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Foreword

This Survey is published on the responsibility of the Economic and Development Review Committee of the OECD, which is charged with the examination of the economic situation of member countries.

The economic situation and policies of Portugal were reviewed by the Committee on 4 May 2021. The draft report was then revised in the light of the discussions and given final approval as the agreed report of the whole Committee on 7 June 2021.

The Secretariat's draft report was prepared for the Committee by Caroline Klein, Sahra Sakha and Yosuke Jin, with contributions from Markus Schwabe and Hélia Costa, and under the supervision of Pierre Beynet. Statistical research assistance was provided by Paula Adamczyk and Mauricio Hitschfeld and editorial assistance by Jean-Rémi Bertrand.

The previous Survey of Portugal was issued in February 2019.

Information about the latest as well as previous Surveys and more information about how Surveys are prepared is available at http://www.oecd.org/eco/surveys.

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Basic statistics of Portugal, 2020

(Numbers in parentheses refer to the OECD average)*

LAND, PEOPLE AND ELECTORAL CYCLE					
Population (million)	10.3		Population density per km²	112.5	(38.6)
Under 15 (%)	13.4	(17.8)	Life expectancy at birth (years)	81.1	(80.2)
Over 65 (%)	22.4	(17.4)	Men	78.1	(77.6)
International migrant stock (% of population)	9.7	(13.2)	Women	83.7	(82.9)
Latest 5-year average growth (%)	-0.1	(0.6)	Latest general election	October	2019
ECONOMY					
Gross domestic product (GDP)			Value added shares (%)		
In current prices (billion USD)	228.3		Agriculture, forestry and fishing	2.3	(2.8)
In current prices (billion EUR)	200.1		Industry including construction	22.0	(26.3)
Latest 5-year average real growth (%)	0.4	(0.8)	Services	75.7	(71.0)
Per capita (000 USD PPP)	34.1	(46.3)			
GENERAL GOVERNMENT Per cent of GDP					
Expenditure	49.3	(49.8)	Gross financial debt (OECD: 2019)	157.5	(108.9)
Revenue	43.5	(38.9)	Net financial debt (OECD: 2019)	112.7	(67.9)
EXTERNAL ACCOUNTS					
Exchange rate (EUR per USD)	0.88		Main exports (% of total merchandise exports)		
PPP exchange rate (USA = 1)	0.57		Machinery and transport equipment	29.5	
In per cent of GDP			Manufactured goods	21.5	
Exports of goods and services	37.0	(50.6)	Miscellaneous manufactured articles	16.9	
Imports of goods and services	39.1	(47.1)	Main imports (% of total merchandise imports)		
Current account balance	-1.1	(0.0)	Machinery and transport equipment	31.7	
Net international investment position	-114.4		Chemicals and related products, n.e.s.	15.6	
			Manufactured goods	15.1	
LABOUR MARKET, SKILLS AND INNOVATION					
Employment rate (aged 15 and over, %)	54.1	(55.1)	Unemployment rate, Labour Force Survey (aged 15 and over, %)	6.8	(7.1)
Men	59.0	(63.0)	Youth (aged 15-24, %)	22.5	(15.0)
Women	49.8	(47.7)	Long-term unemployed (1 year and over, %)	2.3	(1.3)
Participation rate (aged 15 and over, %)	58.0	(59.5)	Tertiary educational attainment (aged 25-64, %)	28.2	(39.0)
Average hours worked per year	1,613	(1,687)	Gross domestic expenditure on R&D (% of GDP, OECD: 2018)	1.6	(2.6)
ENVIRONMENT					
Total primary energy supply per capita (toe)	2.0	(3.7)	CO2 emissions from fuel combustion per capita (tonnes, 2019)	4.3	(8.3)
Renewables (%)	28.2	(11.9)	Water abstractions per capita (1 000 m³, 2017)	0.5	
Exposure to air pollution (more than 10 µg/m³ of PM 2.5, % of population, 2019)	15.2	(61.7)	Municipal waste per capita (tonnes, 2019)	0.5	(0.5)
SOCIETY					
Income inequality (Gini coefficient, 2018, OECD: latest available)	0.317	(0.318)	Education outcomes (PISA score, 2018)		
Relative poverty rate (%, 2018, OECD: 2017)	10.4	(11.7)	Reading	492	(485)
Median disposable household income (thousand USD PPP, 2018, OECD: 2017)	17.3	(24.2)	Mathematics	492	(487)
Public and private spending (% of GDP)			Science	492	(487)
Health care (OECD: 2019)	10.1	(8.8)	Share of women in parliament (%)	40.0	(31.5)
Pensions (2017)	12.8	(8.6)	Net official development assistance (% of GNI, 2017)	0.2	(0.4)
Education (% of GNI, 2019)	4.9	(4.4)			

Notes : The year is indicated in parenthesis if it deviates from the year in the main title of this table.

* Where the OECD aggregate is not provided in the source database, a simple OECD average of latest available data is calculated where data exist for at least 80% of member countries.

Source: Calculations based on data extracted from databases of the following organisations: OECD, International Energy Agency, International Labour Organisation, International Monetary Fund, United Nations, World Bank, Eurostat, Statistics Portugal.

Executive Summary

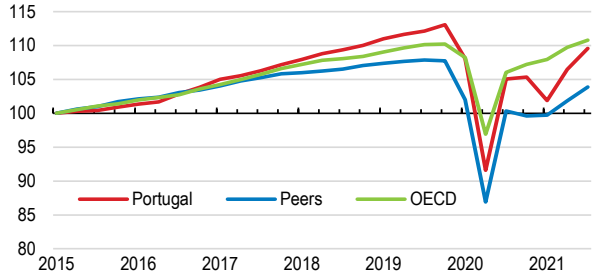
Portugal has been recovering from a deep recession.

As in other OECD countries, the pandemic caused severe human suffering and triggered a deep recession. The economy has been recovering fast, supported by policies, but uncertainty on the outlook remains large.

Economic activity has rebounded sharply, after a major contraction in 2020 (Figure 1). Nevertheless, severely affected sectors, including tourism and hospitality, are still running well below pre-crisis levels.

Figure 1. The pandemic severely hit the economy

Gross Domestic Product, Index 2015Q1 = 100



Note: Peers refer to the weighted average of Greece, Italy and Spain.
Source: OECD Economic Outlook: Statistics and Projections (database) and updates.

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The direct and indirect policy support helped weather the economic shock. Job retention measures limited job losses. At 6.3% in the third quarter of 2021, the unemployment rate stands below its pre-crisis level (6.5% in 2019). Supportive monetary policy in the euro area, and a broad range of measures, including state loans guarantees, grants, tax deferrals, and the moratorium on credit repayments of firms and households affected by the pandemic prevented a sudden rise in insolvencies and credit defaults.

The economic outlook critically hinges on the evolution of the pandemic, especially the effectiveness of vaccines against virus variants. While the vaccination rate is the highest in the OECD, the recovery is fraught with high uncertainties (Table 1). Persistently weak economic activity due to supply disruptions and restrictions to contain the pandemic may trigger further job losses and bankruptcies of financially vulnerable firms.

Table 1. The recovery is robust

	2019	2020	2021	2022
Gross domestic product	2.7	-8.4	4.8	5.8
Unemployment rate (%)	6.6	7.0	6.9	6.7
Fiscal balance (% of GDP)	0.1	-5.8	-4.3	-2.4
Public debt (Maastricht, % of GDP)	116.6	135.2	133.4	128.3

Source: OECD Economic Outlook No 110

Fiscal and monetary policies need to remain supportive until the recovery is firmly underway. Agile policy responses to fast changing economic developments will be key to limit losses in productive capacity and negative hysteresis effects on the labour market. Further grants and equity injections into distressed but viable firms can support the recovery. An effective and rapid implementation of the Next Generation EU Plan can sustain economic activity while addressing long-lasting vulnerabilities of the economy. Projects that have the strongest positive economic and social impact should be prioritised.

Policies can tackle poverty risks and tensions in health care.

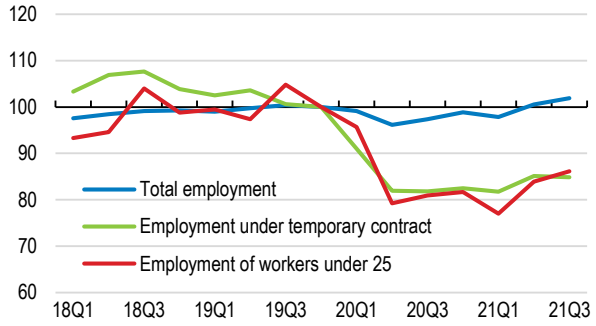
The crisis risks increasing poverty and inequality and puts huge pressure on the healthcare system. Ensuring an inclusive recovery will require strengthening health and labour market policies.

The pandemic has disproportionately hit contact-intensive sectors employing a high share of workers with precarious work contracts, and limited access to social protection (Figure 2)**.** Public employment services need to adapt to new circumstances surrounding the labour market, including higher unemployment among youth. Capacity to reach out those detached from the labour market, especially the youth, needs to strengthen, as the share of jobseekers using employment services is among the lowest in the OECD. Improving the coverage of unemployment benefits by further easing strict eligibility conditions can help. Further efforts to expand training programmes and adapt them to labour market needs will also be key to facilitate labour mobility and improve employability of displaced workers. The inclusion of measures to address youth unemployment and precarious employment

conditions in Portugal's Recovery and Resilience Plan is thus welcome.

Figure 2. Job losses were concentrated on young and temporary workers

Index, 2019Q4 = 100



Source: Statistics Portugal.

StatLink https://stat.link/gb71qs

The pandemic has exposed important vulnerabilities in the healthcare sector. During the third wave of the outbreak around the end of 2020, public hospitals almost reached full capacity, delaying access to healthcare. Staff shortages of nurses and long-term care workers are large and workload on healthcare professionals has increased substantially. The pandemic has accentuated mental health problems, calling for a rapid strengthening of policies in this area.

A sustainable recovery requires addressing macroeconomic vulnerabilities.

Policy action needs to tackle new financial and fiscal risks. Efforts to establish the foundations for a greener economy should be strengthened.

Insolvencies risk surging after the phase out of public support. A large share of Portuguese firms are small, undercapitalised, and vulnerable to economic shocks. The moratorium on credit repayments covered around a third of bank loans to non-financial corporations before being phased out in September 2021. Quasi-equity instruments or provision of non-refundable grants can reduce the risk of a surge in defaults and debt overhang. Past reform of the insolvency regime improved its effectiveness and should facilitate firms' restructuring. The use of out-of-court procedures has remained limited though, and a large backlog of cases poses the risk of court congestion in the future.

Increases in credit defaults can weigh on banks' profitability and curtail credit supply needed to finance investment. The regulator and the supervisor have strengthened incentives for banks to limit the accumulation of non-performing loans in their balance sheets. Measures supporting the development of secondary markets for non-performing loans would also help with the disposal of impaired assets. Policy options include establishing a national asset management company.

Once the recovery is well established, Portugal needs to announce a credible and transparent medium-term fiscal consolidation strategy. Public debt exceeds 130% of GDP and is one of the highest in the OECD. Fast population ageing weighs on public finance and risks to sustainability have accentuated with the rise of contingent liabilities. The pension system needs to adapt to contain future increases in age-related costs.

The modernisation of the budget framework, including the implementation of performance budgeting, is crucial to ensure an efficient use of public funds, including those provided by the EU. Enforcement of the 2015 Budget Framework Law, one of the objectives of the Recovery and Resilience Plan, needs to accelerate and the capacity to monitor and evaluate policies needs to improve to shift spending to productive uses.

The Next Generation EU is a unique opportunity to put growth on an environmentally sustainable path. Reducing water abstraction remains a key priority, calling for further investments in upgrading existing water infrastructure. Reaching the ambitious target of becoming a carbon neutral economy by 2050 requires, as envisaged in the National Energy and Climate Plan 2030, a significant acceleration in emission abatement, including by further increasing electricity supply from renewables and greening the transport sector. Policy action must combine incentives to reduce environmental damages, investment support in less polluting activities and compensation measures for low-income households affected by the measures.

Intensifying the fight against corruption can foster inclusive growth. Preventing economic crimes has been high in the government agenda and the on-going implementation of the new

national anti-corruption strategy is welcome. Strengthening the prosecution mechanisms and raising the accountability and integrity of senior public officials are priority.

Unleashing the digital potential can lift productivity growth.

A higher uptake of digital technologies – through better infrastructure and skills development – can boost potential growth. EU support could help speed up this change.

Digital technologies can contribute to speeding up the recovery, by boosting productivity and offering innovative solutions to adapt to behavioural changes triggered by the pandemic. Portugal has achieved impressive progress in the digital transition, but disparities in ICT adoption across firms and people remain large. The 2020 Digital Transition Action Plan that aims at tackling the digital divide is welcome as delays in technology diffusion, especially in small firms, hurt productivity growth and inclusiveness.

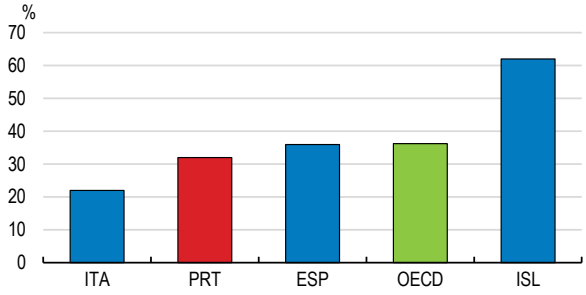
Communication infrastructure is of good quality but fibre deployment and coverage in rural areas should be improved. While fast-broadband subscriptions are among the highest in the OECD, there is room to expand the use of mobile broadband. Broadband prices are high by international standards, including for basic services, reflecting low competition pressures among service providers. Reducing barriers to consumer mobility between suppliers can improve market contestability.

Equipping the population with digital and foundational skills is crucial to embrace the digital transformation. A relatively large share of the population has low education levels and only one third of Portuguese have above basic digital skills (Figure 3). The lack of digital skills is particularly pronounced among older workers and low-educated people. Despite some progress in the past, more women could graduate in ICT fields. The scope of the comprehensive and ambitious initiative to develop digital competences “Incode2030” will expand with the implementation of the 2020 Digital Transition Action Plan.

Reform of the education and training systems needs to accelerate. A large share of schools and teachers are not well equipped to use and teach ICT. Inequality issues in education have accentuated with the pandemic. Efforts to develop teachers’ training and equip schools should continue. Despite ambitious measures to develop adult education, participation has remained relatively low, suggesting the need for increased incentives to uptake training, especially for workers in jobs more affected by the digital transformation. Policy avenues to promote adult education include providing personal training accounts with more generous vouchers for low-skilled workers, together with expanding the training offer by developing online courses and flexible pathways between qualification programmes further.

Figure 3. Adult digital skills are below average

Share of individuals with above-basic overall digital skills, 2019



Source: Eurostat.

StatLink https://stat.link/wy7tpr

There is large room to increase investment in digital technologies and in complementary intangible assets in small firms. A range of measures is in place to foster the adoption of ICTs and to promote partnerships between firms and research institutes to stimulate innovation. Their scope should expand with the implementation of the Recovery and Resilience Plan. The multiplication of initiatives poses some risk of dispersion and efficiency losses, calling for a thorough evaluation.

MAIN FINDINGS	KEY RECOMMENDATIONS
Policies for a stronger and resilient recovery	
The economic recovery can be slow due to containment measures needed to limit the spread of the virus.	Maintain fiscal policy support until the recovery is firmly underway, while making it more targeted.
Public debt exceeds 130% of GDP and increased contingent liabilities can complicate fiscal consolidation. Details on the strategy to contain public spending in the coming years are missing.	Once the recovery is firmly established, gradually phase out support measures and announce a clear and credible medium-term fiscal consolidation strategy.
Available EU funds, including under Next Generation EU plan, will reach record levels. Absorption might be slow due to hurdles in designing, approving and implementing programmes.	Ensure the transparent and effective implementation of programmes financed with EU funds Prioritise projects that have the strongest economic and social impact by relying on cost-benefit analysis.
Population ageing puts pressure on the financial sustainability of the pension system.	Duly implement the link between increases in the retirement age and life expectancy gains to continue to ensure the long-term financial sustainability of the pension system. Extend that link to the minimum age of early retirement.
Corporate sector vulnerabilities have increased. Insolvencies are likely to surge after the end of the moratorium on credit instalments, in spite of a new relief measure. The government has started to reinforce support to the capitalisation of firms.	Strengthen direct aid to companies in a timely, targeted and temporary way, by using quasi-equity injections, state-contingent loans or non-refundable grants.
A surge in insolvencies could translate into a marked increase in credit defaults.	Strengthen incentives for banks to reduce their non-performing loans should they prove insufficient. Consider establishing a national asset management company.
Courts have a large backlog in insolvency cases that risks increasing significantly.	Encourage the use of out-of-court insolvency procedures.
Rules on conflict of interest for statespersons are not strict. There are no specific rules for Members of Parliament on how to engage with the private sector and lobbyists.	Introduce codes of conduct on how to engage with lobbyists including a lobbying register.
Addressing social and environmental challenges in crisis time	
Like in several other OECD countries, the pandemic hit Portugal hard, putting huge pressure on the healthcare sector, which was compounded by shortages of healthcare professionals. The number of nurses and long-term care workers per inhabitant has been low compared to the OECD average.	Improve the working conditions of healthcare professionals, notably to facilitate recruitment.
The COVID-19 crisis has triggered major changes in the labour market. Employment prospects have deteriorated for the youth and the low-skilled.	Increase resources allocated to public employment services to provide individualised support and to reach out jobseekers, especially the younger ones.
Meeting the new ambitious climate objectives and reducing air pollution in large cities will require reducing greenhouse gas emissions in the transport sector.	Accelerate investment in electric mobility and public transportation as envisaged in the Recovery and Resilience Plan. Once the recovery is firmly established, progressively increase the coverage of the carbon tax, while financially supporting the population in adjusting to greener usages.
While there are plans to increase resources for upgrading water infrastructure, they will be too low to ensure high quality services and avoid leakages. Municipalities lack expertise to design and implement water infrastructure projects.	Increase investment in water infrastructure further, and strengthen technical support to municipalities on how to design and implement infrastructure projects, using EU funds.
Reaping the benefits of the digital transition	
The prices of broadband are relatively high. High market concentration in the telecommunication sector and low consumer mobility suggest competition pressures to reduce them are low.	Remove constraints to consumer mobility across telecommunication providers, for example by restricting the use of loyalty clauses in contracts and providing clearer information on the quality of services.
Schools and teachers are not well equipped to use and teach ICT. The government has initiated a range of measures to address this issue under the Recovery and Resilience Plan.	Accelerate and expand the provision of adequate digital resources to schools and teachers, including regular in-service training on ICT use.
The number of STEM and ICT professionals has to increase to address skill shortages. More women could engage in STEM and ICT studies. Improving gender equality one of the targets of the Recovery and Resilience Plan.	Further promote the enrolment of women in STEM fields, by reinforcing communication campaigns and early exposure to ICT projects, as planned.
Participation in adult learning is low, especially among low-skilled workers, more at risk of being affected by the digital transition. Ambitious programmes are in place to address that issue, but those not covered by these programmes have few incentives to train.	Consider introducing a personal training account for adults, with more generous vouchers for low-skilled workers.
Lack of awareness and expertise in digital technologies undermines the adoption of digital tools in small firms. Implementation of cybersecurity measures and data protection legislation is difficult for SMEs. The Recovery and Resilience Plan includes a range of programmes to support the digital transition in SMEs.	Expand the coverage of programmes for small companies to acquire digital training, advisory services and information on security and privacy after a thorough evaluation of their impact.

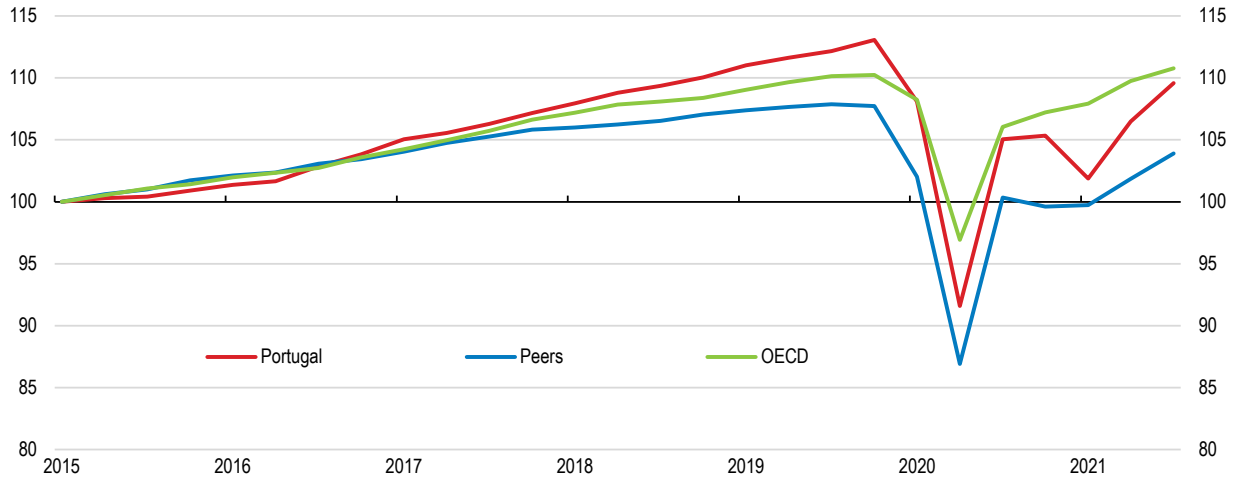
1 Key policy insights

The COVID-19 crisis is threatening social and economic progress

The COVID-19 pandemic has raised multiple challenges for Portugal and exacerbated existing weaknesses. It triggered a major health crisis, reversed the strong recovery from the last downturn and caused the deepest post-war recession (Figure 1.1). The economy recovered fast, supported by the policy response notably the provision of income support, measures facilitating credit expansion and supporting job retention (Box 1.1). In addition, Portugal has managed to have one of the highest vaccination rates worldwide, notably for older persons, who are almost fully vaccinated. However, virus mutations might complicate the containment of the virus and the authorities should keep encouraging its population to take vaccination boosters. Supportive economic policies must be maintained to prevent this crisis from leaving profound scars on the economy and the society.

