3 and T+10, i.e. for 2025-2033 (on average 1.0%); (v) ageing costs in line with the 2021 Ageing Report (European Commission, Institutional Paper 142, November 2020). For information on the methodology, see the 2022 Debt Sustainability Monitor (European Commission, Institutional Paper 199, April 2023).

([117]) Table 1 shows the baseline debt projection 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.

([118]) These projections show the impact on debt of 2000 different shocks affecting the government's primary balance, economic growth, interest rates and exchange rates. The cone covers 80% of all simulated debt paths, therefore excluding tail events.

uncertainty (as measured by the difference between the 10th and 90th debt distribution percentiles) surrounding the baseline debt projections.

3 - Long-term risks to fiscal sustainability for Spain are medium overall ([119]).

The S2 sustainability gap indicator (at 0.7 pp. of GDP) points to low risk. This suggests that Spain would need to improve its structural primary balance only by a limited amount to ensure debt stabilisation over the long term. This result is underpinned by the projected decrease in ageing-related costs (contribution of -0.6 pp. of GDP) while the initial budgetary position is unfavourable (contribution of +1.3 pps. of GDP) (Table 2). Developments in ageing costs are primarily driven by the projected decrease in public pension expenditure (contribution of -2.0 pps. of GDP). However, pension spending will first increase to reach a peak of 13.5% of GDP in 2045 before starting to decrease (the impact of the recently adopted pension reform under the RRP is not included in this projection). On the other hand, health and long-term care spending is projected to increase over the projection period (joint contribution of 1.7 pps. of GDP). As a result, while a number of investments and reforms in the RRP contribute to supporting the efficiency of the Spanish health system, additional measures may be required to further improve its efficiency and its fiscal sustainability.

Yet, combined with debt vulnerabilities highlighted by the S1 indicator, overall long-term risks are assessed as medium. Indeed, the S1 sustainability gap indicator signals that a significant consolidation effort of 2.2 pps. of GDP would be needed to reduce debt to 60% of GDP by 2070 (Table 2). This result is mainly driven by the high level of the Spanish government debt ratio and deficit (contributing 1.0 pp. and 0.8 pp. of GDP, respectively).

Finally, several additional risk factors need to be considered in the assessment. On the one hand, risk-increasing factors relate the recent increase in interest rates and the elevated level of external and private debt, which may amplify the adverse impact of the tightening of financial conditions on households' and firms' financial position. On the other hand, risk-mitigating factors include the lengthening of debt maturity in recent years, relatively stable financing sources featuring a well-diversified and large investor base, and the currency denomination of debt. In addition, the structural reforms under the NGEU/RRF, if fully implemented, could have a further positive impact on GDP growth in the coming years, and therefore help to mitigate debt sustainability risks.

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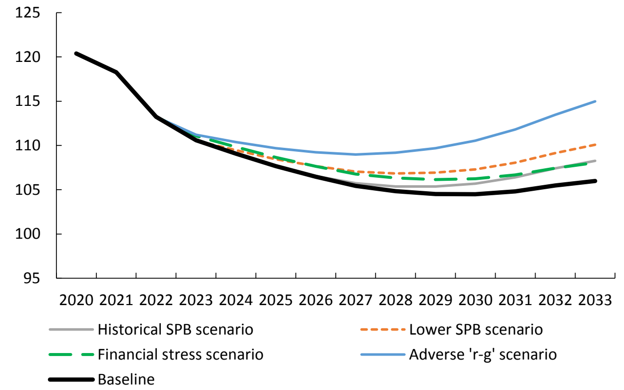
(119) The S2 fiscal sustainability indicator measures the permanent SPB adjustment in 2024 that would be required to stabilise public debt over the long term. It is complemented by the S1 indicator, which measures the fiscal gap in 2024 to bring the debt-to-GDP ratio to 60% in the long term. For both the S1 and S2 indicators, the risk assessment depends on the amount of fiscal consolidation needed: 'high risk' if the required effort exceeds 6 pps. of GDP, 'medium risk' if it lies between 2 pps. and 6 pps. of GDP, and 'low risk' if the effort is negative or below 2 pps. of GDP. The overall long-term risk classification brings together the risk categories derived from S1 and S2. S1 may notch up the risk category derived from S2 when it signals a higher risk than S2. See the 2022 Debt Sustainability Monitor for further details.