Figure 1.1. The pandemic severely hit the economy

Gross Domestic Product, Index 2015Q1 = 100



Note: Peers refer to the weighted average of Greece, Italy and Spain.
Source: OECD Economic Outlook: Statistics and Projections (database) and updates.

StatLink https://stat.link/cy9gjz

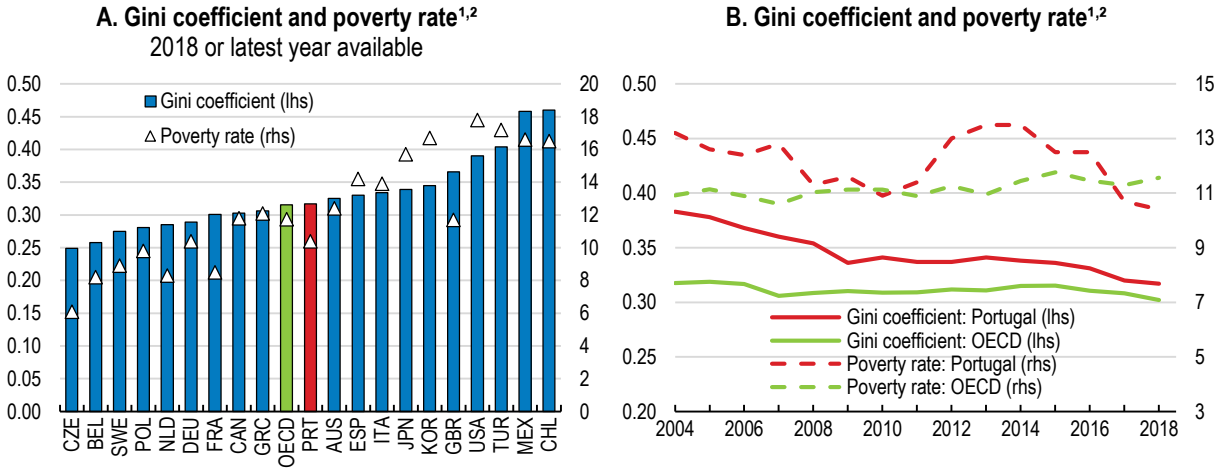
The pandemic has significantly affected living standards. The disproportionate impact of the crisis on sectors with abundant seasonal, temporary and low-paid jobs, such as hospitality and tourism, and on people with pre-existing financial difficulties may reverse the progress made in reducing poverty and inequality levels in recent years (Figure 1.2). By the end of 2020, the number of people receiving income support in the form of unemployment benefits and the number of registered unemployed increased by around 40% and 30% respectively compared to 2019. Women, youth, and low-skilled workers were overrepresented among the newly registered unemployed (IEFP, 2020). The crisis also risks aggravating low self-perception of well-being (OECD, 2019a).

Box 1.1. Main policy responses to the COVID-19 crisis

Portugal's policy response to the COVID-19 crisis has been broad, with a relatively high number of measures put in place in 2020. Measures aimed first at providing income continuity for workers and liquidity support to businesses to ensure they can restart operations after the lifting of containment measures. The government expanded or re-introduced these measures in early 2021 in the wake of a second national lockdown and in summer 2021 in response to the fourth wave. Other measures aimed at stimulating the recovery included the extension of the income support measures for vulnerable households and firms, an extraordinary tax credit for investment, and new credit lines with State guarantees. Direct aid through subsidies or tax cuts was less used than on average in the EU, while guarantees and moratoria accounted for a large share of the policy support (ESRB, 2021). The budget cost of direct measures is estimated at EUR 4.5 billion in 2020 (around 2.2% of 2020 GDP) and EUR 5.6 billion in 2021 (around 2.6% of 2021 GDP).

- Job retention measures: Under the simplified lay-off scheme (from March to August 2020, reintroduced in January 2021), workers with reduced working hours in firms closed due to containment measures or with turnover down by more than 40% received 2/3 of their gross wage (up to EUR 1950 per month, 30% paid by the employer and 70% by the social security). Since January 2021, the replacement rate for hours not worked has been increased to 100% (up to three minimum wages) and the compensation paid by firms maintained at around 20%. A new scheme, *Apoio à Retoma Progressiva*, replaced the simplified lay-off scheme in August 2020 for firms not covered by administrative restrictions, with compensation of hours not worked and exemptions to social security contributions varying according to the drop in turnover and the size of the firm. A one-off support for each worker covered by the simplified lay-off scheme was also introduced in August 2020 (one or two minimum wage per worker).
- Measures to support individuals in affected sectors include a top-up to employees and self-employed and the creation of a special benefit for informal workers. The maximum possible duration of unemployment benefit payments and sick-leave entitlements for people with COVID-19 and isolation entitlements have been increased.
- Liquidity measures include a moratorium on banks loan repayments for firms and households affected by the pandemic (until September 2021) and a moratorium and interest-free credit for rent payments in case of income losses (until September 2020). The *Retomar* programme launched in September 2021, facilitates the restructuring of credit operations that were in moratorium, introducing a new principal grace period and maturity extension.
- Around EUR 8.9 billion of State guaranteed credit lines have been allocated between March 2020 and November 2021. Capital was injected in private companies, including the national airline company (TAP). Between the end of 2020 and October 2021, almost EUR 1.2 billion of grants have been allocated to micro, small and medium-sized firms that lost over 25% of their turnover during the pandemic to help cover their non-wage fixed costs (with a cap, Apoiar.pt programme) and a share of their rents (Apoiar Rendas).
- Tax measures notably include the extension of deadline payments for tax and social security contributions, a VAT relief on spending on accommodation, culture and restaurants in the form of vouchers.
- Digital initiatives included the development of platforms and applications to coordinate the availability of hospital resources and the hotel occupation to support COVID-19 health professionals, to trace and communicate with COVID-19 suspects and home patients, to support digital home schooling. Digital service infrastructures were reinforced to deal with higher demand. Public services digitalisation accelerated mainly through the national digital gateway (ePortugal) and key administrative modernisation initiatives (i.e. the Digital Mobile Key, see Chapter 2)

Figure 1.2. The pandemic risks accentuating pre-existing social issues

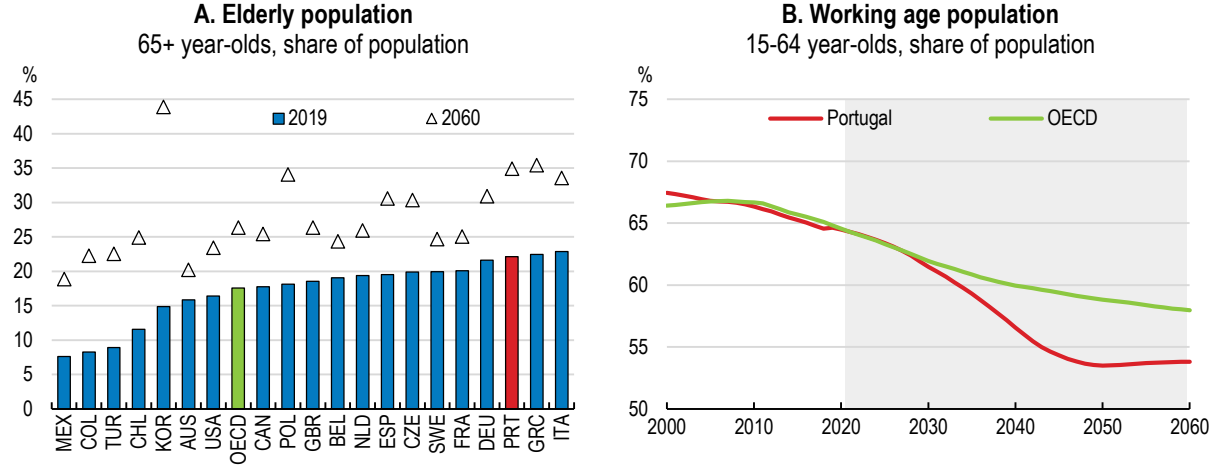


Note: 1. Gini coefficient measured after taxes and transfers. 2. Poverty rate after taxes and transfers; poverty line taken as half the median household income of the total population.
Source: OECD (2020), OECD Income Distribution Database.

StatLink https://stat.link/iqk91l

Portugal needs a strong policy response to avoid a deterioration in living standards and put growth on a sustainable and resilient path. With an ageing and fast-shrinking working age population (Figure 1.3), future growth will hinge on productivity gains. At the same time, like in most OECD countries, productivity growth has been low (Figure 1.4), and the COVID-19 crisis has already put a drag on productivity drivers, including business dynamism and investment. A package of reforms can bring substantial support to the recovery and long-term growth without derailing public finances. Portugal should seize the opportunity provided by the massive financial support from the EU to initiate positive socio-economic changes and address long-term challenges, including climate change and the digital revolution.

Figure 1.3. The population is declining and ageing faster than in most OECD countries



Source: OECD (2021). Labour Force Statistics (database).

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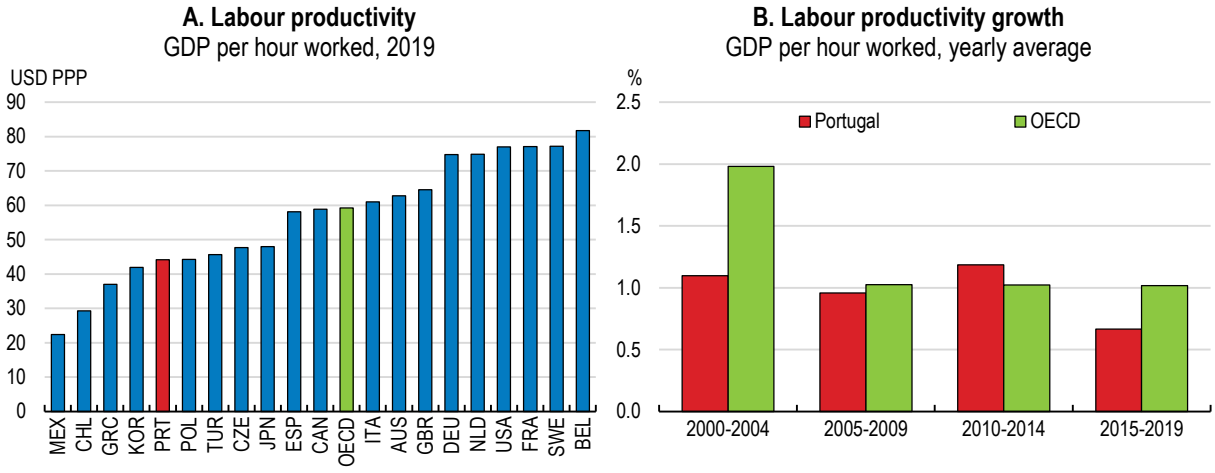
Figure 1.4. Productivity growth has been low



Source: OECD (2021), Productivity Database.

StatLink https://stat.link/5q36bh

Against this background, the main messages of the Survey are the following:

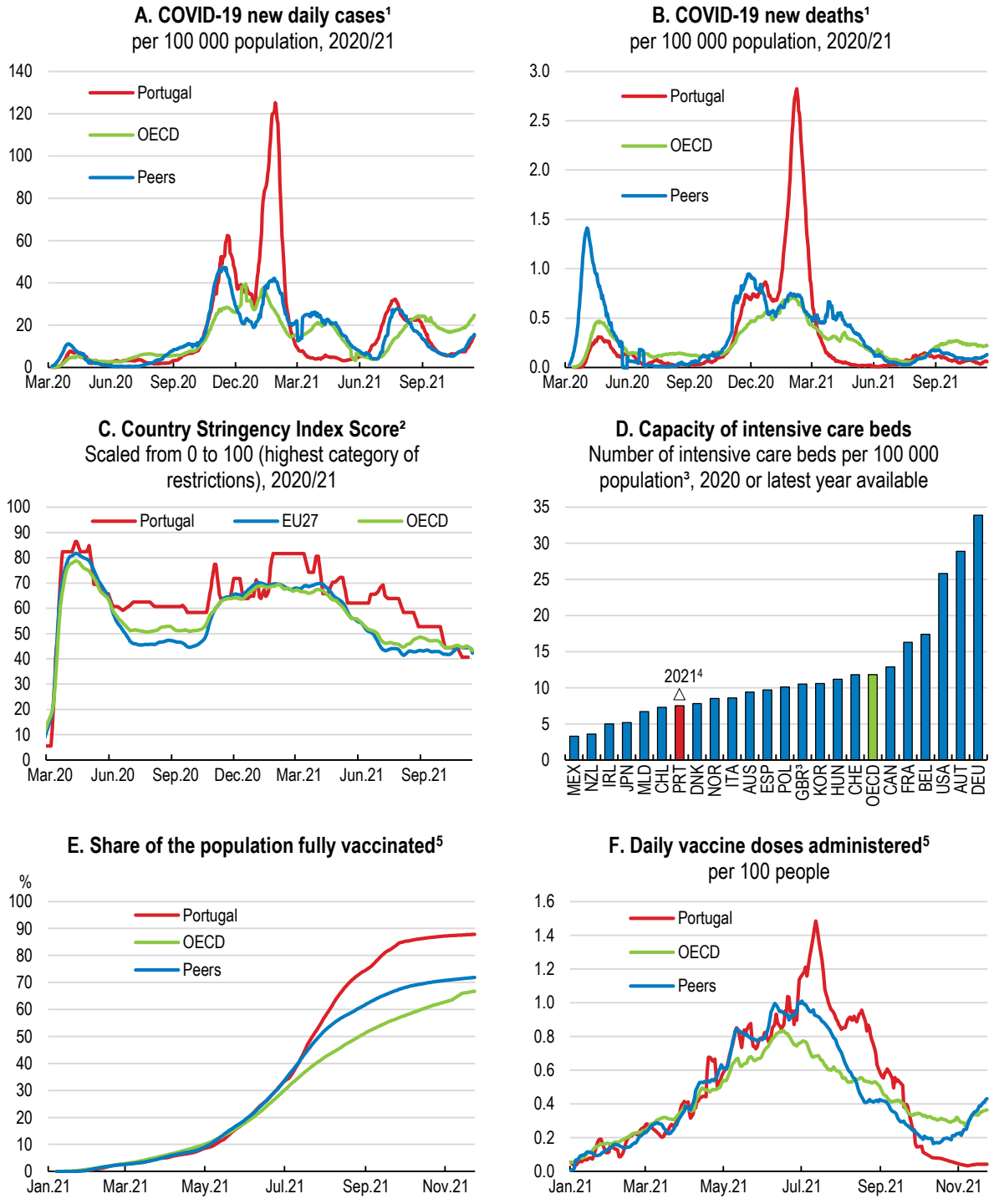
- Policy needs to remain supportive until the recovery from the pandemic is well underway. In parallel, the government should design a prudent fiscal consolidation trajectory and implement it once the recovery is firmly established.
- A resilient, sustainable, and inclusive recovery hinges on the capacity to improve access to healthcare, support viable firms and jobs, transition to greener technologies, prevent a rise in poverty and social exclusion, and cope with an ageing population.
- Accelerating the digital transition is central to facilitate the changes of the economy to a post-pandemic world, while boosting productivity growth. This notably requires equipping the population with adequate skills, expanding communication infrastructure and supporting technology adoption by small firms.

Mitigating the social and economic impact of the pandemic

The COVID-19 outbreak has triggered a major health crisis

While Portugal has been less affected by the COVID-19 pandemic than many other European countries during the first wave of the virus, subsequent waves hit the country hard (Figure 1.5, Panel A and B). In January 2021, Portugal had the highest rates of new infections and deaths worldwide. Some relaxation during the Christmas' period in 2020 combined with the emergence of a more contagious virus variant led to a fast rise in infections. The partial lockdown and geographically targeted containment measures introduced in response up to mid-January 2021 were insufficient to slow the spread of the virus. The number of infections declined with the introduction of a second lockdown on 15 January. As Portugal has low hospital and intensive care units (ICU) capacities (Figure 1.5, Panel D), the virus surge put strong pressure on the healthcare system, with hospitals reaching full occupancy rates in early 2021 (Reuters, 2021). With the emergence of new variants of the virus, accelerating planned increases in hospital capacity, including ICU beds, remains crucial. The number of ICU beds increased significantly in 2020 (Figure 1.5) and is planned to reach the OECD average in 2021.

Figure 1.5. Portugal has been hit hard by the pandemic



Note: 1. 7-day moving average. Peer refers to the weighted average of Greece, Italy and Spain. 2. 7-day moving average. The stringency index score is an index averaged across eight closure and containment policy components. 3. There may be differences in the notion of intensive care affecting the comparability of the data. 4. Estimated. Portugal plans to have 931 ICU beds for the end of 2021 (9.1 ICU beds/100.000 inhabitants). 5. 7-day moving average. Peers refer to the simple average of Greece, Italy and Spain.

Source: European Centre for Disease Prevention and Control (ECDC) though Our World in Data; OECD calculations based on the Oxford COVID-19 Government Response Tracker https://covidtracker.bsg.ox.ac.uk/; OECD (2020), "Beyond containment: Health systems responses to COVID-19 in the OECD", OECD Policy Responses to Coronavirus (COVID-19), https://doi.org/10.1787/6ab740c0-en.

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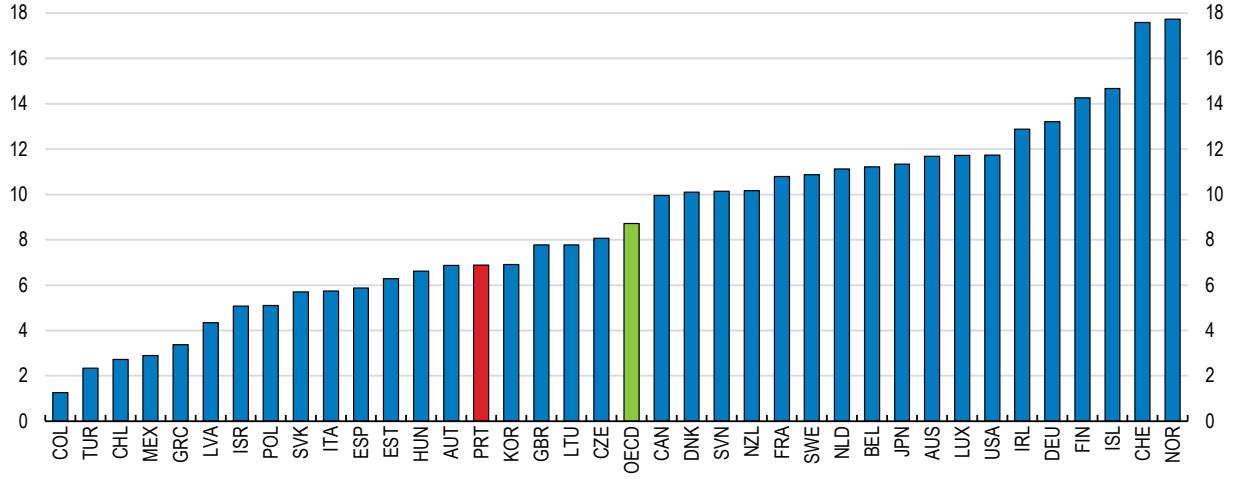
The high vaccination rate of the population, which is a major achievement of Portugal, likely played a crucial role in moderating the fourth wave of the pandemic. Like most European countries, Portugal started its vaccination campaign at the end of December 2020. Despite the rollout of vaccination being initially relatively slow, like in most European countries, Portugal has managed to reach the highest vaccination rate in the OECD, with more than 85% of the population fully vaccinated. However, due to high uncertainty regarding virus mutations, physical distancing measures, testing, tracing and isolating measures will remain key to control the fifth wave of the virus and other future surges in infections though.

The COVID-19 pandemic has accentuated critical gaps and deficiencies in the healthcare system, especially long waiting times for specialised care. In 2020, hospital emergency attendance has declined by almost 30% and more than one-third of the population reported having forgone a needed medical examination or treatment during the first wave of the pandemic (OECD, 2021a). People with chronic health conditions have faced major disruptions to routine care. Hospital waiting times for surgery and outpatient appointments increased and non-essential operations were delayed. This will result in a significant backlog of surgeries that will likely take some time to be resolved after the crisis.

Proper access to medical care requires a sufficient number of doctors, with an adequate mix of generalists and specialists and a balanced geographic distribution to serve the population across the whole country. The COVID-19 pandemic substantially increased the workload of most health workers, accentuating shortages in the health workforce. The number of practising doctors is estimated to be slightly below the EU average (OECD, 2020a). Shortages are particularly critical for nurses (Figure 1.6), as they tend to emigrate due to large differences in remuneration level and career opportunities abroad (Simões et al., 2017). Current plans to improve working conditions of health professionals are thus a welcome step forward. A number of OECD countries have taken actions to improve service availability either by targeting medical students early in their training or by providing financial incentives to practice in underserved areas. A more widespread use of telemedicine could also help to improve access to healthcare (see Chapter 2).

Figure 1.6. The shortage of health professionals is significant

Share of practicing nurses per 1000 population, 2018 or latest year available



Note: Data in France, Portugal and Turkey include not only nurses providing direct care to patients, but also those working in the health sector as managers, educators, researchers, etc. Greece report only nurses employed in hospital. Data in Chile refer to all nurses who are licensed to practice.
Source: OECD Health Statistics 2019/2020; Eurostat Database.

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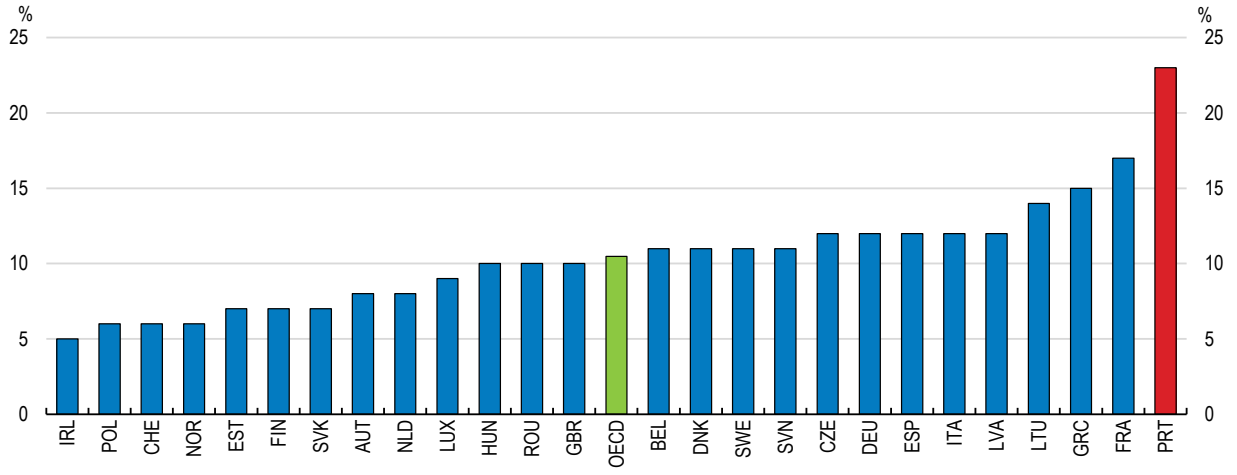
The COVID-19 pandemic has accentuated mental health problems particularly for people with pre-existing mental health disorders. In Portugal, over 20% of adults reported symptoms of psychological distress before the crisis, one of the highest rates across Europe (Figure 1.7). Empirical evidence shows that community mental health services are much more effective to address mental distress, and are preferred by patients and their families, but the provision of such services is limited in Portugal, especially in rural areas (Perelman et al., 2018). The Portuguese mental health system is centred on hospitalisation treatment and emergency consultations, unevenly distributed in the country (WHO, 2018; Perelman et al., 2018). The government plans to phase out user charges for psychiatrists in hospitals, but this will not be sufficient to improve accessibility. Portugal needs to implement a comprehensive mental health strategy that includes prevention and promotion. It is thus welcome that the Recovery and Resilience Plan includes measures to enforce the National Mental Health Plan adopted in 2008.

Figure 1.7. Prevalence of psychological distress is high

Per cent among population aged 16 and over, 2018



Source: OECD (2020) calculations based on EU survey on Statistics on Income and Living Conditions (EU-SILC).

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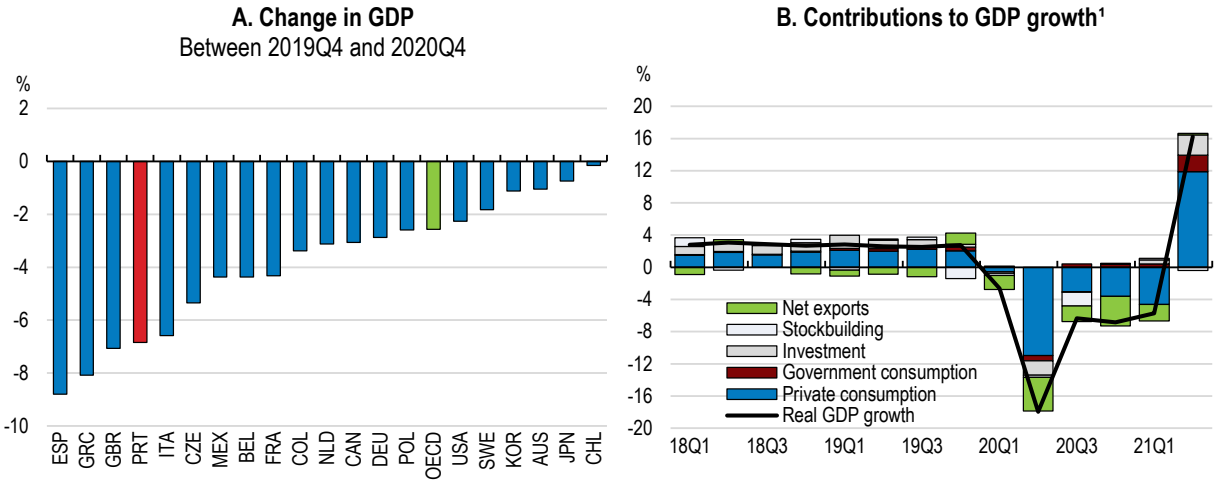
The economic recovery is fraught with risks

Portugal was among the OECD economies most strongly hit by the pandemic, but has been recovering fast since mid-2021 (Figure 1.8). A deep decline in GDP followed lockdown measures imposed to slow the spread of the virus in March 2020, which were lifted in mid-2020, and successive containment measures, which were introduced subsequently due to the health situation. Private consumption plunged due to high uncertainty, fear of contagion, and mobility restrictions (Figure 1.8, Panel B). Activity has been constantly supported by policy measures and rebounded markedly each time when diverse restrictive measures were lifted. Nonetheless, the recovery has been uneven, as the hit was particularly strong in the tourism, hospitality and transport sectors that have a relatively large weight in the economy. By contrast, activity in construction and manufacturing remained strong in 2020. As the health situation improved and most of the restrictions were removed, activity in the services sector has gained momentum, associated with strong household consumption since the second quarter of 2021.

Figure 1.8. The shock to GDP was among the largest in the OECD, but the economy is recovering



Note: 1. Contribution to GDP growth relative to the same quarter of the previous year.
Source: OECD (2021), Economic Outlook database.

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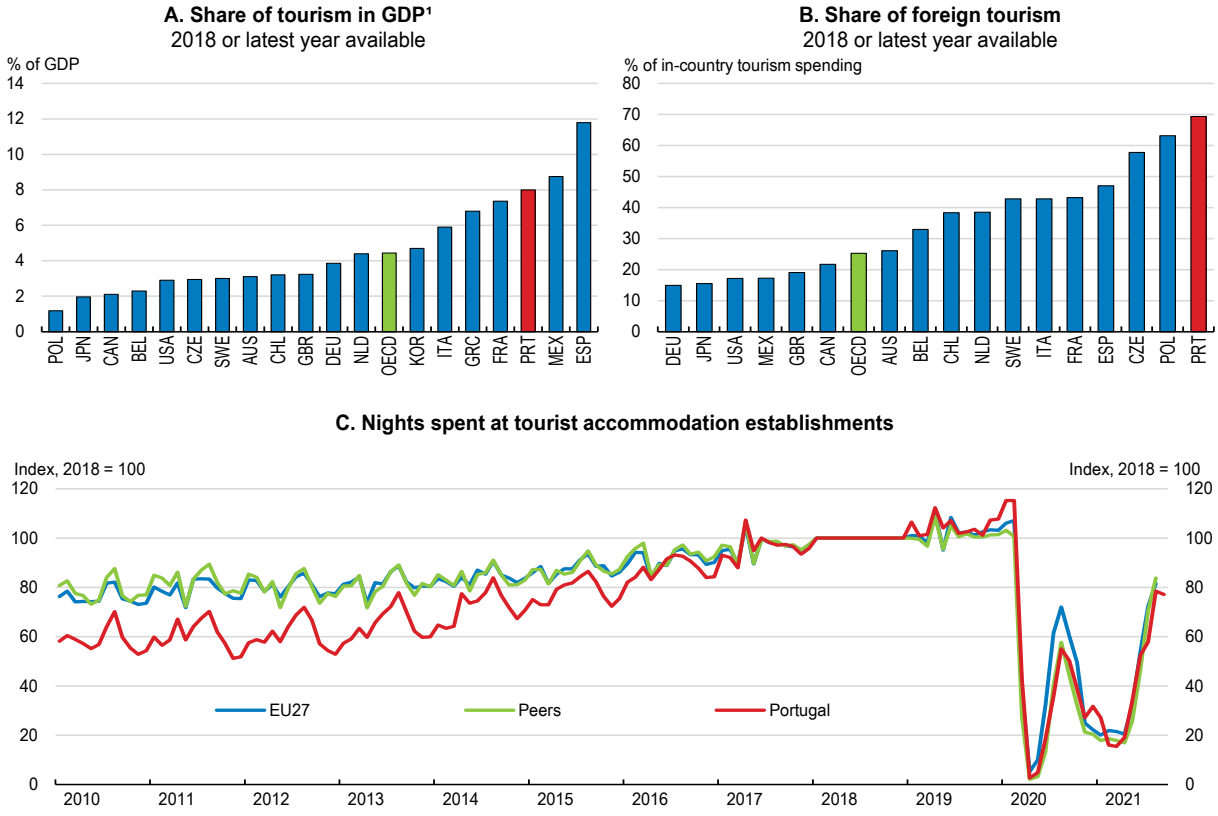
Portugal's economy has been particularly vulnerable to the pandemic due to its high reliance on international tourism (Figure 1.9). Tourism has been one of the most severely hit sectors, with a 58% decline in travel and tourism exports in 2020. The share of tourism in total export declined from 19.5% in 2019 to 10.4% in 2020. Since March 2020, hotels, restaurants and touristic attractions have operated with restricted capacity due to health protocols and international aviation restrictions. While most of mobility restrictions have been removed, the tourism sector has recovered strongly over the past months (Figure 1.9). The total revenue in the sector in the first nine months of 2021 has already exceeded that for the whole year of 2020. Despite this strong recovery, activity in the tourism sector still remains well below pre-crisis levels.

Public support weathered the impact of the crisis on the labour market. In 2020, unemployment rose moderately compared with the decline in economic activity as nearly 15% of the labour force benefited from various temporary forms of state support at the height of the crisis (Bank of Portugal, 2020a), including notably the job retention schemes (Box 1.1). Both employment and, to a lesser degree, labour force participation have risen along with the economic recovery (Figure 1.10). The unemployment rate has declined to 6.3% (those aged 15-74) as of the third quarter of 2021, from 8.2% at its peak in 2020. Nonetheless, the recovery in employment has been uneven across workers, as employment among previously temporary or part-time workers and those with lower educational attainment remains well below pre-crisis levels.

Figure 1.9. Tourism has been hit hard



Note: Peer countries refer to Greece, Italy and Spain. 1. GDP data for France refer to internal tourism consumption. GDP refers to GVA for Canada, Chile, Denmark, Finland, Germany, Greece, Italy, Mexico, New Zealand, Portugal, Sweden, United Kingdom and the United States. GDP data for Korea and Spain includes indirect effects.
Source: OECD Tourism Statistics; Eurostat.

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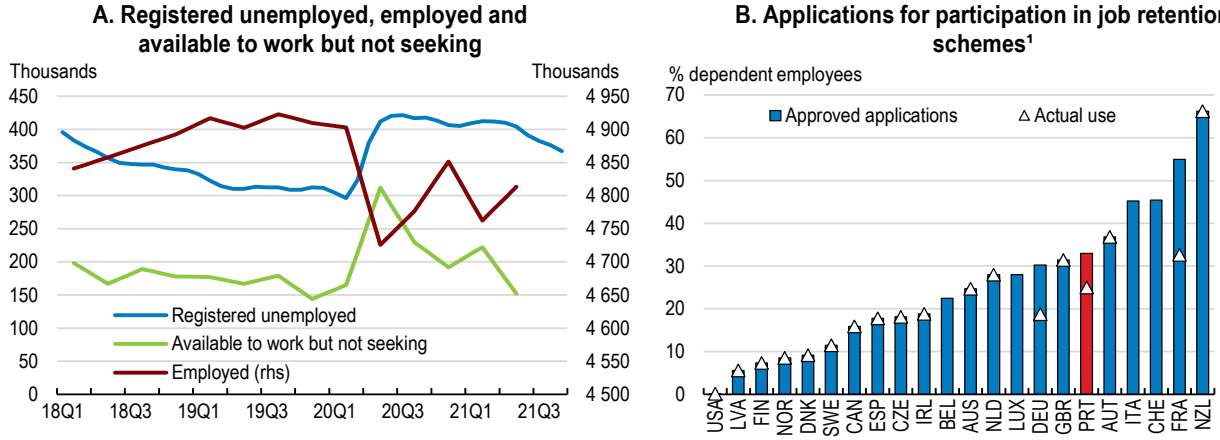
Figure 1.10. Labour market conditions have deteriorated



Note: 1. Take-up rates are calculated as a percentage of dependent employees in 2019 Q4. Data refer to end May except for Luxembourg and Switzerland (end April). Australia, Canada, Ireland, the Netherlands and New Zealand operate wage subsidy schemes, which are not conditional on the reduction in working hours. United States: data refer to participation in short-time compensation schemes.
Source: Eurostat (2021) Labour Force Survey; OECD (2021), Short-Term Labour Situation database; OECD (2020), "Job retention schemes during the COVID-19 lockdown and beyond", OECD Policy Responses to Coronavirus (COVID-19), OECD Publishing, Paris, https://doi.org/10.1787/0853ba1d-en; Ministry of Labour.

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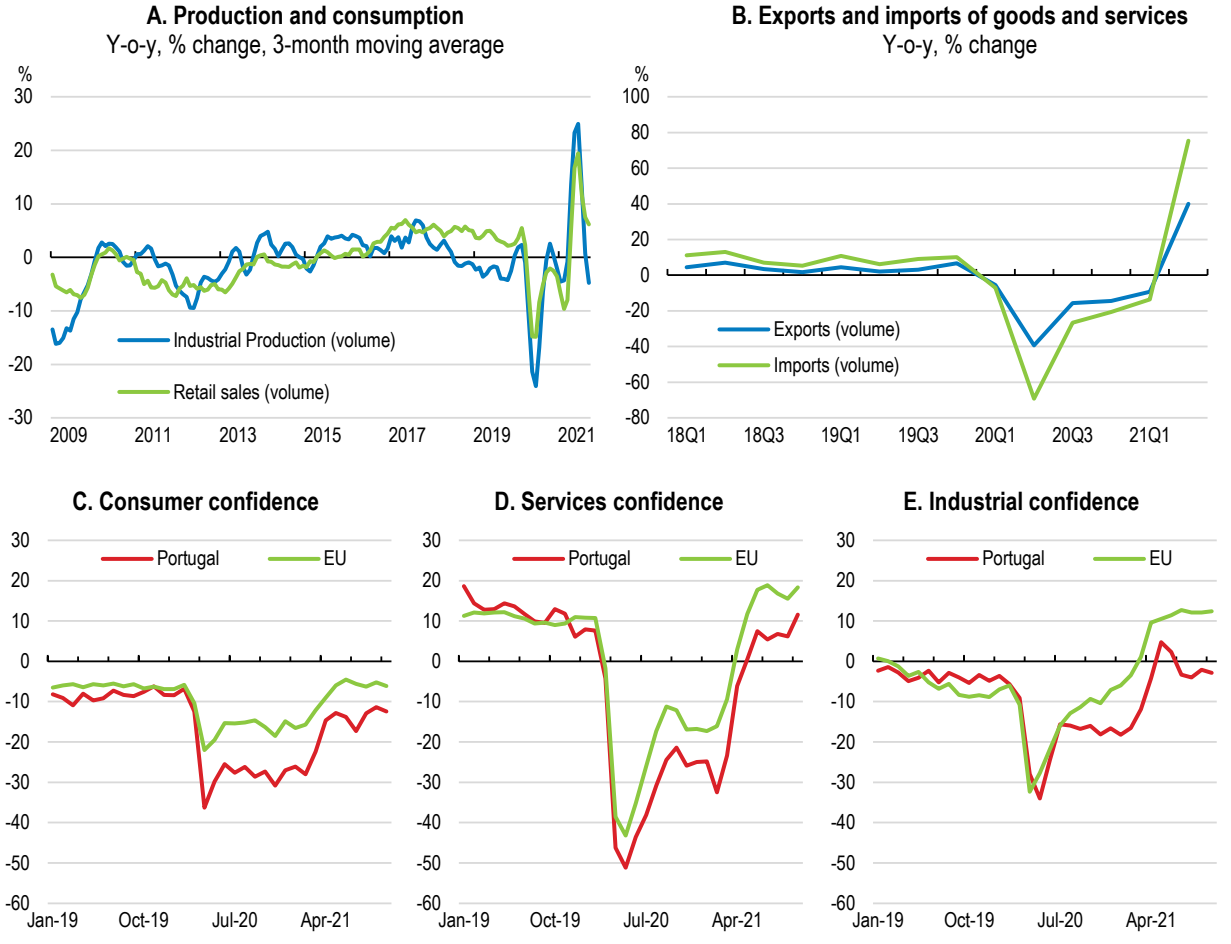
A large number of firms have faced financial stress, which has been mitigated by policy measures. Survey data suggest that half of the firms were benefiting from some public support at the end of 2020 (Bank of Portugal/INE, 2020, Bank of Portugal, 2020c). Government liquidity measures, including a moratorium on credit instalment payments and credit lines with public guarantees, and the European Central Bank's accommodative monetary policy have contributed to maintaining credit, preventing a surge in insolvencies and credit defaults. Business investment dropped during the first lockdown and has been weighed down by supply constraints as well as liquidity and solvency concerns in some firms (Bank of Portugal, 2021c). Nonetheless, public and residential investment have remained strong, supported by EU funds, and overall gross fixed capital formation has already surpassed pre-crisis levels.

Both exports and imports declined strongly in 2020 due to the crisis and have recovered unevenly (Figure 1.11). Imports have rebounded fast over the past quarters as domestic demand has gained momentum, while the recovery of exports has been comparatively limited, leading to a deterioration of the current account balance. In 2020, exports of goods and services contracted sharply (-20.5% in nominal terms), which was even more pronounced for tourism (-57.8%). Brexit also weighs on exports and investment, as the UK was the destination of around 10% of exports, the largest market for travel exports (around 18% of total), and the fifth largest source of foreign direct investment before the pandemic. In fact, the contraction of exports to the UK was stronger than that of overall exports in 2020 (total goods and services declined by 34.4% and tourism by 63.4%).

Figure 1.11. Activity and confidence have recovered, but remained below pre-crisis levels



Source: OECD Monthly Economic Indicators; Refinitiv; Eurostat, Economic Sentiment Database.

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After a steep decline of 8.4% in 2020, GDP is projected to strongly rebound in 2021 and 2022 following the lift of restriction measures and the rollout of vaccination as well as the absorption of EU funds (Table 1.1). Despite still high uncertainty and corporate debt, investment will be solid, supported by the Next Generation EU programme. Consumers spending, which rebounded recently following the removal of mobility restrictions, will remain robust. Exports, still subdued, will be slow to recover fully, reaching the pre-crisis level only at the beginning of 2023, as tourism is expected to continue to be affected by mobility restrictions across borders. As job support measures will have been phased out, unemployment can increase in particular among workers with precarious jobs and low wage levels who have higher propensity to consume. In the absence of additional policy measures, the end of moratoria in debt repayments will likely trigger an increase in credit defaults and liquidations.

Inflation turned negative in 2020, but has been rising relatively strongly over the past months, standing at 1.8% in October 2021, essentially driven by high energy prices. Production costs have risen strongly largely due to energy prices and supply constraints as the industrial production prices index rose 13.3% year-on-year in September 2021. However, the current rise in production costs is not expected to fuel underlying price pressures so far, given still sizeable slack in the economy (Table 1.1). Since October 2021, the government has introduced a number of measures to cushion the negative effects from rising energy prices, such as fuel subsidies for households and for public transport operators as well as a control of fuel marketing margins.

Risks to the outlook are significant. Like in all other OECD countries, the evolution of the pandemic remains the major factor that will determine future economic performance and is difficult to predict. Downside risks include the spread of new variants of the virus and low effectiveness of vaccines that could lead to new containment measures and low confidence. The current rise in energy prices can be more protracted than expected, which would weigh on production and consumption in spite of the relief measures introduced recently by the government. A rapid implementation of the Recovery and Resilience Plan will be key to sustain a fast recovery. A stronger rebound in tourism could accelerate GDP growth, notably by improving employment prospects for vulnerable workers affected by the crisis. In contrast, the recovery of tourism can be even slower than expected, if the pandemic affects tourists' preferences and confidence permanently.

Maintaining Portugal's comparative advantage in tourism is crucial to sustain the recovery in the medium run. A set of targeted measures (i.e. earmarked credit lines, VAT vouchers, creation of a "Clean and Safe" label among other measures to ensure tourists' safety) rightly aimed at protecting companies and jobs in the sector so they can operate after the lifting of containment measures. So far, the crisis did not seem to have affected Portugal's productive capacity as a tourist destination. The number of jobs in hospitality and restaurants in 2020 declined by 8.9%, which only moderately recovered in 2021, but the number of touristic accommodation establishments, travel agencies and touristic animation enterprises registered in the national tourism registration system has increased compared with 2019. In the longer run, fully reaping the benefits of the recovery of tourism will require maintaining strong international competitiveness, to intensify linkages with other sectors in the economy, while ensuring its development all over the territory. A coherent and integrated national plan for the development of tourism can help to achieve these objectives. In this respect, the government launched a EUR 6 billion plan to reactivate tourism in May 2021.

Indicators of macro-financial stability suggest Portugal's economy is more resilient than in past major crises (Figure 1.12). However, the escalation of the health crisis could trigger tail events that would affect economic prospects significantly (Table 1.2). Resilience of Portuguese firms, which are in relatively large proportions very small and undercapitalised, and thus more vulnerable to shocks, is another source of uncertainty. A higher than projected rise in insolvencies could dent economic prospects, thus the capacity of public policies to provide adequate support is essential.