Table A21.1: **Debt sustainability analysis - Spain**

Table 1. Baseline debt projections	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Gross debt ratio (% of GDP)	**120.4**	**118.3**	**113.2**	**110.6**	**109.1**	**107.7**	**106.5**	**105.4**	**104.8**	**104.5**	**104.5**	**104.8**	**105.5**	**106.0**
Changes in the ratio	22.2	-2.1	-5.0	-2.6	-1.5	-1.4	-1.2	-1.0	-0.6	-0.3	0.0	0.3	0.7	0.5
of which														
Primary deficit	7.9	4.7	2.4	1.6	0.9	0.8	0.6	0.5	0.4	0.4	0.4	0.4	0.5	0.5
Snowball effect	13.5	-6.7	-8.3	-4.4	-2.8	-2.2	-1.8	-1.5	-1.0	-0.7	-0.4	-0.1	0.2	0.0
Stock-flow adjustments	0.8	-0.1	0.9	0.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross financing needs (% of GDP)	27.8	24.7	21.7	20.2	19.6	19.1	18.9	18.8	18.9	19.0	19.1	19.4	19.7	20.0

Graph 1. Deterministic debt projections



Graph 2. Stochastic debt projections 2023-2027

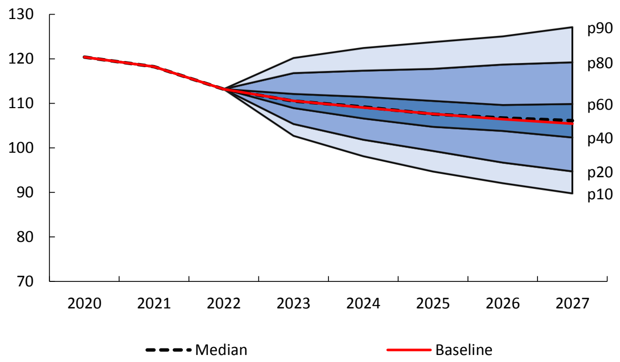


Table 2. Breakdown of the S1 and S2 sustainability gap indicators

		S1	S2
Overall index (pps. of GDP)		**2.2**	**0.7**
of which			
Initial budgetary position		0.8	1.3
Debt requirement		1.0	
Ageing costs		0.4	-0.6
of which	*Pensions*	-0.5	-2.0
	Health care	0.9	1.1
	Long-term care	0.4	0.6
	Others	-0.4	-0.4

Source: Commission services.

Table A21.2: **Heat map of fiscal sustainability risks - Spain**

Short term	Medium term - Debt sustainability analysis (DSA)								Long term		
Overall (S0)	Overall		Deterministic scenarios: Baseline	Historical SPB	Lower SPB	Adverse 'r-g'	Financial stress	Stochastic projections	S2	S1	Overall (S1 + S2)
LOW	HIGH	Overall	MEDIUM	MEDIUM	MEDIUM	HIGH	MEDIUM	HIGH	LOW	MEDIUM	MEDIUM
		Debt level (2033), % GDP	106.0	108.3	110.1	115.0	108.0				
		Debt peak year	2022	2022	2022	2033	2022				
		Fiscal consolidation space	63%	69%	73%	63%	63%				
		Probability of debt ratio exceeding in 2027 its 2022 level						32%			
		Difference between 90th and 10th percentiles (pps. GDP)						37.4			

(1) *Debt level* in 2033. 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 consolidtation space* measures the share of past fiscal positions in the country that were more stringent than the one assumed in the baseline. Green: high value, i.e. the assumed fiscal position is plausible by historical standards and leaves room for corrective measures if needed. Yellow: intermediate. Red: low. (4) *Probability of debt ratio exceeding in 2027 its 2022 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: Commission services.

The Macroeconomic Imbalance Procedure matrix presents the main elements of the in-depth review undertaken for Spain ([120]). Spain was selected for an in-depth review in the 2023 Alert Mechanism Report. This in-depth review on the prevention and correction of macroeconomic imbalances presents the main findings on the gravity and evolution of the challenges identified, as well as policy responses and potential policy needs. Findings cover all areas of vulnerability assessed in the in-depth review.

Spain has made progress in reducing vulnerabilities related to high external and internal debt, both government and private, in a context of persisting high unemployment. The Spanish economy weathered relatively well the negative shocks unleashed by Russia's war of aggression against Ukraine last year, also benefitting from to its limited exposure to the Russian economy. Domestic and external debt ratios resumed their decline since the aftermath of the pandemic, despite remaining at elevated levels. Private sector balance sheets have continued to strengthen in line with the recovery in economic activity in 2022. Asset quality has been preserved and the private-debt-to GDP ratio resumed its downward trajectory since the aftermath of the pandemic. The net international investment recovered further in 2022 reaching -60.5% in 2022-Q4, albeit remaining marginally above the level suggested by economic fundamentals and prudential benchmarks. The current account remained in surplus in recent years, though it narrowed in 2021 and 2022. The government debt to GDP ratio, driven by strong nominal GDP growth, decreased to 113.1% of GDP in 2022, which is still above 2019 levels.