Table 1.1. Macroeconomic indicators and projections

Portugal, annual percentage change, volume (2015 prices)

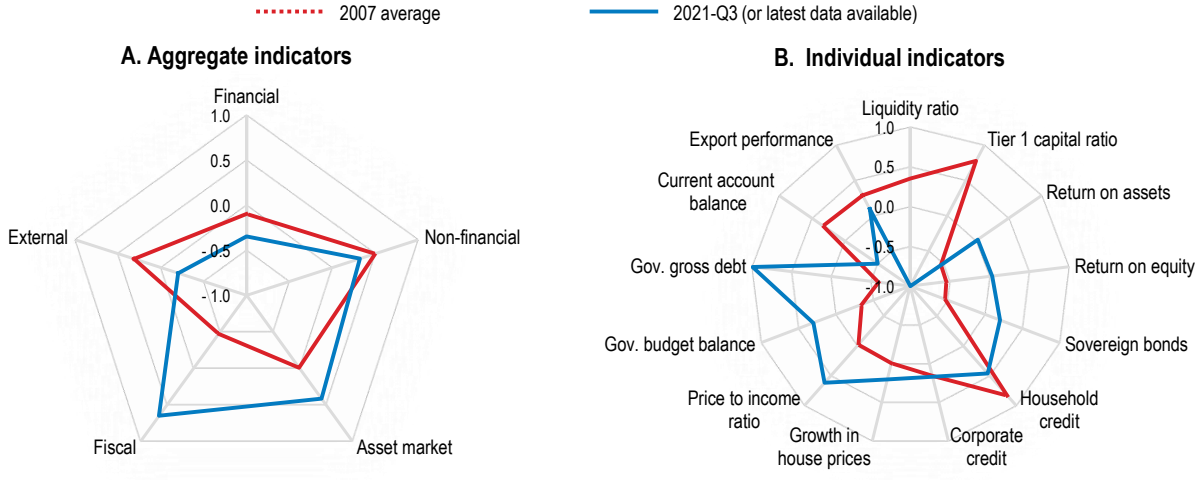
	2018	2019	2020	2021	2022	2023
	Current prices (billion EUR)					
Gross domestic product (GDP)	**205.2**	**2.7**	**-8.4**	**4.8**	**5.8**	**2.8**
Private consumption	131.9	3.3	-7.1	4.5	4.6	1.9
Government consumption	34.8	2.1	0.4	4.3	2.9	1.3
Gross fixed capital formation	36.0	5.4	-2.7	5.7	8.1	8.5
Housing	6.4	1.4	-6.6	1.7	6.8	4.4
Final domestic demand	202.7	3.4	-5.0	4.7	5.0	3.1
Stockbuilding[1]	1.6	-0.3	-0.6	0.2	0.0	0.0
Total domestic demand	204.2	3.1	-5.5	4.9	4.9	3.1
Exports of goods and services	89.1	4.1	-18.6	9.2	10.5	4.6
Imports of goods and services	88.2	4.9	-12.1	9.2	8.0	5.3
Net exports[1]	0.9	-0.4	-2.9	-0.2	0.8	-0.4
Other indicators (growth rates, unless specified)						
Potential GDP	. .	1.9	1.9	1.8	1.7	1.7
Output gap[2]	. .	-1.0	-11.0	-8.4	-4.7	-3.7
Employment	. .	1.2	-1.9	2.3	1.3	0.8
Unemployment rate[3]	. .	6.6	7.0	6.9	6.7	6.5
GDP deflator	. .	1.7	1.9	0.9	1.4	1.2
Harmonised consumer price index	. .	0.3	-0.1	0.8	1.7	1.1
Harmonised core consumer price index	. .	0.4	-0.2	0.1	1.6	1.1
Household saving ratio, net[4]	. .	-2.2	3.5	2.4	-1.1	-2.0
Current account balance[5]	. .	0.4	-1.1	-1.0	-0.6	-0.9
General government fiscal balance[5]	. .	0.1	-5.8	-4.3	-2.4	-1.6
Underlying general government fiscal balance[2]	. .	0.6	1.9	-0.6	-1.1	-1.1
Underlying government primary fiscal balance[2]	. .	3.4	4.3	1.6	0.8	0.7
General government gross debt (Maastricht)[5]	. .	116.6	135.2	133.4	128.3	125.8
General government net debt[5]	. .	99.1	112.7	110.9	105.7	103.3
Three-month money market rate, average	. .	-0.4	-0.4	-0.5	-0.5	-0.5
Ten-year government bond yield, average	. .	0.8	0.4	0.3	0.2	0.3

1. Contribution to changes in real GDP.
2. As a percentage of potential GDP.
3. As a percentage of the labour force.
4. As a percentage of household disposable income.
5. As a percentage of GDP.

Source: OECD (2021), OECD Economic Outlook: Statistics and Projections (database) with projections from "OECD Economic Outlook No. 110".

Figure 1.12. Some macro-financial vulnerabilities have picked up

Index scale of -1 to 1 from lowest to greatest potential vulnerability, where 0 refers to the long-term average [1]



Note: 1. Each aggregate macro-financial vulnerability dimension is calculated by aggregating (simple average) normalised individual indicators from the OECD Resilience Database. Individual indicators are normalised to range between -1 and 1, where -1 to 0 represents deviations from long-term average (since 1970) resulting in less vulnerability, 0 refers to long-term average and 0 to 1 refers to deviations from long-term average resulting in more vulnerability. Financial dimension includes: regulatory liquidity ratio, regulatory Tier 1 capital ratio, the return on assets, and the return on equity. Non-financial dimension includes: household credit (% of GDP) and corporate credit (% of GDP). The asset market dimension includes: growth in real house prices (year-on-year % change), and house price to disposable income ratio. Fiscal dimension includes: government budget balance (% of GDP) (inverted), and government gross debt (% of GDP). External dimension includes: current account balance (% of GDP) (inverted), and export performance (inverted).
Source: Calculations based on OECD (2021), OECD Resilience Database, March.

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Table 1.2. Low-probability events that could lead to major changes in the outlook

Shock	Possible impact
Recurrent COVID-19 outbreaks due to ineffective vaccines against new variants.	Strengthening of containment measures and repeated local and national lockdowns could trigger a surge in bankruptcies and job losses.
Sharp rise in non-performing loans after the end of public support measures.	Reduced profitability and liquidity in the banking sector could lead to credit crunch and subdued level of investment.
Significant delays in the implementation of the Recovery and Resilience Plan.	Persistently weak public investment would slow down the recovery.

Policy support should continue, but adapt to the evolution of the pandemic

While relatively weaker than in the OECD on average, public support was sizeable and mitigated the negative impact of the pandemic on the economy (IMF, 2021). Direct aid through subsidies or tax cuts was substantially lower than in other EU countries, but state guarantees on loans were massively used (ESRB, 2021). Fiscal support should remain in place until the recovery is firmly underway. Job retention schemes, benefit payments to the self-employed, income support for workers caring for children and tax deferrals should continue as far as restrictions are in place. Loan and guarantee programmes should also be pursued for firms affected by regulatory restrictions to ensure they can restart activity when possible.

As the pandemic evolves, the authorities should regularly reassess and adapt measures to support the economy, finding the right balance between protecting firms and workers and encouraging the liquidation of unviable activities. Furthermore, a durable recovery will require improving productivity growth and reducing disparities in economic performance, not least by boosting the digital transformation and addressing the digital divide (Chapter 2). Structural reforms recommended in this Survey can have a

substantial positive impact in the medium to long term. Box 1.2 presents estimates of the impact of a selection of reforms discussed in this Survey on growth and fiscal balance.

Box 1.2. Illustrative impact of structural reforms

The tables below present the growth and fiscal impacts of some key structural reforms proposed in this Survey. These estimates are illustrative. The impact on GDP per capita is estimated using historical relationships between reforms and growth in OECD countries. The fiscal impacts presented in Table 1.4 do not take into account indirect effects, such as those induced by the positive impact of the reforms on growth and public revenues.

Table 1.3. Estimated impact of selected policy recommendations on GDP per capita

Policy	5 year effect	10 year effect	15 year effect
Raising the education attainment level of the adult population	0.1%	0.6%	1.4%
Increasing spending on active labour market policies	0.3%	0.5%	0.7%
Increasing direct R&D support targeted at SMEs	0.0%	0.2%	0.4%
Improving judicial efficiency and contract enforcement	0.2%	0.9%	2%
Total	0.7%	2.4%	4.8%

Note: Policy scenarios presented in the table correspond to increasing i) the average number of years of schooling of the adult population by 6 months in 15 years via increased participation in adult education, ii) ALMP spending as a share of GDP by 0.3 percentage point iii) business R&D as a share of GDP by 0.4 percentage point, and iv) the Rule of Law indicator from the World Bank "Worldwide Governance Indicators" from 1.14 to 1.4 (the OECD median).
Source: OECD calculations based on Guillemette and Turner (2018).

Table 1.4. Illustrative direct fiscal impact of selected policy recommendations

Fiscal impact (savings (+)/ costs (-)), % of GDP

Reform	Fiscal impact
Increasing spending on active labour market policies	-0.3%
Increasing spending on R&D policies	-0.4%
Improving public spending efficiency	+0.6%
Increasing environmental taxes with flanking measures to support poor households most affected and accelerate investment in green mobility	+0.1%

Note: These estimates roughly quantify the short-run annual fiscal impact of selected recommendations in this Survey. They are based on the following assumptions: i) an increase in active labour market spending as a share of GDP by 0.3 percentage point, ii) an increase in subsidies to business R&D as a share of GDP by 0.4 percentage point, iii) an increase in environmental taxation as a share of GDP to the average of the top quintile of the OECD (from 2.6% to 3.6% of GDP), with most of the revenues used to compensate poor households and to invest in electric mobility and public transportation.
Source: OECD calculations.

Supporting distressed firms

Despite a stronger position of firms when compared to the previous crisis, the small size, low capitalisation, and high indebtedness of businesses suggest high insolvency and bankruptcy risks in Portugal following the phasing out of public support to businesses and the end of the moratoria on bank credit payments and insolvencies in 2021. According to recent estimates of the Bank of Portugal, moratoria covered around 28.5% of firms' loans (around EUR 21.5 billion) as of end August 2021, just before the end of the moratoria (Bank of Portugal, 2021b). To limit a surge in default, support measures are needed. First, *Linha de Apoio à Recuperação Económica* (LARE) *Retomar* was launched in September 2021, as a new support measure for economically viable firms operating in the most affected sectors, which aims to provide an additional relief of debt repayment, by restructuring credit operations in moratorium, introducing a new principal grace period and maturity extension. In addition, Portugal's Recovery and Resilience Plan includes measures to

support firms' recapitalisation, aiming at restoring firms' financial autonomy and fostering productive investment (see below).

Support measures should target viable firms in sectors more affected by the containment measures. Banks' expertise could be used to identify firms to which they are exposed and that are still viable, but have liquidity constraints. The government could develop a common framework to assess the viability of firms and complementary measures needed to address the short-term solvency of viable firms. This could be for example delaying the main payments of loans guaranteed by the State, agreeing on some restructuring of unpaid social contributions, or increasing the maturity of State-guaranteed loans, in line with the prudential framework. However, this last measure would require renegotiating the conditions of this State aid measure with the European Commission. When doing so, it is crucial not to delay debt restructuring as this could weigh on bank lending capacity (see below).

A number of policy options promoting equity and quasi-equity financing can flatten the curve of crisis-related insolvencies and lessen the risk of debt-overhang (Demmou and al., 2021). Portugal has already a number of non-debt funding instruments in place, such as fiscal incentives for firms to undertake equity-type capital injections, a regulatory framework for Investment Funds and a mechanism of conversion of loans to equity, but their scope has been modest. More needs to be done to expand the availability of non-debt instruments. The package of financial instruments to support firms' capitalisation and investment envisaged under the Recovery and Resilience Plan includes the development of the National Promotional Bank, *Banco de Fomento*. It manages a total amount of EUR 1.3 billion that can be invested in viable firms in the form of equity and quasi-equity. The package under the Plan also includes a reform of the capital market for promoting the capitalisation of non-financial companies with particular emphasis on investment firms, and envisages regulatory and administrative simplification and capitalisation incentives such as deduction for retained and reinvested earnings, to be completed by 2025.

The creation of a public equity fund, like in Spain, can contribute to stimulating non-debt funding. Its effectiveness would depend on developing a credible exit strategy of public funds and monitoring the associated contingent liabilities (OECD, 2020b). State contingent loans for which repayments are conditioned on future returns, like in France with the "participative loans", can help small firms that do not have access to equity markets to recapitalise. Similar to equity, such loans are subordinated to other debts and their returns are linked to profits. They have a relatively long maturity, and can include State guarantees and higher interest rates to attract private financing. In Portugal, the possibility to introduce participative loans has been examined by regulators and stakeholders. Converting loans into grants, under a number of conditions, as done in the US or in Germany, is a more direct way to reduce debt of distressed firms. Portugal has already provided non-refundable grants to firms, notably to pay rents, which is welcome. Nevertheless, room to expand the scope of such measures is small due to their high cost and the limited fiscal space.

Stimulating activity through productive investment

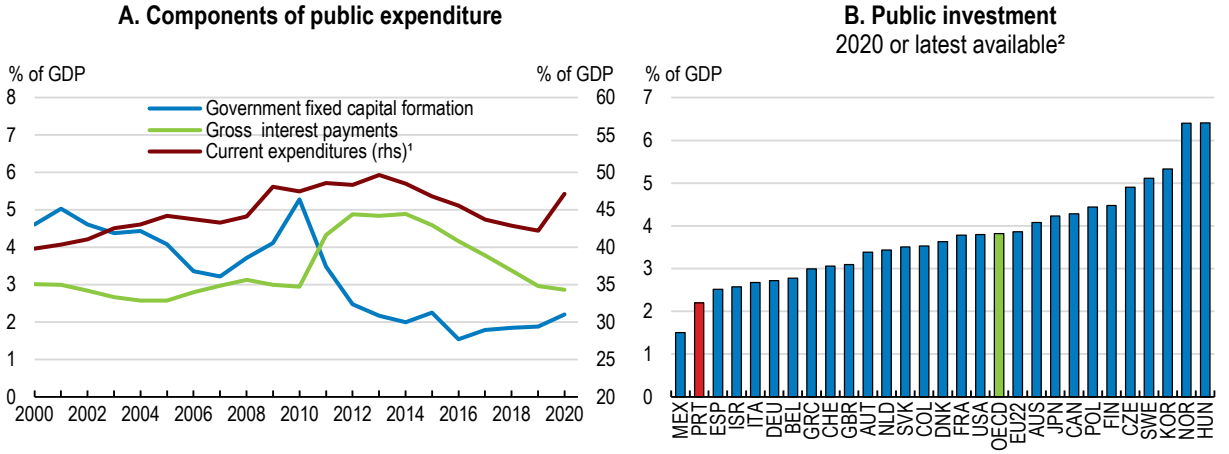
The COVID-19 pandemic jeopardises the recovery of investment by weighing on firms' profitability and capacity to invest. In 2020, private investment dropped by around 16%. Before the pandemic, private investment was already relatively low, undermining the adoption of new technologies, especially in SMEs (see Chapter 2). The deterioration of economic conditions risks deepening this performance gap by undermining capital acquisition. Foreign direct investment flows can be affected negatively, as FDI prospects are weak in some sectors, including the automotive and the aeronautic sectors (EY, 2020). The pandemic has put a drag on firm creation in 2020, which was subsequently reversed but has not reached to pre-crisis levels yet. Weak firm dynamics could have long-lasting effects on growth potential, as new entrants tend to bring innovation, use more intangible capital and increase market contestability (Calvino, Criscuolo and Menon, 2016).

Policies should sustain investment, especially in new firms. A key issue is investment funding. Weakening balance sheets, increasing financing constraints and high uncertainty have complicated access to finance, especially for SMEs that lack collateral and for intangible investment (Demmou and al., 2021). Despite extensive public support to credit supply (i.e. state guarantees, see Box 1.1), financing conditions have worsened for higher risk companies. Credit standards tightened in response to the economic outlook, a deterioration in borrowers' creditworthiness and a decline in risk tolerance (Bank of Portugal, 2020b).Banks – the main external financing sources for businesses – apply tight collateral requirements, restricting the supply of unsecured loans. Under these circumstances, firms benefited from publicly guaranteed credit lines. Between March 2020 and March 2021, the stock of loans of companies that resorted to publicly guaranteed credit lines increased significantly. Overall credit standards have been eased since early 2021 and currently standing close to pre-crisis levels (Bank of Portugal, 2021d).

Policies that improve the availability of long-term market-based financing can support the recovery of investment. As detailed in Chapter 2, alternatives to bank financing are missing in Portugal, which has been a barrier to access to finance already before the crisis, especially for small innovative firms (European Investment Bank, 2019). Options to diversify financing sources include introducing schemes for equity-type capital injections directed to SMEs, as equity markets for SMEs are lacking. Other possible measures include the establishment of funds as done for instance in France with the "Fonds de renforcement des PME" or the BPI France Entreprises or the setup of convertible bonds as done in the UK. Developing a special framework for private bond placements by small companies following successful examples in Europe could also be envisaged (e.g. the mini-bond market in Italy). Initiatives to improve awareness on equity instruments among entrepreneurs and incentives for investors can accelerate the development of equity finance. Finally, reducing costs and streamlining listing requirements can facilitate access to equity markets for smaller firms, as stressed in the 2020 OECD Capital Market review (OECD, 2020c). Portugal's Recovery and Resilience Plan envisages reforms to develop capital markets, including the revision of the legal framework for collective investment undertakings and of incentives to capitalisation.

Public investment in growth-enhancing areas, such as digitalisation, environment, education and health care, can boost productivity from current low level and inclusiveness (see Figure 1.4, Chapter 2). However, public investment, at around 2% of GDP, was among the lowest in the OECD in 2019 and in 2020, despite an increase in response to the pandemic (Figure 1.13). Over the past decade, subdued public investment has been part of the fiscal consolidation strategy that focused on the headline deficit with only limited structural improvement (Weise, 2020).

Figure 1.13. Public investment has declined in the past decade



Note: 1. Current expenditures includes government final consumption, social security benefits, property income and other outlays. 2. Data for Colombia, Israel, Mexico and Switzerland refer to 2019.
Source: OECD (2021), OECD Economic Outlook: Statistics and Projections.

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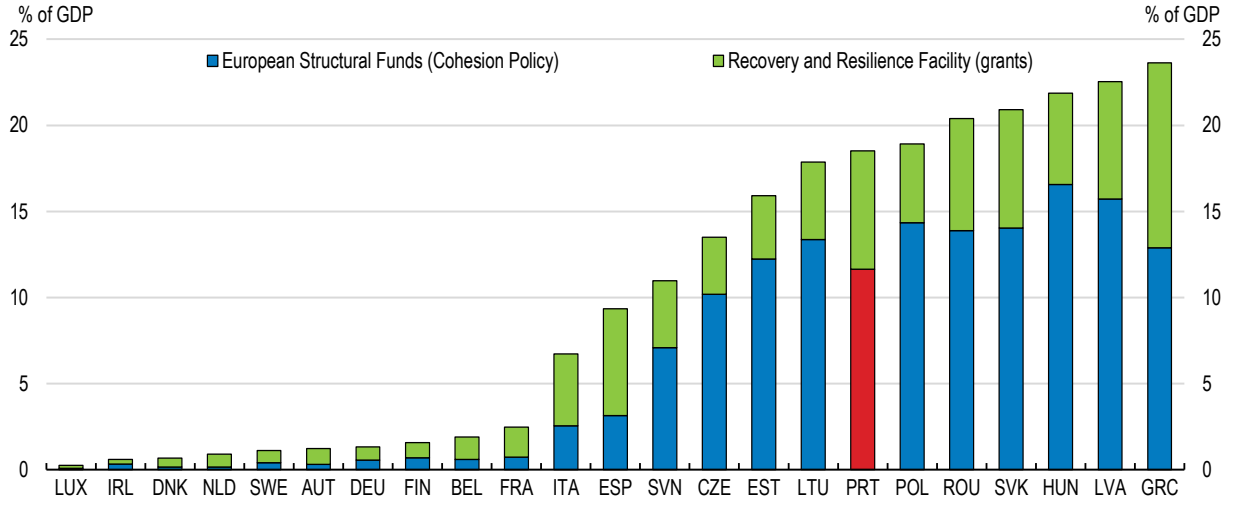
EU funds will help to increase public investment. Portugal will receive around EUR 61 billion over 2021-29, in particular from the Recovery and Resilience Facility and the Cohesion Policy funds (Figure 1.14). While Portugal has been successful in using EU funding so far and has experience with financial assistance programmes, absorption might be slow due to hurdles in designing, approving and implementing programmes. Portugal has already received EUR 2.2 billion (1% of GDP) in pre-funding and is expected to absorb 1.2 billion in 2021. Portugal will have to develop administrative capacities to accelerate the management of the funds. Reducing red tape and streamlining administrative processes in the public procurement system, while ensuring high levels of transparency and accountability to prevent the risks of fraud, would also help to speed up the execution of planned investment.

Figure 1.14. Portugal will receive large amounts of EU funds

Total allocation, 2020



Note: "European structural funds (Cohesion Policy)" stand for the European Social Fund, the European Regional Development Fund, the Cohesion Fund, and support for the European Territorial Co-operation. Total allocation over the period 2021-27 in current prices is expressed as a % of 2020 GDP. "Recovery and Resilience Facility (grants)" refers to the maximum grant allocations over the period 2021-26, which is expressed as a % of 2020 GDP.
Source: OECD calculations based on European Commission (2021) "The EU's 2021-2027 long-term budget & Next Generation EU, Facts and figures".

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Portugal's Recovery and Resilience Plan presents the main orientations for the use of the Next Generation EU funds. The main areas for investment and reforms coincide with those highlighted in past and present Surveys (Box 1.3). In line with EU guidelines, the plan dedicates 38% of the budget to measures addressing environmental challenges and 22% contributing to the digitalisation of the economy. The plan aims at strengthening economic, social and territorial resilience by reducing social vulnerabilities, raising the national productive potential and ensuring competitive and cohesive territory. The implementation of the plan is underpinned by a specifically designed governance, the structure of which is considered to be adequate (European Commission, 2021a). It consists of a coordination body chaired by the Prime Minister (the Inter-ministerial Commission), monitoring mechanisms associating also relevant stakeholders outside the government, and an audit and control mechanism.

Portugal will have to execute a significantly larger amount of EU funds over the next years than in the past, representing both an opportunity and challenge in terms of programming, complementarity of instruments, management capacity, audit responsibility and successful and impactful execution (European Commission, 2021a). Also, the implementation of the plan is supposed to be coordinated with that of the Partnership Agreements for 2021-27 (for the Cohesion Policy) under a broader economic and social strategy '*Estratégia Portugal* 2030'. Therefore, the coordination between the monitoring mechanisms for

the plan, the Development and Cohesion Agency in charge of all EU funds, and the Ministry of Finance in charge of formal interactions with the European Commission will be crucial. The launch of a platform (i.e. the "More Transparency Portal") that aims at improving the transparency of the European funds' execution process by providing clear and relevant information to citizens in April 2021 is a welcome step. The effective implementation of the plan should ensure value for money and reduce the risk of fraud. It will be also important to keep monitoring the costs and benefits of projects, favour those that have the highest economic and social returns, and to ensure funds will finance projects that would not have been carried out in the absence of public co-funding.

Box 1.3. Portugal's Recovery and Resilience Plan

The Portuguese Recovery and Resilience Plan is part of the Next Generation EU initiative and integrated in the Portugal 2030 Strategy approved in early 2021. The Plan is structured around three main dimensions: resilience, climate transition and digital transition. It includes 20 main components, some of which are covered in this Survey.

Measures in the resilience section include

- Health, housing and social policies targeting vulnerable people. Objectives include expanding the healthcare network in low-density regions, completing the Mental Health reform, and providing decent housing to at least 26 000 households.
- Investment and innovation policies aiming at raising R&D spending (2% of GDP by 2025 and 3% in 2030), expanding export capacity of Portuguese firms to 50% of GDP by 2027 and improving its value added content.
- Measures to reinforce the responsiveness of the education and training system, to foster the creation of permanent jobs and to upskill the adult population.
- Investment in transport infrastructure, forest and water management for a more competitive and cohesive territory.

Measures related to the climate transition (38% of the RRP budget), with the stimulation of research, innovation and application of more efficient technologies, intend to promote better use of energy resources and enhance the development of economic sectors around the production of renewable energies. They should contribute to achieving Portugal's objective to reach carbon neutrality by 2050.

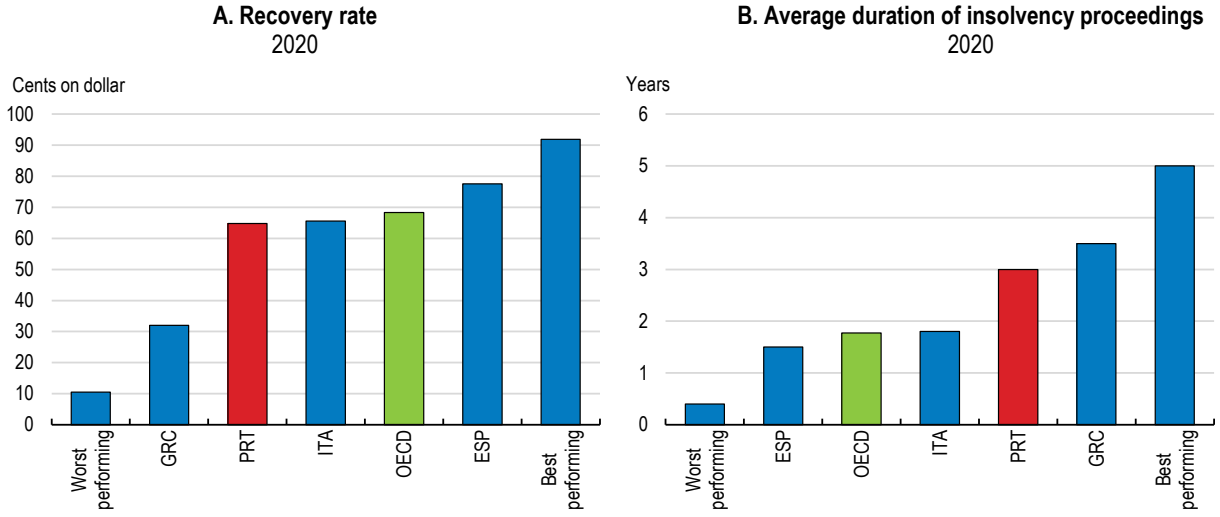
Measures for the digital transition (22% of the RRP budget) focus on digitalisation in the public sector, including the healthcare system, culture, general digital public service delivery, interoperability between platforms and systems, cybersecurity, tax and social security administration and the justice system. The Digital School programme aims at equipping all students and teachers with laptops, improving connectivity and developing curriculums that integrate digital tools and the Workers Digital Skilling dimension providing adult population with digital skills from basic to proficient levels. Measures to promote digital adoption in companies, especially SMEs, account for around 20% of the amount allocated to the digital dimension.

Facilitating the restructuring of viable firms

The insolvency regime and the judicial system will have to adapt to ensure a rise in insolvencies will not excessively increase delays in proceedings nor lead to the exit of viable firms. Lengthy insolvency procedures reduce the chance of survival and lower the liquidation value of failing firms (Adalet McGowan and Andrews, 2018). This could induce a fall in debt recovery from relatively low levels (Figure 1.15, Panel A), increasing credit risks and further deteriorating financing conditions. At the same time, speeding up

procedures when courts get congested decreases efficiency and can lead to the liquidation of viable firms (Iverson, 2018).

Figure 1.15. Efficiency of insolvency proceedings can improve further



Note: The recovery rate is calculated based on the time, cost and outcomes of insolvency proceedings and is recorded as cents on the dollar recovered by secured creditors.
Source: World Bank Doing Business Indicator 2020.

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While the average time needed to resolve civil and commercial cases has continued to decline and is now close to the EU average, the estimated duration of insolvency proceedings remains well above the OECD average (Figure 1.15, Panel B). The backlog of old insolvency cases remains high (64% of cases closed in 2020 were pending for over 5 years) and is likely to increase should the number of cases surge as expected. Improving judiciary efficiency is key to shortening procedures, while improving the quality of court decisions. In line with past OECD recommendations, measures have been put in place (i.e. the Tribunal+ project, Table 1.5), but their benefit might take time to materialise. In the medium run, resources in the court system need to increase, for instance by adding new temporary judges on insolvency procedures or by accelerating the hiring of judges' assistants as envisaged in the Recovery and Resilience Plan. Increasing the managerial autonomy of the courts can contribute to a better allocation of resources. Effort should also concentrate on developing digital tools for the workload assessment further. Plans to improve electronic processing of procedures are welcome (Table 1.5). A single platform for case management, integrating both judicial and alternative mechanisms for dispute resolution, can support effective triage of cases and help with court congestion (OECD, 2020d).

The use of out-of-court procedures should be encouraged to prevent court congestion and fasten procedures. The insolvency framework has improved significantly in that respect since the global financial crisis, with the introduction of early warning mechanisms and pre-insolvency procedures for restructuring (Jin and Amaral-Garcia, 2019). However, only around 200 firms were restructured under out-of-court mechanisms in 2018-19. A new recovery process for firms affected by the COVID-19 pandemic (PEVE) and a public system of alternative dispute resolution for natural persons (SISPACSE) have been introduced. The Recovery and Resilience Plan foresees further reform of the insolvency regime, notably to simplify procedures. Judicial staff should be encouraged to orient users to the out-of-court mechanisms, when appropriate, as done in the UK or Germany. Establishing a unique judicial portal for businesses that provides legal information and advice can increase awareness of available options for restructuring (OECD, 2020d). Finally, as recommended in previous Economic Surveys, financially attractive out-of-court

schemes for firm liquidation should be introduced and exit costs on entrepreneurs reduced to create the right entrepreneurial environment of a "second chance" (Table 1.5).

Table 1.5. Past OECD recommendations on improving judicial efficiency and insolvency regime

Recommendations in past surveys	Actions taken since 2018
Increase the managerial autonomy of the courts so that they can effectively allocate resources such as judges, other judiciary staff and budgets.	No action taken
Fully analyse the data collected from the information system on court proceedings (CITIUS) so that it allows the courts to identify problematic cases and those that should be prioritised.	The set of functionalities available in CITIUS has expanded. The Activity Management module, that allows the monitoring of court activity and facilitates the allocation of cases, has been available in all first instance courts and in the Supreme Court since 2019 and will be extended to other courts in 2021.
Improve the CITIUS information system by extending on-going efforts on digitalisation.	The exclusivity of electronic processing at the trial stage and the provision of electronic notifications have been established in all courts. Legal procedures can be consulted online and judicial certificates can be issued by electronic means. Dematerialized communication of insolvency court decisions are in place. Two new information systems are under development.
Introduce an out-of-court mechanism to facilitate the liquidation of non-viable firms.	No action taken
Set up an independent supervisory body to ensure that regulations in the legal profession are in the public interest.	No action taken
Strengthen legal assistance to judges by increasing the specialisation of clerks and ensuring the organisation of clerks is flexible. Consider introducing assistant judges in lower level courts.	A revision of statute of judicial clerks is ongoing. The Prosecutor-General's Office and the Superior Council for the Judiciary are currently developing tendering procedures for hiring advisors to the judges and prosecutors of the lower courts.
Review the overall system of performance evaluation of judges with a view to ensuring its full objectivity.	The revised evaluation system for judges and prosecutors has been adopted in 2020.

Adapting job retention measures

Job retention measures have preserved employment relationships and sustained household income in 2020. They have been reinforced in response to the third wave of the virus, following the re-introduction of lockdown measures at the beginning of 2021. They rightly target most affected firms, and include features that limit the uptake by vulnerable ones. For instance, access to the "simplified lay-off" scheme has been restricted to firms directly or indirectly affected by lockdown restrictions and conditioned to the maintenance of employment for at least two months.

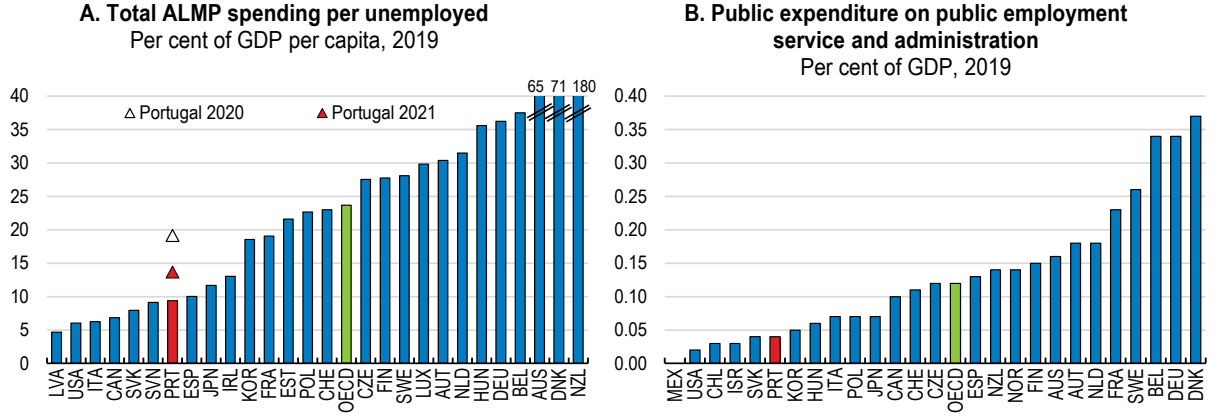
As the economic situation improves, firms' contribution to the costs of hours not worked (currently around 20%) should gradually increase to strengthen incentives to use subsidies for jobs that are viable. Besides, short-time work benefits are significantly more generous than unemployment benefits. The replacement rate should be reduced, as it may discourage workers to look for another job, even when job survival is uncertain (OECD, 2020e). In addition, the mobility of workers from subsidised to unsubsidised jobs can be promoted by encouraging workers on short-time work to register with the public employment services. This would allow workers at risk of displacement to benefit from their services, supporting their career progression.

The short-time work scheme also included incentives for employers to provide training to workers with reduced working hours. Unfortunately, the uptake has been low, reaching only 0.6% of the firms that participated in the simplified lay-off scheme by the end of October 2021, with a similar result for the other job retention scheme. While this is partly due to the difficulty of providing vocational training during lockdowns, this also reflects the low capacity of firms, especially SMEs, to provide training (Chapter 2). Effort to promote training should strengthen, targeting workers more at risk of losing their jobs.

Supporting job seekers

Public employment services need to adapt to new circumstances surrounding unemployment and inactivity. They will play a central role in the reallocation of workers across industries, firms and occupations, as some sectors – including tourism – will likely continue to operate below pre-crisis levels over the next few years. Fostering labour market participation, which stands below the OECD average for men, will also be paramount to sustain long-term growth in a context of rapid population ageing. Portugal has put a stronger emphasis on active labour market policies (ALMPs) before the pandemic as recommended in past Economic Surveys (OECD, 2017a). In particular, direct and indirect support to job creation has contributed to lower unemployment, while training measures (especially those provided for a longer duration) have increased employability of jobseekers (OECD, 2019b; European Commission, 2020a). Following a significant increase since the beginning of the pandemic, spending on active labour market policies per unemployed is still expected to remain below the 2019 OECD average in 2021 (Figure 1.16).

Figure 1.16. Spending on active labour market policies has increased substantially



Note: Portugal 2020 and 2021 refer to the budget allocation to public employment services for active labour market policies in 2020 and 2021, including incentives for the resumption of activity.
Source: OECD (2020), Economic Outlook database and Statistics on Labour Market Programmes database, Ministry of Labour.

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The effectiveness of ALMPs largely relies on the capacity of the public employment services. In Portugal, the share of jobseekers in regular contact with the public employment services is among the lowest in the OECD and only around 35% of jobseekers used their services to find a job in 2018 (European Commission, 2020a). Resources in public employment services have been relatively low (see Figure 1.16, Panel B). They should be targeted at improving job search support and counselling on training, which would be most useful to address the expected increase in unemployment. Public employment service staff workload is heavy and varies across regions. This undermines the implementation of a case management system with individualised guidance (Düll et al., 2018). Raising the number of career managers would improve the effectiveness of the personal employment plans, particularly in regions with higher unemployment or a higher share of jobs potentially at risk (OECD, 2017a).

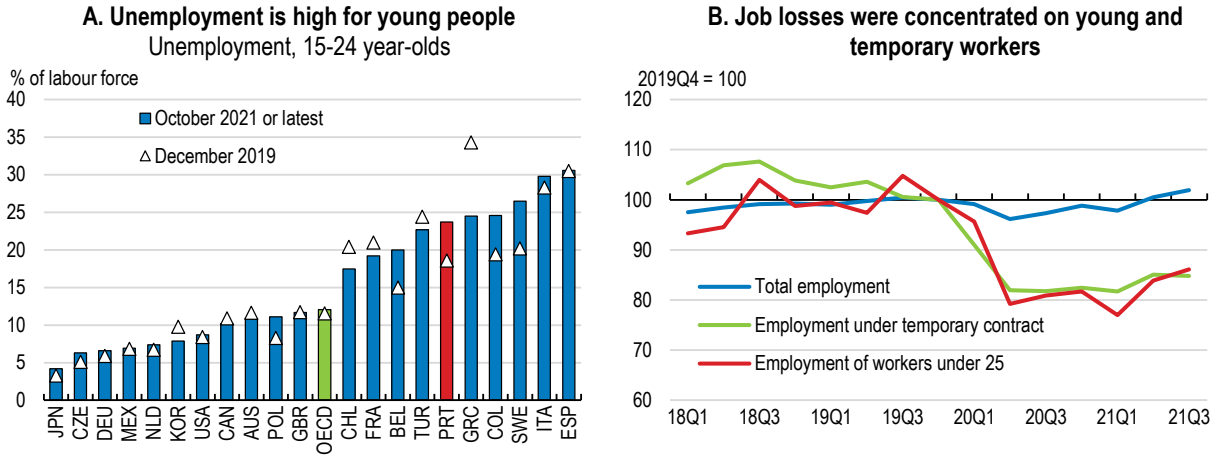
The digitalisation of public employment services needs to accelerate, as it can free up resources and thus support caseworkers in coping with potentially fast increasing number of clients in the future (OECD, 2020f). During the COVID-19 crisis, the use of online tools increased significantly in response to containment measures, which gives good momentum to further structural transformations. Refining statistical profiling tools can improve the targeting of activities in public employment services (Desiere, Langenbucher and Struyven, 2019). Automated matching can minimise the need for caseworker intervention. Finally, automation of procedures, such as registering jobseekers, processing unemployment

insurance benefits and the short-time working scheme, via exchange of data across administrations, like in Estonia, could achieve large efficiency gains.

Training accounts for a large share of spending on ALMPs. This is welcome as the lack of skills is one of the main barriers to employment in Portugal (Düll et al., 2018). Training should adapt skills needed for the fast changing labour market and the digital transformation (see Chapter 2). Programmes, such as the Digital Guarantee that aims at providing all jobseekers with digital training adapted to their level of qualification and skills profile by 2023, are steps in the right direction.

Employment prospects have dramatically worsened for the youth, who already faced higher rates of unemployment and underemployment before the pandemic (Figure 1.17). The capacity of public employment services to reach out to the youth needs to improve, in particular to those who do not receive unemployment or social assistance and have fewer incentives to register with public employment services (ILO, 2019). Engaging young people, especially the most disadvantaged ones requires specific strategies. For instance, experiences from other EU countries, such as Germany, Greece and Hungary, show that the introduction of outreach services, such as job fairs organised in youth centres, or at the premises of training centres, can be successful in enhancing youth engagement with public employment services (ILO, 2019). Similarly, campaigns using social media and new technology used by young people can be effective (OECD, 2017a). Portugal initiated an outreach strategy in 2018, with various channels of communication, but the scope and the coordination of programmes need to improve (European Commission, 2020b).

Figure 1.17. Unemployment is particularly high for young people



Source: OECD (2021), OECD Labour Force Statistics (database) and Statistics Portugal, Labour force survey (Series 2021).

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Workers with non-standard work contracts, who are poorly covered by conventional social protection and other forms of income smoothing, are likely to be disproportionately affected by the pandemic (ILO, 2020). Portugal extended access to unemployment benefits, which increased the coverage of unemployment insurance and provided temporary support to jobseekers without social protection, but the regulatory framework of unemployment benefits has not yet fully adapted to the specific needs of workers in non-standard forms of employment. Providing income support to jobseekers, especially to those with short or irregular employment history, can limit poverty risks and improve the quality of matching on the labour market, as jobseekers can devote more time to find a job that match their competences (Wulfgram and Fervers, 2013; Tatsiramos, 2009). Portugal should consider easing its strict eligibility criteria for unemployment benefits. For instance, social unemployment benefits are restricted to jobseekers with 6 months employment history and strictly means tested. Employment requirements need to be reduced. Opening unemployment assistance to all jobseekers like in the United Kingdom and Finland would also diminish the risk of large income losses for those with patchy employment history.

Strengthening macroeconomic fundamentals for a sustainable recovery

Ensuring a sustainable recovery requires preventing the build-up of large macroeconomic vulnerabilities. Sustainable levels of public debt improve the resilience of the economy, by increasing governments' room of manoeuvre to mobilise fiscal policy during recessions and by reducing the risk of default (Fall and Fournier, 2015). The quality of public finances is also paramount, due to its significant impact on growth (Fournier and Johansson, 2016). Improving the efficiency of public spending and removing distortive taxes can contribute to a growth-friendly debt reduction strategy. In the same vein, a robust financial system is key to ensure effective monetary policy transmission and adequate access to finance, even when economic conditions deteriorate.