Going forward, external and internal debt ratios are expected to continue to improve, but at a more moderate pace. The current account balance is forecast to keep strengthening gradually amid further recovery of international tourism and improvement in the terms of trade conditions. Public debt is expected to keep reducing albeit more gradually than what experienced in the recent years, on the back of lower nominal GDP expansion, but favoured by narrower expected general government deficits. Potential risks affecting the ongoing consolidation process and unwinding of imbalances relate mainly to the impact of the prolonged tightening of financial conditions on households and firms' financial positions, as well as on the medium to long-term sustainability of government debt in face of the current market conditions and population ageing. In addition, the resilience displayed last year by the labour market is expected to be tested under less favourable macroeconomic conditions. However, on the back of the positive results of the labour market reforms approved in December 2021, the unemployment rate is expected to continue its decline in 2023 and 2024.

Policy progress on areas affected by imbalances has been initiated over the very recent years, largely thanks to the Spanish Recovery and Resilience Plan. The measures implemented so far and those planned until end-2023 include actions improving access to finance for SMEs and measures intended to facilitate preventive debt restructuring and insolvency situations for companies. The reduction of energy dependency and higher competitiveness of the business sector would support further corrections in external imbalances. Important measures aimed at improving the efficiency of both the expenditure and revenue side are expected to contribute to accelerating the downward trajectory of public debt. The ongoing set of reforms related to the labour market are set to contribute reducing the share of temporary employees and boost labour productivity in the medium- to long-term. Nonetheless, low innovation capacity and shortcomings of business regulation continue to adversely affect firms' growth and productivity, weighing on their financial position. Further measures to boost the productivity and competitiveness of firms, and to address skills mismatches and shortages, would further support a deleveraging trend in the private, public and external sector.

Based on this assessment, the Commission considered in its communication European Semester – 2022 Spring Package (COM(2022) 600 final) that Spain continues to experience imbalances.

([120]) European Commission (2023), In-Depth Review for Spain, Commission staff working document (COM(2023) 632 final), in accordance with Article 5 of Regulation (EU) No 1176/2011 on the prevention and correction of macroeconomic imbalances.