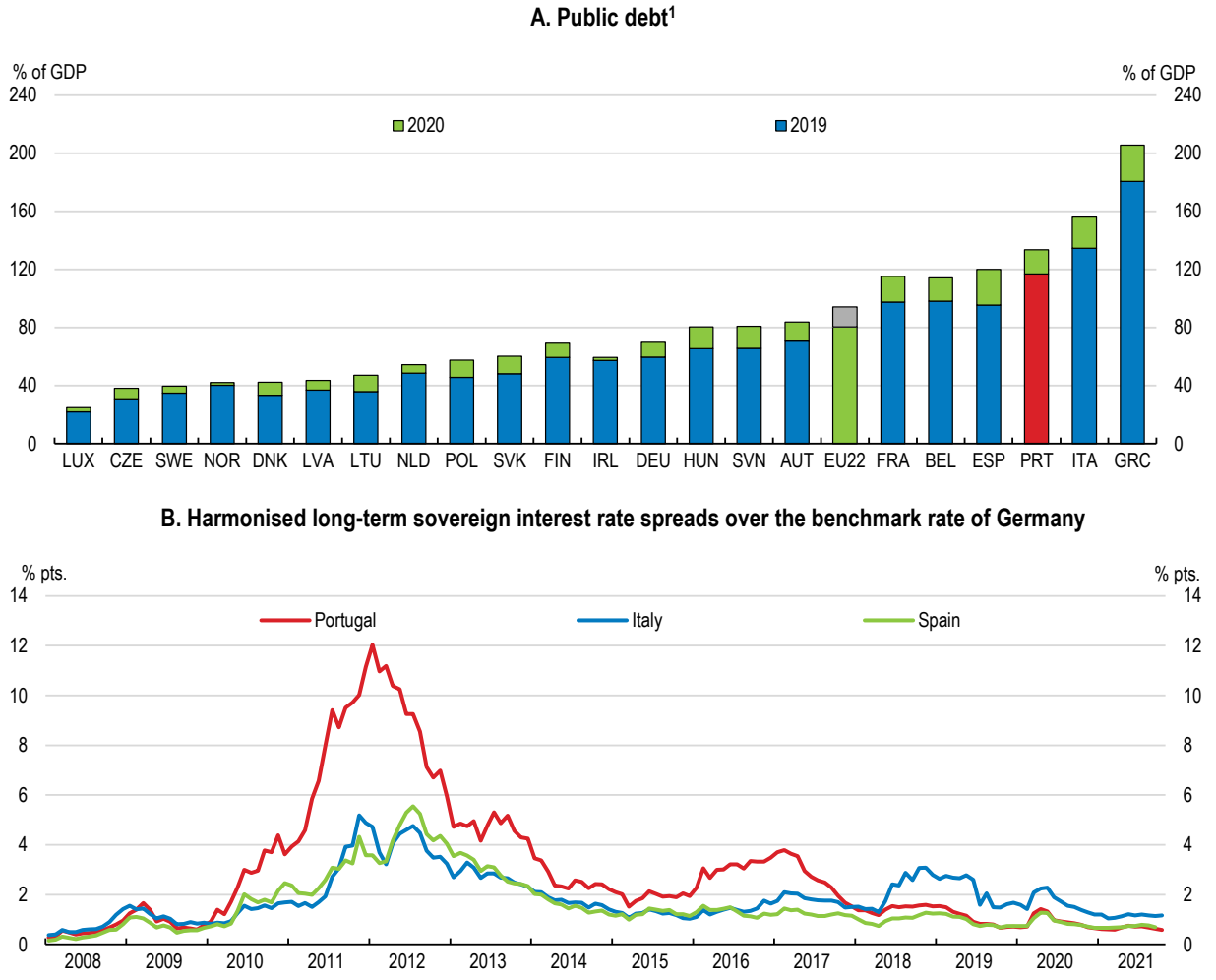
Improving the sustainability and the quality of public finances

Risks to public finance sustainability have increased

Like in all OECD countries, the COVID-19 crisis has triggered a deterioration of public finances in Portugal, widening the fiscal deficit to 5.8% of GDP in 2020. Public debt increased to the record high level of 135% of GDP (Figure 1.18). Demographic changes will further weigh on public finances in the medium term (European Commission, 2021b). According to OECD projections, primary government expenditure could rise by over 4% of GDP by 2060, with more than half of the increase coming from healthcare (Guillemette and Turner, 2018). Not compensating for higher ageing costs could push the debt level above 150% of GDP by 2050 (Figure 1.19). By contrast, gradual fiscal consolidation combined with policies fostering GDP growth could put public debt on a more sustainable path.

Fiscal risks have expanded due to large increases in contingent liabilities. State guaranteed credit line covered around 12% of loans granted to non-financial corporations in March 2021, totalling EUR 9 billion (Bank of Portugal, 2021a). They were mostly and rightly directed to firms with pre-crisis good creditworthiness in the most affected sectors (Bank of Portugal, 2020b and 2021a). Nevertheless, they have widened off-balance-sheet liabilities and increased State exposure to a potential wave of corporate defaults. The execution of the guarantees can be large if the economic recovery is slow in the hospitality and the transport sectors as projected. In the same vein, capital injections in private companies, like for instance in the national aviation company TAP, could generate high costs, if the supported firms do not recover. Finally, debt rules for local governments have been relaxed temporarily to allow for emergency spending, increasing the risk of over indebtedness in municipalities with pre-existing financial difficulties.

Figure 1.18. Public debt is among the highest in Europe



Note: 1. Maastricht definition.
Source: OECD (2021), OECD Economic Outlook: Statistics and Projections (database).

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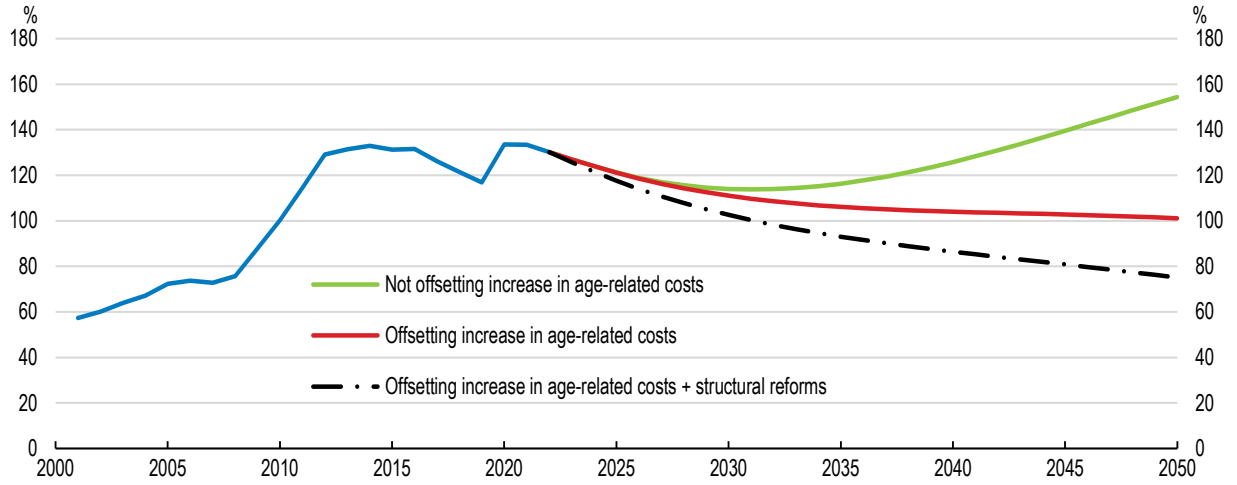
In this context, Portugal should design and make public a credible strategy for debt reduction over the medium term in line with EU fiscal rules. The government plans a progressive decline in the public deficit to below 3% of GDP by 2023 on the back of the economic recovery, the gradual phase out of COVID-19 related measures and the containment of public spending. However, the strategy for cost containment is unclear. In the past, fiscal consolidation happened through cuts in public investment and was not accompanied by a strategic reallocation of spending to priority areas (European Commission, 2020a). The strategy needs to contain escape clauses to avoid that maintaining this deficit objective despite slower growth leads to a pro-cyclical fiscal stance.

Figure 1.19. Sustained primary budget surpluses are needed to durably lower public debt

Gross government debt as a share of GDP



Note: The "not offsetting increase in age-related costs" scenario consists of the Economic Outlook N°109 projections and includes European Commission projections for net total ageing costs (net public pensions, long-term care, health, and education adding 3.3% of GDP to annual public spending in 2050 compared to 2023). In the "offsetting increase in age-related costs" scenario, the primary balance is projected to gradually improve until 2026 and is kept constant afterwards at 0.5% of GDP. The "offsetting increase in age related costs + higher GDP growth" scenario assumes that GDP growth is 1 percentage point higher over the projection period, starting from 2023 and a gradual improvement of the primary balance, kept constant after 2026 at 0.5% of GDP.

Source: Adapted from OECD (2021), OECD Economic Outlook: Statistics and Projections (database), June; Guillemette, Y. and D. Turner (2018), "The Long View: Scenarios for the World Economy to 2060", OECD Economic Policy Paper No. 22., OECD Publishing, Paris; and European Commission (2021), "The 2021 Ageing Report - Economic and budgetary projections for the 28 EU Member States (2016-2070)" Directorate-General for Economic and Financial Affairs.

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In the short run, restricting support measures to sectors and individuals affected by the pandemic would contain fiscal costs. As a matter of principle, firms that cannot fully operate due to containment measures should continue receiving financial support. At the same time, measures, especially capital injections, should target firms with strong business models and good corporate governance to the extent possible. Future state support to private companies should be allocated after a thorough evaluation that involves experts from the private sector. Quasi-equity injections (preferred equity), that provide a senior claim to dividends and assets in case of liquidation, and allow companies to raise funds without diluting control, should be favoured to limit risks to the taxpayer. In addition, to promote the transition to a greener economy, public support should prioritise environmentally sustainable activities, and, when possible, be conditioned to achieving environmental objectives.

In the longer term, limiting future increases in ageing costs will be challenging. Portugal has a public pay-as-you-go earnings related pension scheme and some voluntary private pensions whose share in overall pensions is small. Portugal has already implemented a panel of reforms that improve the sustainability of the pension system, although these reforms came at the cost of shifting most of the burden on future generations (OECD, 2019b). The statutory retirement age increases in line with the evolution of life expectancy and pathways into early retirement have also been restricted. However, the COVID-19 crisis, especially via its impact on the labour market, has reduced social security contributions and can increase the number of older workers eligible to social benefits. The government is considering new financing sources. Other options to reinforce the sustainability of the pension system include the application of the sustainability factor to all pensions and increasing the minimum age for early retirement in line with life expectancy (OECD, 2019c). Increasing progressivity in the public pension system could compensate for induced cuts in low pensions such reforms could generate. Finally, as stressed in the previous Economic

Survey and the OECD Pension Review, pathways to early retirement should be eliminated (OECD, 2019c and 2019c). In the healthcare sector, planned measures to improve governance and cost efficiency in hospitals should resume once the pandemic is contained. At the same time, improving access and quality of health and long-term care will require additional public resources (see below).

Moving towards a performance-oriented and transparent budget framework

As stressed in previous Economic Surveys, and to seize the full benefits of available EU funds, improving public spending efficiency is a priority (OECD, 2017a). Doing so requires modernising the budget framework by developing performance budgeting and medium-term planning. Portugal initiated an ambitious reform in 2015, with the Budget Framework Law, but enforcement was delayed, due to governance and expertise issues. In December 2019, only two out of the 21 projects required for the reform had been completed (Tribunal de Contas, 2020). Implementation needs to accelerate, by imposing medium-term targets, closely monitoring progress and allocating adequate human and technical resources.

Portugal should take stock of overall expenditure and reassess its alignment with fiscal objectives and national priorities. Following OECD best practice, a major step would be to establish coordinating entities in each ministry in charge of budget execution, providing them with guidelines for setting programme objectives and assessments of targets (OECD, 2018a). This would free up resources in the Ministry of Finance for the analysis of the financial performance of programmes. Broadening the collection of performance information and developing evaluation capacity is another necessary condition. Performance information is unevenly collected and data are not sufficiently used as a strategic asset to serve citizens (OECD, 2017b; OECD, 2020g). Improving the public administration data ecosystem is one priority of the new Strategy for Innovation and Modernisation of the State and Public Administration 2020-2023. To strengthen transparency on the use of public money and provide information on the quality of public services, the administration operates multiple online portals (i.e. Health Service Transparency Portal, Justice Transparency portal, Municipal Transparency Portal). The integration of information collected by different administrations has improved through the data interoperability platform (OECD, 2019d). Implementation of the Strategy is challenging however, due to a lack of financial and human resources. Large funds under Portugal's Recovery and Resilience Plan will be allocated to the modernisation projects (Box 1.3), but difficulties in recruiting and retaining skilled professionals risk delaying their implementation.

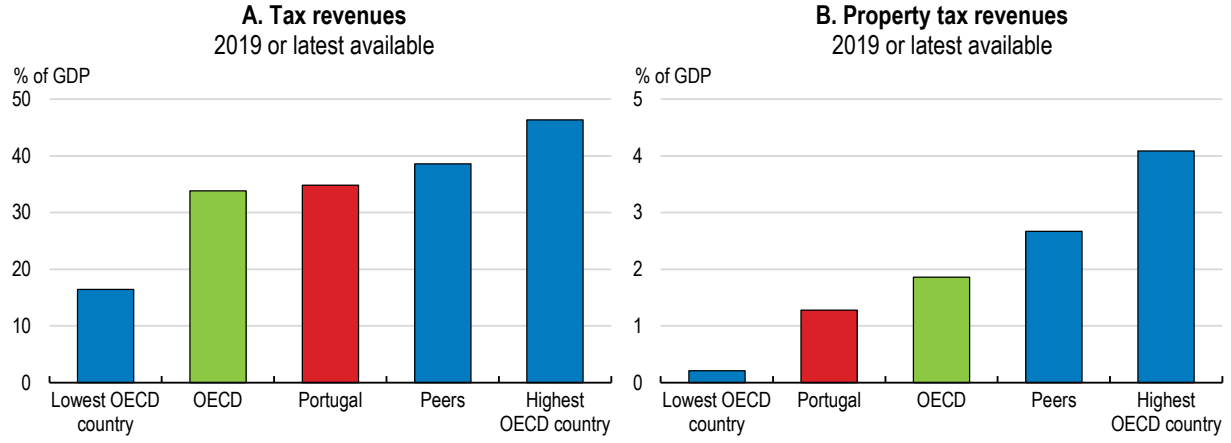
Medium-term budgeting is central for public finance sustainability as it defines concrete actions a government will take to achieve fiscal objectives by subsectors and policy areas, highlights the budget impact of policy initiatives and provides certainty over fiscal envelopes allocated to ministries. In Portugal, medium-term fiscal plans are not binding, temporarily due to a transitional rule of the Budgetary Framework Law, and deviations from plans within a year were frequent even before the pandemic. Furthermore, estimated impacts of policy decisions on the budget are not detailed. The Fiscal Council, the body in charge of monitoring the adequacy of the budget with national and EU rules, regularly points to the lack of information and incoherence in the budget documentation. The budget administration needs to devote more resources to the provision of timely, transparent and comprehensive information on the draft budget (OECD, 2019e). Following past OECD recommendations, the Fiscal Council will reinforce its analyses of medium-term fiscal projections, including on the sustainability of the social security system, to provide an independent assessment of policy decisions that have a long-term impact on public finances (OECD, 2019e).

Streamlining the tax system and removing distorting tax expenditures

Tax revenue has increased over the past decade and exceeded the OECD average in 2019 (Figure 1.20). Instead of raising tax rates, priority should be given to rebalancing the tax mix. Revising the tax composition can foster economic growth, by reducing taxes most harmful to growth and inclusiveness (Johansson,

2008; Brys et al., 2016). Reductions in the corporate income taxation to stimulate investment should be carefully evaluated and reinforced if found insufficient. In the longer run, size-contingent tax rates should be reviewed, as they may hamper growth of small firms when the recovery will be underway (OECD, 2019b and Chapter 2). There is room to increase taxes on immovable property and inheritance taxes, as they are relatively low by OECD norms (Figure 1.20, OECD, 2021b). Taxes on polluting sources could also increase to reflect their negative impact on the environment (see below). The government plans to revise the rural property and vehicle taxes, but details on the measures are not available yet.

Figure 1.20. Increasing property taxes would improve the tax mix



Note: Peers refer to the average of Greece, Italy and Spain.
Source: OECD (2021), Global Revenue Statistics Database, National Accounts Database.

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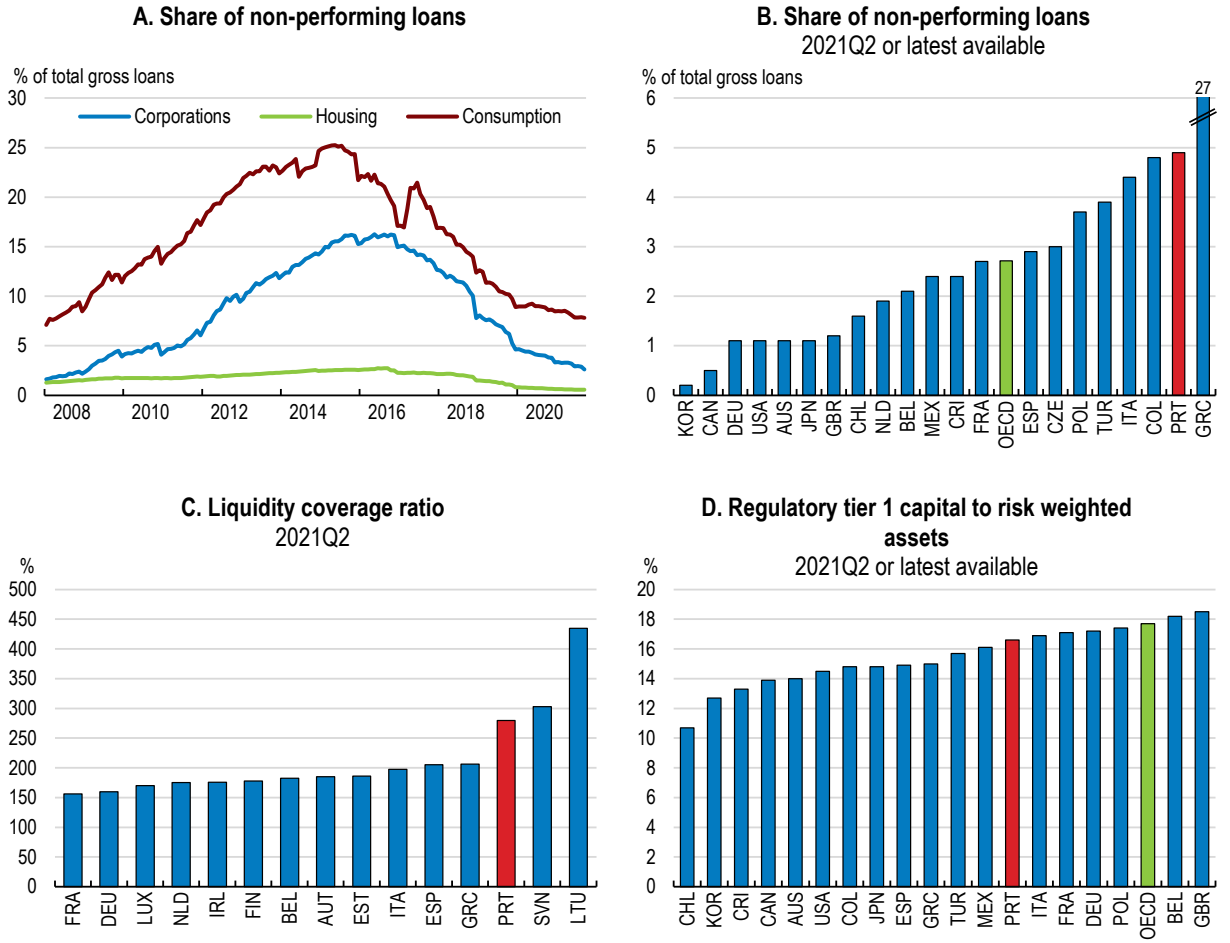
The fiscal consolidation strategy should include a revision of special provisions in the tax system. Tax expenditures accounted for 6.2% of GDP in foregone tax revenues in 2019 and reform to improve their effectiveness should be considered. Among more than 500 existing tax expenditures, 120 do not have a clear objective (Grupo de Trabalho para o Estudo dos Benefícios Fiscais, 2019). While taxpayers have access to online and prefilled tax declaration, paying tax remains lengthier than in most OECD countries and the time taken to prepare and pay taxes has not declined since 2016 (World Bank, 2020). Previous Economic Surveys pointed to the need to simplify the tax system by reducing the use of special provisions (e.g. tax exemptions and special rates), as they make the tax system complex and less transparent (Table 1.6). Tax exemptions and targeted tax cuts have increased to support those most affected by the COVID-19 crisis (see Box 1.1). When the recovery is underway, they should be streamlined and the process of tax simplification should resume.

Further enhancing the stability of the financial system

The banking sector entered the coronavirus crisis in a significantly stronger position compared to the last financial crisis (IMF, 2019; OECD, 2019b). Its funding structure has become more stable, with increased deposits and equity financing and less reliance on funding from securities and interbank markets. Capital and liquidity ratios had improved, strengthening banks' resilience to absorb losses against a deterioration in asset quality (Figure 1.21, Panel C and D). In addition, banks had made significant progress in reducing operational costs and in strengthening their balance sheets, with non-performing loans (NPLs) falling significantly and returning to levels close to 2008 (Figure 1.21, Panel A and B). Policy support to the financial sector following the pandemic has been significant, notably through the relaxation of the use of capital and liquidity buffers, and higher flexibility in accounting rules and computation of regulatory capital. It contributed to containing near-term financial stability risks and supported banks' lending capacity.

Figure 1.21. The resilience of the banking sector has improved



Source: Banco de Portugal (2020), BPstat Database and IMF (2021), Financial Soundness Indicators, and ECB (2021), Statistical Data Warehouse, European Central Bank.

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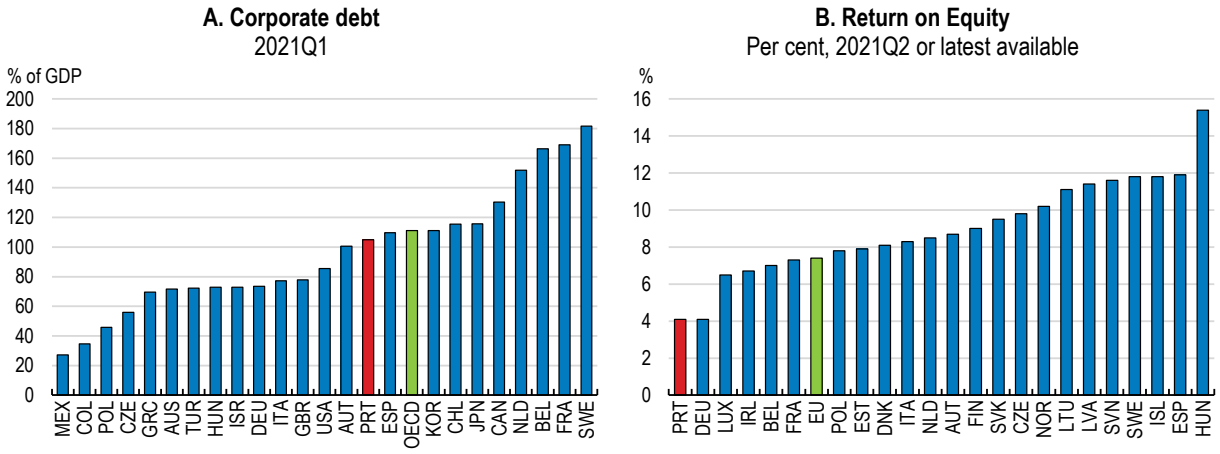
However, remaining vulnerabilities and a challenging environment could test the resilience of the Portuguese banking sector. Firstly, the level of troubled assets remains one of the highest in the OECD (Figure 1.21, Panel B) and risks increasing further in the medium term. Secondly, banks' profitability has deteriorated and is very low (Figure 1.22, Panel B). In an environment characterised by low interest rates, high competition, and an expected increase in credit losses, Portuguese banks may find it increasingly difficult to restore profitability. This is worrisome, as low profit margins, by limiting banks' ability to preserve capital during economic turmoil, pose a risk to credit supply. Thirdly, Portuguese banks are exposed to sovereign debt, with government bonds accounting for 16.2% of their assets at the end of 2020 (Bank of Portugal, 2021a). Increases in sovereign spreads, following for instance a deterioration of investors' confidence in the sustainability of Portuguese public finances, could significantly weaken banks' financial position. At the same time, risks are mitigated by the relatively high share of public debt in banks´ balance sheet classified at amortised cost and immune to change in yields (47%).

Figure 1.22. Corporate indebtedness and weak profitability are important vulnerabilities



Source: Bank for International Settlements (BIS); and European Banking Authority (EBA) "EBA Risk Dashboard".

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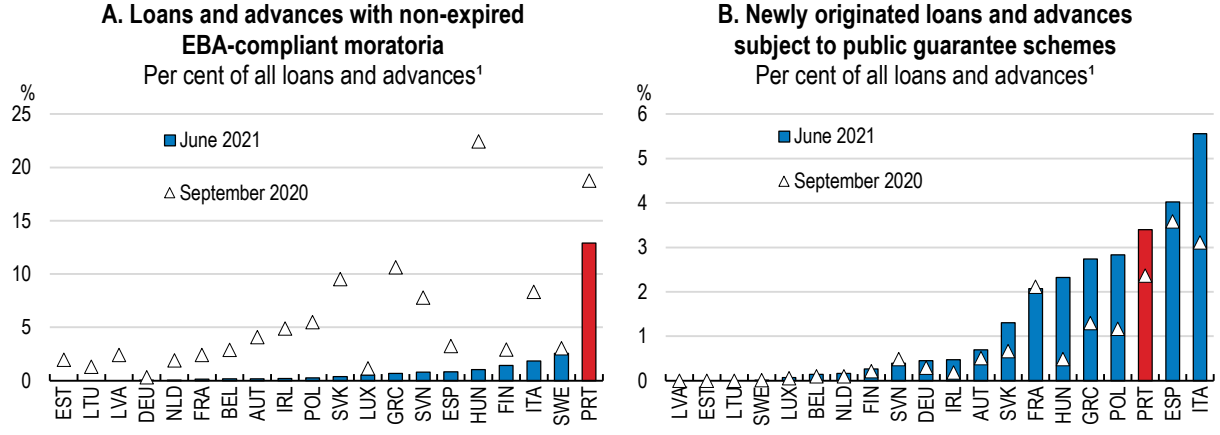
The pandemic has increased financial risks in the corporate sector. Despite deleveraging efforts in the past, corporate debt levels remain relatively high and increased again during the pandemic (Figure 1.22). This is mainly due to loan guarantee schemes and the moratorium on bank loans repayments introduced to prevent liquidity pressures turn into insolvency and the drop in nominal GDP (Bank of Portugal, 2020b). Between March 2020 and March 2021, approximately 30% of new loans to non-financial corporations were issued through state guaranteed credit lines (Bank of Portugal, 2021a). In addition, Portuguese banks had one of the largest shares of loans under moratoria across Europe (Figure 1.23). At the end of August 2021, 28.5% of bank loans to non-financial corporations were under moratoria, but this amount declined substantially with the phase out of the moratorium in September 2021 (Bank of Portugal, 2021b). Estimates of the Bank of Portugal point to a significant increase in vulnerable firms' debt and excess debt in 2020, but below levels observed during the sovereign debt crisis (Bank of Portugal, 2020b).

Figure 1.23. A large share of loans were under moratoria



Note: 1. Gross carrying amounts, other than trading exposures. Computed ratios could be subject to some imprecision due to slight differences in the sample of banks reporting numerator and denominator.
Source: EBA (2021), Risk Dashboard.

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In the absence of further policy support, the phase out of support measures, especially of the public moratorium in September 2021, could translate into a sharp increase in default rates on the back of fragile corporate fundamentals and weakening debt-servicing capacities. Banks' loan loss provisions increased markedly in 2020. Nevertheless, under the Single Supervisory Mechanism, high variability in the expected losses booked across banks that might reflect inadequate provisioning by some banks, in part due to profitability constraints, calls for thorough monitoring (ECB, 2020). Supervisory authorities should develop contingency plans for institutions displaying substantial fragilities (IMF, 2020).

Tackling a surge in credit defaults will require adapting the national strategy to reduce non-performing loans. Such strategy should be diversified, and include measures facilitating the internal management of non-performing loans by banks (on-balance sheet approach) and developing distressed debt markets. Supervisory authorities have reinforced the monitoring of banks' plans for resolving NPLs and introduced new tools to ensure timely recognition of losses and debt restructuring, in line with those adopted at the EU level. These measures should be strengthened, should they prove insufficient.

Developing distressed debt markets is also paramount. The bid-ask divide (i.e. the gap between the price at which banks are willing to sell non-performing loans and the market price) is a major factor blocking the development of secondary markets for non-performing loans (OECD, 2021c). Measures to improve loan recovery and to raise prospects of efficient repossession of collateral by lenders can contribute to increase market valuations of non-performing assets and reduce the gap. The creation of asset management companies, like done in Spain or Ireland, could also be reconsidered, as it can considerably accelerate the clean-up of banks' balance sheets (European Commission, 2018a; OECD, 2018b). In the recent past, Portuguese authorities estimated that the potential for a bulk transfer of the non-performing loans in the banking system to an asset management company was low given the characteristics of the underlying assets (OECD, 2019b). This measure would be particularly suitable for addressing a large surge of non-performing assets with relatively high quality of collateral (i.e. linked to loans of relatively large unit sizes or commercial real estate). Establishing an asset management company is complex, especially if backed by public funds. The company should ideally be funded by private investors, including selling banks to avoid conflict with EU State-aid rules and the Bank Recovery and Resolution Directive. However, public participation would be desirable should a large and widespread deterioration of bank asset quality arise in the aftermath of the pandemic, resulting in a threat to financial stability (OECD, 2021c).

Digitalisation efforts can help to improve the efficiency in the banking sector and to restore margins. Banks will need to make better use of innovative Fintech solutions by underpinning digital delivery models, making service delivery faster and more cost effective, or improving the efficiency of back-office functions. For example, in the UK, collaboration with a Fintech platform reduced the amount of time required to process loan requests for SMEs from 2-4 weeks to 24 hours (KPMG, 2017). The development of regulatory sandboxes by the supervisory authorities are welcome as it can help banks to adopt new financial products and services. Indeed, regulatory sandboxes allow the pilot testing of newly developed technologies within a well-defined space and duration, with safeguards to contain the consequences of failure. The Portugal FinLab initiative offers in-depth consultations to some Fintech innovators with the Portuguese regulatory authorities (see Chapter 2). At the same time, the National Competition Authority points to important entry barriers in the Fintech sector that need to be addressed (Competition Authority, 2021). Finally, banks that have already exhausted cost-saving opportunities and have not yet attained sustainable profitability levels might opt to consolidate branches to exploit potential cost synergies, but the impact on competition needs to be monitored (European Commission, 2020c).

Table 1.6. Past OECD recommendations to address fiscal and financial risks

Recommendations in past surveys	Actions taken since 2018
Simplify the tax system by reducing the use of special provisions (e.g. tax exemptions, special rates) and ambiguity in the tax language.	A number of tax benefits have been eliminated (i.e. Vehicle Tax exemption for vehicles powered by natural gas used for rental and taxes), the exemption from the oil and carbon taxes in the production of electricity through non-renewable forms (coal, fuel oil, natural gas) is phased out, some activities are not covered by VAT reduced rates anymore.
Competent authorities should continue to monitor NPL reduction plans, translating performance in achieving targets into capital requirements.	The Bank of Portugal issued guidelines for the timely identification of situations in which borrowers are facing financial difficulties, the setting up of sustainable solutions for viable customers and on credit risk measurement.

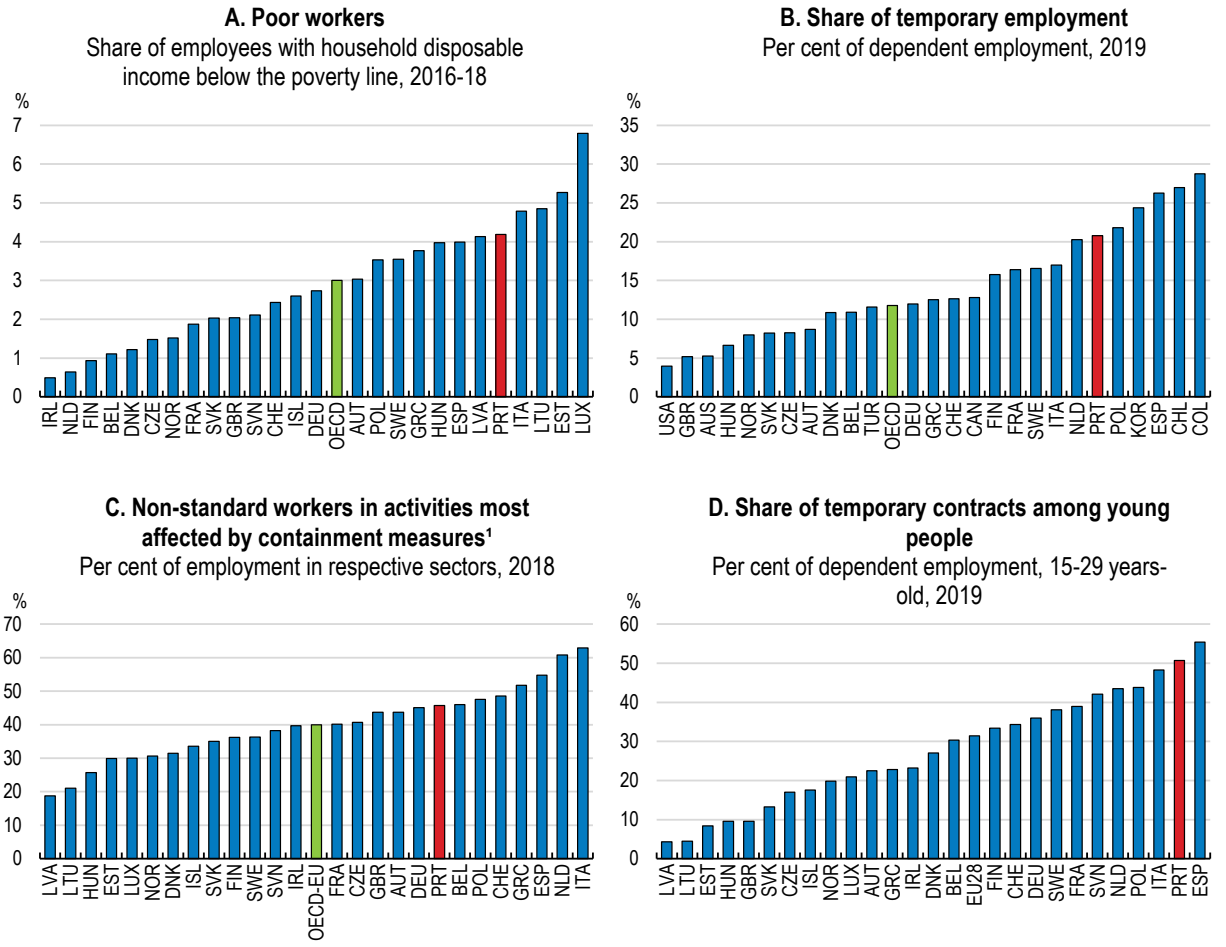
Policy reforms for more inclusive and greener growth

Tackling in-work poverty

Despite robust economic growth and labour market improvements before the pandemic, in-work poverty has remained high (Figure 1.24, Panel A). Causes for in-work poverty are complex, but the high degree of labour market segmentation plays an important role (OECD, 2009; European Commission, 2019a). In Portugal, workers with non-standard employment, i.e. self-employed workers and those on temporary or part-time contracts, have three times higher income poverty rates than dependent employees (OECD, 2020h). While part-time employment is low, the share of temporary employment as a percentage of dependent employment was among the highest across the OECD in 2019, especially among young workers (Figure 1.24, Panel B and D). Furthermore, non-standard employment is prevalent in sectors heavily hit by the pandemic (Figure 1.24, Panel C). Despite the efforts to protect jobs, economic hardship of workers in these sectors and without standard employment contracts may further accentuate as the pandemic continues.

Tackling labour market segmentation by reducing temporary employment can have beneficial effects on the incidence of in-work poverty (Autor and Houseman, 2005). In line with past recommendations from OECD Economic Surveys (OECD, 2019b; OECD, 2017a), progress has been made in that direction, mostly by discouraging the use of temporary contacts. The 2019 labour market measures reduced the maximum accumulated duration of fixed-term contracts from 3 years to 2 years. The duration of the exemptions of social security contributions for young people obtaining their first job and the long-term unemployed has been extended to promote permanent contracts (European Commission, 2019a). However, the planned introduction of a penalty for employers that use fixed-term contracts excessively has been delayed due to the deterioration of economic conditions. It should be implemented as soon as the recovery is firmly underway.

Figure 1.24. In-work poverty and the share of temporary contracts remain high



Note: 1. Non-standard workers are identified as workers in temporary contracts, in part-time jobs, and the self-employed. The sectoral data are classified according to ISIC rev. 4. The sectors included are construction (VF), wholesale and retail trade (VG), accommodation and food services (VI), real estate services (VL), professional service activities (VM), arts, entertainment and recreation (VR), and other service activities (VS). The latter two are grouped together as arts, entertainment and other services in the figure. Other services include service categories not included in other service sectors, such as the repair of computers and personal and household goods. The empirical analysis is restricted to European OECD countries for which harmonised micro-level labour force surveys are available.
Source: OECD (2020), OECD Employment Outlook 2020; OECD, Labour Force Statistics (database); OECD (2020), OECD Economic Outlook, Volume 2020 Issue 1.

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Strengthening labour inspections is another effective policy tool to prevent abuses in the use of non-standard contracts. Portugal intensified labour inspections during the crisis and increased hiring substantially. By the end of 2020, the number of labour inspectors was for the first time in line with the guideline of the International Labour Organisation reference ratio (ILO, 2006). Resources allocated to the Labour Inspectorate should remain high. Evaluating and reducing administrative burden for inspectors, like done in the Netherlands, the UK, Italy, and Denmark can help to achieve efficiency gains and free up resources in the longer run (Blanc, 2012).

Increasing minimum wages might provide limited support to the large majority of the working poor who cannot find a permanent job. The government aims to increase the monthly minimum wage up to EUR 750 by 2023 (from EUR 665 in 2021). While moderate increases tend to have little impact on employment and can even contribute to stronger productivity growth, sharp and substantial increases can reduce job opportunities for low-skilled workers (OECD, 2018c; Clemens and Wither, 2019). Keeping wages in line

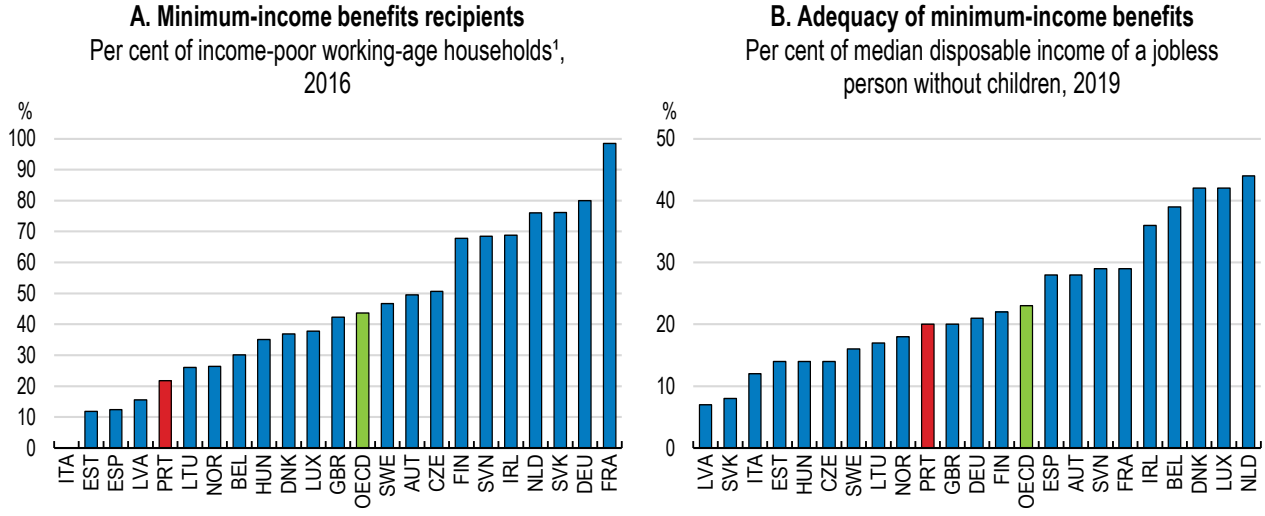
with productivity remains essential to avoid pricing out low-skilled workers from the labour market. Evaluating the effects of higher minimum wage on employment and poverty is also key, especially in the context of changing labour market conditions. Setting up a technical independent body in charge of carrying out such evaluations and providing recommendations, as done in Germany and United Kingdom, should be envisaged.

Strengthening social assistance

The COVID-19 pandemic has accentuated structural challenges of social protection systems and renewed attention to social safety nets (Hyee et al., 2020). Safety net benefits should ensure socially acceptable living standards for households that have no or very low incomes from work, and do not qualify for other benefits. They become an increasingly crucial part of governments' strategies for stabilising family incomes and relieving acute economic needs.

In Portugal, the minimum income benefit (*Rendimento Social de Inserção*) is low and subject to extensive means testing (Arnold and Farinha Rodrigues, 2015). Topping up recipient's monthly income, it was set at around EUR 187 for a single person in 2020, well below the poverty threshold. The reference income threshold needs to increase to improve protection against poverty risks. Despite efforts to increase its coverage in the past, the benefit covers only around 20% of poor households, below the OECD average (Figure 1.25). This is due to low entitlement and the complexity of regulations and procedures (European Commission, 2015a). Establishing a one-stop shop application within the public employment system as done in Austria and using data-linking to identify non-applicants can help to improve take-up (OECD, 2020i). A number of other social and means-tested benefits are directed to vulnerable groups (e.g. *Complemento Solidário para idosos, Prestação social para a inclusão, Pensões sociais mínimas, Apoio a pessoas com dependência*). Reducing the fragmentation of the benefit system and streamlining existing benefits can improve efficiency of social assistance.

Figure 1.25. The adequacy of minimum-income benefits can improve



Note: 1. "Income poor" refers to households with income below 50% of the national median. Lump-sum payments, grants, supplements and refundable tax credits are not included.
Source: OECD (2021), Social Benefit Recipients (SOCR) Database and Benefits and wages: Adequacy of Guaranteed Minimum Income benefits Database.

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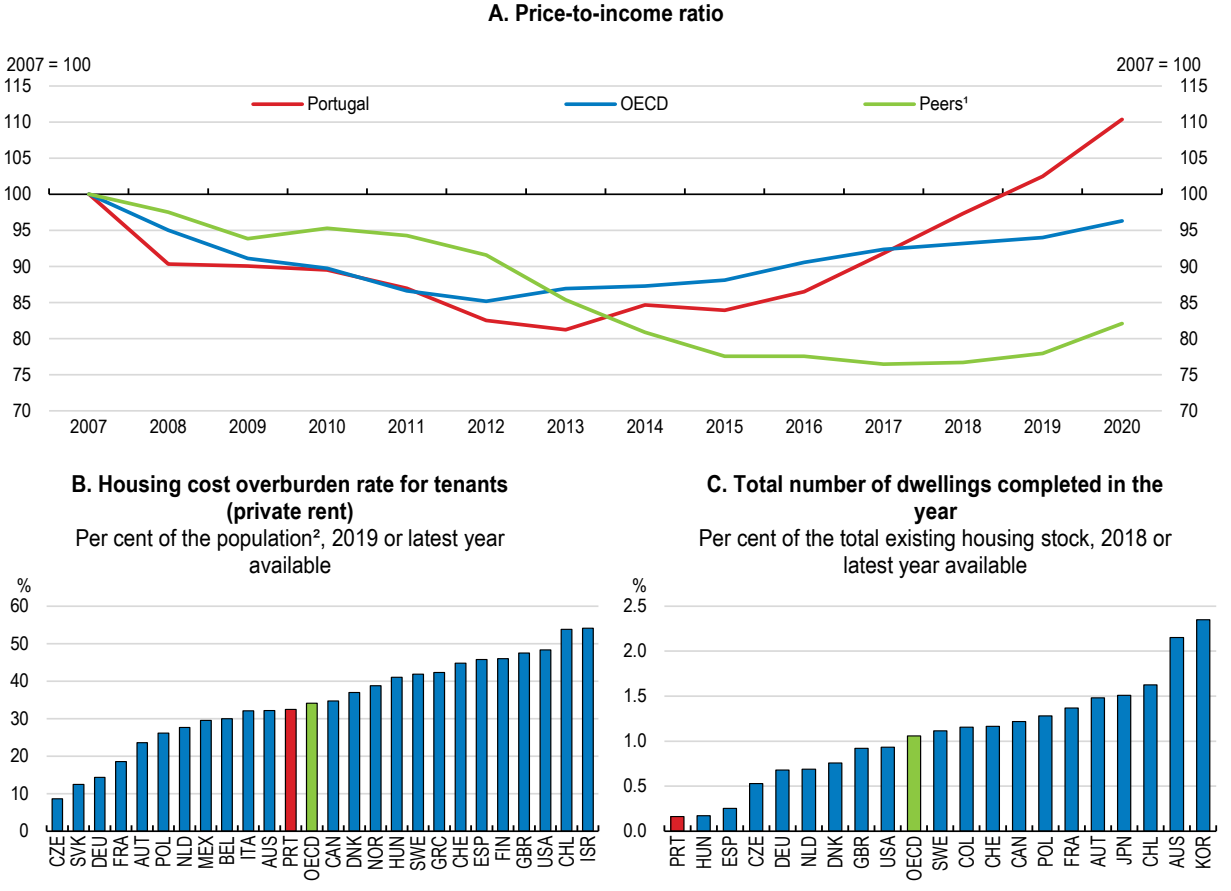
Improving housing affordability

Housing affordability was already a challenge before the onset of the COVID-19 crisis due to strong pressures on housing prices, especially for poor and middle-class households (Figure 1.26). Between 2007 and 2019, housing costs for poor households increased by 28% compared with 7% in the EU on average (Eurostat, 2021). In 2019, around a third of the lowest income tenants in the private market were spending more than 40% of their disposable income on rent (Figure 1.26, Panel B). Despite the government's effort to protect mortgage-holders and tenants by temporarily suspending rent and mortgage payments during the pandemic, the sudden job and income losses brought by the COVID-19 crisis are bound to increase the pressure on housing affordability further.