Table A22.1:**Assessment of macroeconomic imbalances matrix**

	Gravity of the challenge	Evolution and prospects	Policy response
	Unsustainable trends, vulnerabilities and associated risks		
External position	The negative NIIP has displayed a steady improvement since its peak in 2009, which has only been temporarily halted in 2020 during the COVID-19 crisis. It recovered to -60.5% of GDP in 2022, attaining the strongest position since 2004 and converging to a level marginally below the prudential benchmark. The composition of Spain's external liabilities, made up primarily of government debt and central bank debt resulting from monetary operations of the Eurosystem, contributes to mitigate some of the vulnerabilities. The current account has shown surpluses in recent years and remained in positive territory in 2022 underpinned by the strong rebound in tourism activity throughout the year. In addition, direct trade dependence of Spain from Russia is limited and has exerted a marginal impact on the evolution of the external position.	The current account surplus is projected to increase to 1.6% in 2023 and 1.5%% in 2024, favoured by the gradual reduction of energy prices and the expected improvement in the terms of trade. In addition, the revenue accruing from tourism is set to lead to further current account improvements amid the complete recovery of international travel compared to pre-COVID-19 level. Along with continued GDP expansion , this is expected to contribute to a less negative NIIP. Overall, the adjustment perspectives appear favourable.	Reforms and investments under the Recovery and Resilience Plan (RRP) are underway favouring the wide-spread use and production of renewable energy. Together with investments in energy efficiency, they can further reduce dependency on energy imports and contribute to gradually improving the external debt ratio. Measures improving the business environment and skills, reforms of the educational and vocational training systems, as well as investments in strategic sectors and supporting the digitalisation of SMEs are set to strengthen the competitiveness of firms. Nonetheless, low innovation capacity and shortcomings of business regulation continue to adversely affect firms' growth and productivity, weighing on their financial position.
Public debt	General government debt has declined since 2020 favoured by robust GDP expansion, but its level remains elevated. It stood at 113.2% of GDP in 2022. However, high fiscal sustainability risks persist in the medium term and medium risks in the long term. Against this background, the low average interest payment on debt, the longer average maturity of public debt in recent years and the well-diversified investor base reduce vulnerabilities. In a context of an already elevated stock of liabilities, the main headwinds ahead affecting public debt developments are related to higher interest rates and the increase in costs related to health care, long-term care and pensions due to population ageing.	The government deficit is forecast to continue narrowing in 2023 and 2024 (to 4.1% and 3.3% respectively), down from 4.8% in 2022. Government debt is projected to decrease further from 113.2% in 2022 to 110.6% and 109.1% in 2023 and 2024. Government revenues have shown considerable strength over the last two years, recording double-digit growth rates, but the structural nature of this recent rise is unclear and could weight on the improvement of government deficits in the next years.	Some policy progress has been achieved in response to the outstanding fiscal vulnerabilities. Spain has started to adopt the recommendations on the spending reviews cycle 2022-2026 geared at improving the efficiency of public spending. The national strategy designed to make public procurement more efficient and sustainable was adopted at the end of 2022. In addition, the modernisation of the tax agency or the delivery of enhanced assistance to taxpayers have contributed to the recent rise in revenues share by tackling the impact of the shadow economy and favouring its narrowing. Whilst a holistic tax reform, following the recommendations from a committee of experts is expected to be undertaken as part of the Plan, some already adopted measures, such as the "solidarity" tax for the wealthy individuals, are contributing to reduce the government revenue gap vis-a-vis the EU average.
Private debt	Thanks to strong GDP expansion up until the end of 2019 and in the aftermath of the pandemic period, the stock of private debt remains on a sharp declining trend since its peak of 204% of GDP in 2009. Private sector debt stood at 125% of GDP (in consolidated terms) in 2022. The debt of non-financial corporations (NFCs) accounted for 72% of GDP and household debt for 52% of GDP. Both NFC and household debt ratios however stand above prudential and fundamental-based benchmarks indicating that strong deleveraging needs persists. The NPLs ratio eased to 3.5% in December 2022, down from 4.5% at the end of 2021, despite the expiry in June 2022 of debt moratoria and the grace period for loans granted by the Instituto de Crédito Oficial (ICO).	The adverse consequences of the temporary increase in corporate indebtedness resulting from the COVID-19 crisis have been limited, also for those firms operating in sectors considerably hit by the economic fallout of the pandemic, including tourism. Further private debt deleveraging is expected going forward on the back of sustained economic growth and more moderate credit activity amidst the significant financial tightening observed since 2022. However, pockets of vulnerabilities remain, and risks related to borrowers' repayment capacity are rising reflecting weaker growth, high inflation, and tighter financial conditions.	Spain recently introduced some policy measures supporting the unwinding of private debt vulnerabilities. A law establishing a new insolvency framework entered into force in 2022, intended to facilitate preventive debt restructuring and debt relief for natural persons, with the goal of preventing insolvency situations and facilitate resource reallocation. In addition, a set of measures to provide support to small businesses in the form of financial guarantees offered by CERSA (financial entity attached to the Spanish Ministry of Industry) will be adopted by Q4-2023. This will allow businesses to access long-term financing and working capital operations. Measures improving the business environment and skills, reforms of the educational and vocational training systems, as well as investments in strategic sectors and supporting the digitalisation of SMEs are set to strengthen the competitiveness of firms.
Unemployment	After the temporary increase in the unemployment rate during the COVID-19 pandemic, the downward trend gained traction again from 2021 onwards and reached last year the minimum level since 2008. However, at 12.9% in 2022 it remains almost double the EU average, being particularly high for young people (29.4% in 2022). High levels of labour market segmentation (permanent vs temporary employment) have prevailed over the last decade but the situation significantly improved over the course of last year. The share of temporary employees in the private sector fell to 14.8% in Q4 2022, down from 23.9% one year before.	Unemployment is expected to decline over the forecast horizon to 12.7% in 2023 and further to 12.4% in 2024, below pre-pandemic levels, although still remaining as the highest in the EU. The share of temporary employees is expected to further decline, particularly in the public sector, where it remains very high (31.4% in 2022).	Progress with reforms of the labour market continues. The package approved in December 2021 included stricter rules for hiring on a temporary basis and reinforcing the open-ended contract for discontinuous activities. These measures are helping to reduce temporary employment in the private sector, favouring the correction of labour market duality, which is key to boost labour productivity in the medium to long term. In the aftermath of the pandemic, another reform approved in December 2021 created the RED Mechanism to support firms and workers in transition, which became operational in April 2022 and is expected to improve the adjustment process of the economy in face of cyclical and structural shocks.

Source: European Commission