Housing supply has not responded to the increase in housing demand prompted by the low-interest rate environment, high demand for tourist accommodation and policy incentives to foreign residential investment (Figure 1.26, Panel C). Investment in rental housing has remained underdeveloped. The rental market stands at 24% of total dwellings out of which merely 2% represents social housing (Figure 1.27, Panel A). In addition, public spending on social housing has been low, mostly restricted within the Lisbon and Porto areas (Figure 1.27, Panel B). Among policies that support housing affordability for low-income earners, social housing implies lower trade-offs than subsidies and rent control (OECD, 2020j). The government's plans to increase the social housing stock to 5% of the total by 2026 are thus welcome. Improving technical capacity in municipalities to design adequate housing projects and use available EU funds will be key to achieve this ambitious target.

Figure 1.26. Fast increases in housing prices deteriorated housing affordability



Note: 1. Peers refer to the average of Greece, Italy and Spain.
Source: OECD (2020) Affordable Housing Database and Analytical House Prices Indicators Database.

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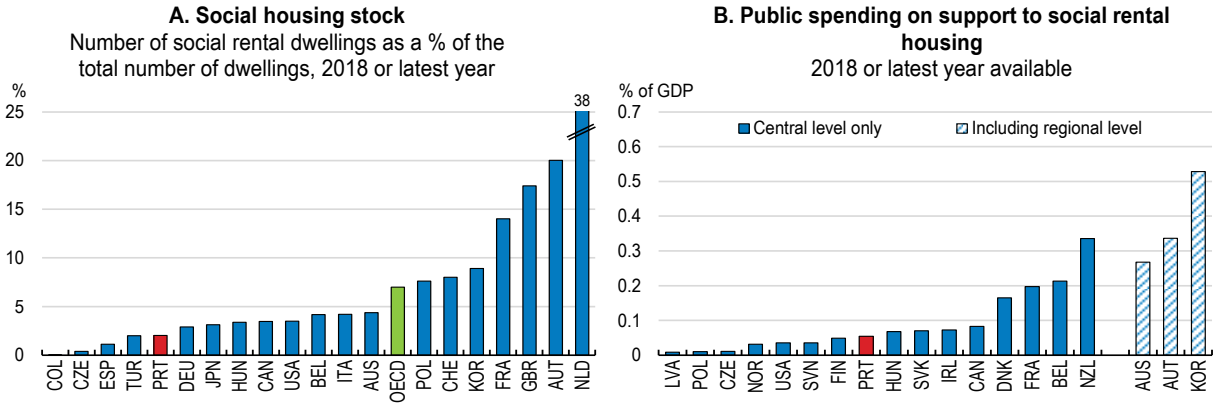
Figure 1.27. Investment in social housing needs strengthening



Source: OECD (2020) Affordable Housing Database.

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Burdensome construction procedures can undermine housing supply. The number of procedures and days to get a building permit is higher in Portugal than in the average OECD high-income country (World Bank, 2020). Multiple overlapping procedures are imposed on providers of installation works such as lifts, telecoms, water, sewage and alarms, which could benefit from simplification (European Commission, 2020a). Streamlining procedures can help to reduce the time to receive a building permit and ultimately speed up the pace of housing development. The cost for obtaining a construction permit is also relatively high by OECD standards and could be reduced (OECD, 2021d). Finally, future reform to the property taxation should not aggravate housing affordability issues and aim at increasing tax progressivity.

Adapting long-term care to fast population ageing

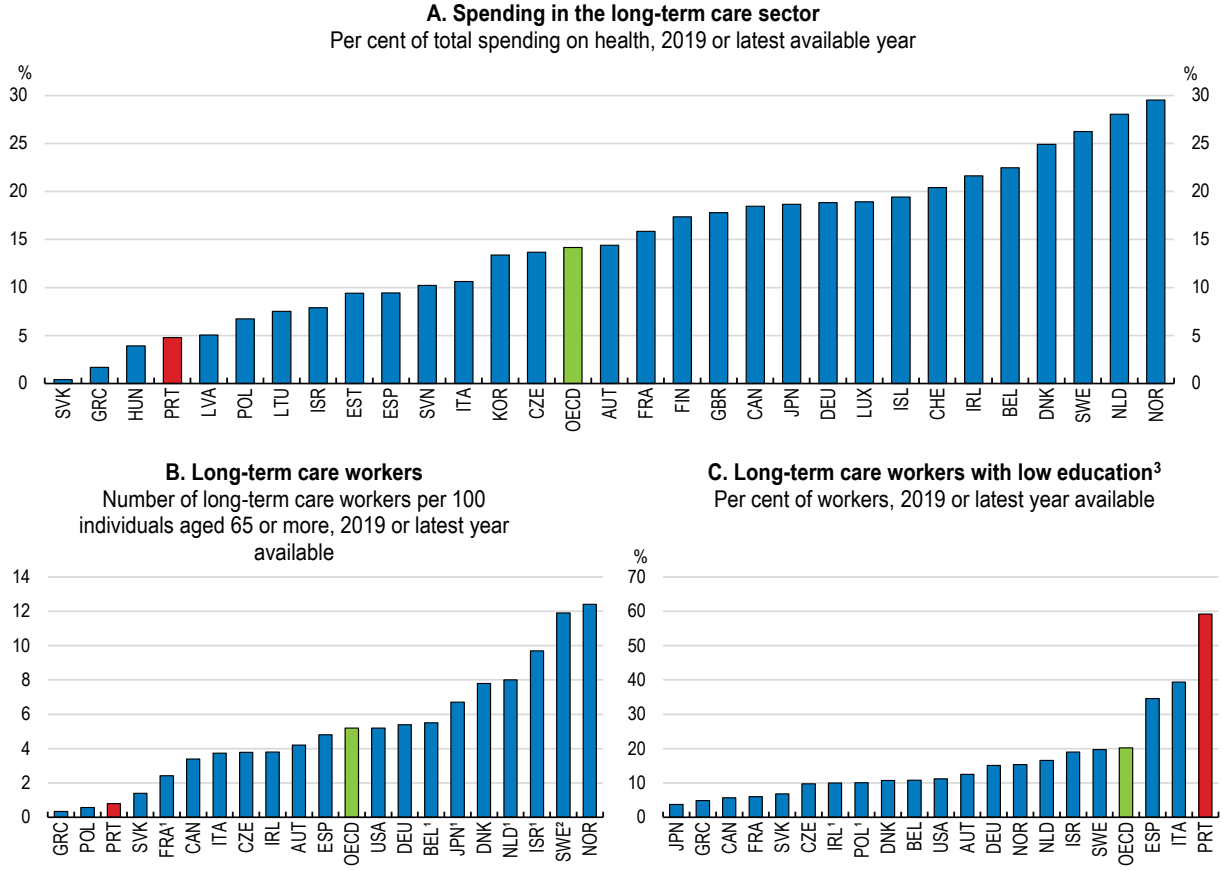
The COVID-19 crisis has put the spotlight on the long-term care sector. The pandemic has disproportionately affected elderly people and their care workers. A range of measures have been in place to protect these vulnerable groups, including restricting care home visits, prioritising testing and vaccination of care home residents and staff (OECD/European Union, 2020). Nevertheless, addressing structural shortcomings in the long-term care sector, especially underinvestment, is pressing due to the rapidly ageing population (see Figure 1.3).

Spending on long-term care is one of the lowest across the OECD (Figure 1.28, Panel A), resulting in large unmet needs (OECD, 2019f). Only around 2% of adults aged 65 and over received long-term care in 2019, compared with around 11% in the OECD (OECD, 2021a). Similar to peer countries, Portugal relies on the support by families and other unpaid caregivers to provide long-term care for older people. Unpaid caregivers, mostly women, report worse self-perceived health outcomes and are disproportionately affected by poverty (WHO, 2020). Recent measures to support informal caregivers (i.e. providing them with a formal status, information, training, and a means-tested allowance) are welcome, but it is too early to assess their impact. Measures are limited to family members and should be extended to all informal caregivers (European Commission, 2019b).

Residential care capacity has grown from 1808 beds in 2007 to 8840 in 2015, but the provision of institutional care is significantly lower than in other OECD countries, resulting in high occupancy rates and long waiting times. Shortages are especially acute in larger urban areas, like Lisbon (WHO, 2020). Paid home-based care has developed only recently in Portugal and remains marginal. Public home-help services still reach less than 5% of elderlies (WHO, 2020). Geographical distribution of home care is uneven, home-care teams have to cover long distance in areas with low population density. This calls for increasing the funding of long-term care at the national level. Portugal's Recovery and Resilience Plan includes projects in the long-term care sector, amounting to around EUR 205 million.

The National Network of Continuing Integrated Care (RNCCI) and the Network of Social Services are the main providers of long-term care services. The governance of public long-term care services is fragmented, preventing the integration of services and thus optimising the service delivery (WHO, 2020). Improving cohesion and eliminating overlapping services in the two public networks can improve access, coverage and quality of services, not least by freeing up scarce resources. Integrating quality measures of hospitals' performance could help to identify possible efficiency gains and free up resources to expand long-term care capacity (Shaaban, Peleteiro and Martins, 2020).

Figure 1.28. The long-term care sector is under-resourced



Note: 1. Break in time series. 2. Data for Sweden cover only the public providers. In 2016, 20% of beds in LTC for the elderly were provided by private companies (but publicly financed). 3. Low education corresponds to a lower secondary education (ISCED 0-2).
Source: OECD Health Statistics 2019/2021; Eurostat Database (LFS and population demographics); ASEC-Census Population Survey for the United-States; Census for Canada; Labour Force Survey for Israel; Survey on Long-term Care Workers for Japan.

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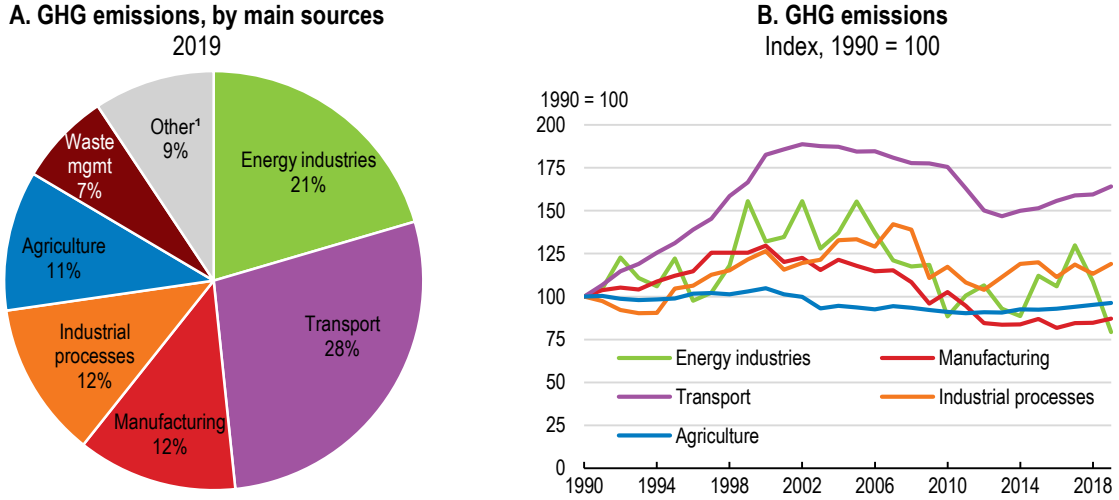
Portugal has one of the lowest numbers of long-term care workers across 28 OECD countries (Figure 1.28, Panel B). Recent OECD estimates show that this number will need to increase by 60% by 2040 (OECD, 2020k). However, poor job quality limits recruitment and retention in the sector. Professionals, mostly women, report dissatisfaction because of low salaries, limited opportunities to progress professionally, high workload and levels of stress and job instability (WHO, 2020). Long-term care workers are among the lowest-paid: they earn around one third less than those working with similar qualifications in other parts of the health care sector and this pay gap is higher compared to other countries (OECD, 2020k). The share of temporary employment is also high in the long-term care sector compared with the hospital sector (OECD, 2020k). Intensifying recruitment efforts and improving working conditions can help to address these shortages. Increasing wages, reducing temporary contracts and offering opportunities for career progression can help with staff retention (OECD, 2020l). Training programmes to access managerial positions, as done in Korea for instance, can provide improved career perspectives.

Low qualifications of long-term care workers can affect the quality of care delivered. In Portugal, about 60% of long-term care workers hold minimum education levels compared to around 20% in the OECD (Figure 1.28, Panel C). There is also no national curriculum for long-term care nurses and geriatric care training remains optional (OECD, 2020k). Inadequately skilled staff increases the risk exposure for patients who live in long-term care facilities. Before the COVID-19 pandemic, in 2019, Portugal had the highest rate of health care-associated infections in the OECD (OECD, 2020l). Providing adequate skills to the long-term care workforce is pivotal to ensuring the safety of residents. This requires making participation in on-the-job training mandatory for personal caregivers, while adapting training options to staff needs and constraints (OECD, 2020k). In Austria, the required ten-weeks training programme is free of charge and can be done on-site during working hours. Portugal should also consider developing a curriculum for long-term care nurses that includes geriatric care as done in Iceland.

Moving towards a green and sustainable economy

Portugal has recorded improvements in many environmental areas in recent years, especially in reducing CO_2 emissions (Figure 1.29). GHG emissions per capita are below the OECD average and the country achieved its Effort Sharing target for 2020 – a legislation established among EU Member States with binding annual greenhouse gas emission targets (Figure 1.30, Panel A). The last coal power plants were shut off at the end of 2021. However, reaching ambitious targets of the National Energy and Climate Plan 2030, i.e. 80% renewable electricity by 2030 and a carbon neutral economy by 2050 will be challenging. Achieving carbon neutrality requires the replacement of fossil fuels with renewables sources in electricity production and increased electrification, in particular in the transport sector (Figure 1.29). Portugal aims at doubling the production of renewable electricity by 2030 from already high levels (25% of total energy consumption compared to the OECD average of 10% and 54% of electricity production in 2019), mainly through solar and wind energy (Figure 1.30, Panel B). Under the Recovery and Resilience Plan, spending on green transition should reach EUR 3.1 billion (1.5% of 2020 GDP).

Figure 1.29. The energy and transport sectors are the main emitters of greenhouse gas emissions



Note: Greenhouse emissions exclude emissions from land use, land use change and forestry, memo items and international transport. 1. The category "Other" includes other fuel combustion sectors, fuels - fugitive emissions, other sectors and Indirect CO2.
Source: Eurostat (2020), "Greenhouse gas emissions by source sector", Eurostat Database; European Environment Agency.

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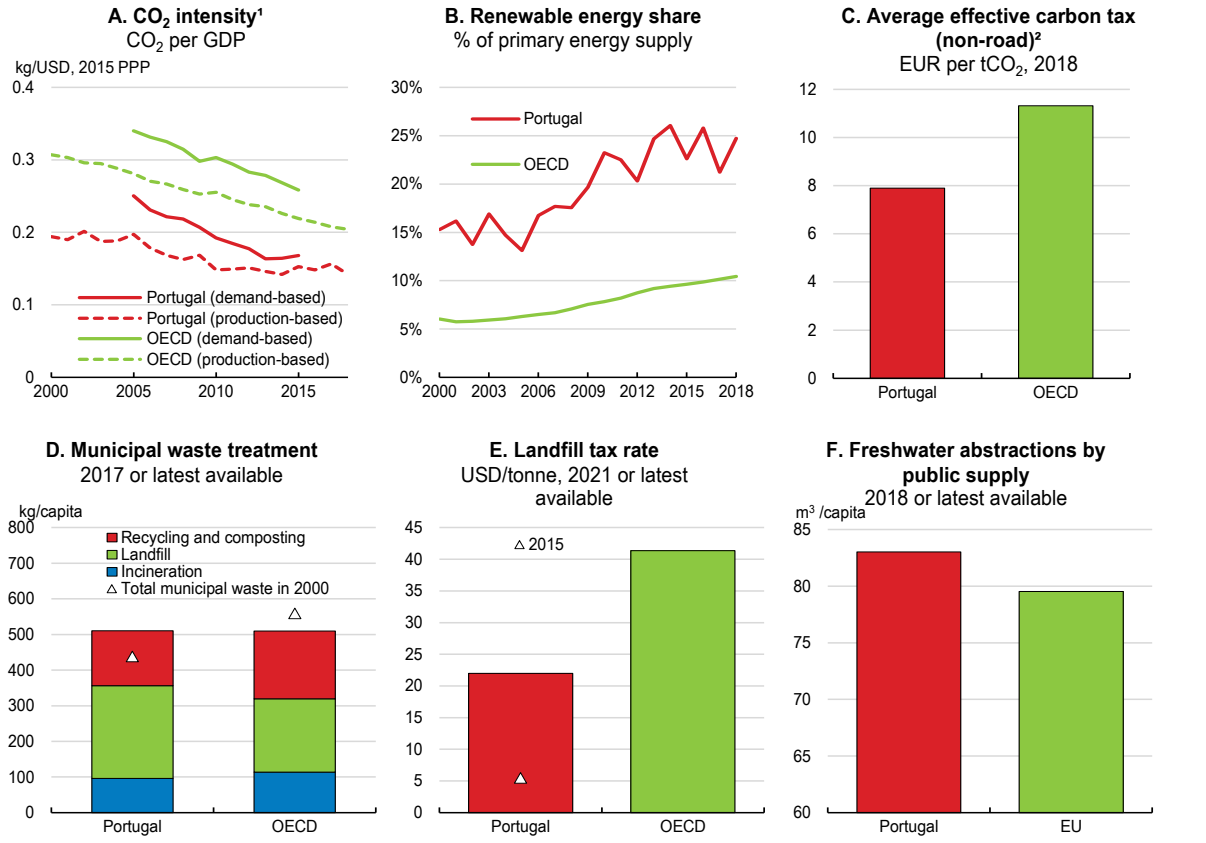
Figure 1.30. Green Growth indicators: Portugal



Note: 1. Included are CO2 emissions from combustion of coal, oil, natural gas and other fuels. Gross Domestic Product (GDP) is expressed at constant 2015 USD using PPP. 2. The sum of average explicit carbon tax and average fuel excise tax.
Source: OECD Green Growth Indicators Database; Eurostat, Environmental Statistics.

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Greening the transport sector

Intensifying efforts to greening the transport sector will become crucial to facilitate the transition to a carbon neutral economy by 2050 and to improve air quality. The transport sector accounts for 28% of emissions and are responsible for a high level of air pollution in cities (Figure 1.29). The level of nitrogen dioxide (NO2) in Lisbon, Braga, and Porto are above EU air quality standards (European Commission, 2020a). Measures to reduce emissions from transport can thus generate wide benefits for public health, well-being and resilience to future health shocks. The National Climate and Energy Plan 2030 establishes clear goals for the transport sector until 2030: a 40% reduction of GHG emissions compared to 2005 and a use of at least 20% of energy from renewable sources. Public transport, active mobility and clean vehicles are the three pillars to achieve these goals.

There is room to increase carbon pricing in the sectors not covered by the EU ETS, especially on non-road emissions (Figure 1.30, Panel C). Portugal has an explicit carbon tax tied to the average EU ETS carbon price. It increased from EUR 5/tCO_2e in 2014 to EUR 23.7/tCO_2e in 2020, but remains below levels needed to meet the objectives of the Paris Agreement and below low-end estimates of the damage that carbon emissions currently cause (EUR 30/tCO_2e; OECD, 2019g). Portugal should progressively increase its carbon tax and apply it across all types of energy uses. While diesel taxation is relatively high by international comparison, diesel is still taxed at significantly lower rates than gasoline, despite emitting higher levels of both carbon dioxide and harmful air pollutants per litre (OECD, 2019g; Harding, 2014). As

recommended in the previous Economic Survey (OECD, 2019b), the government should consider aligning fuel excise taxes.

Cuts to greenhouse gas emissions from transport require a transition to a less polluting vehicle fleet. Portugal has a national target of 30% of zero-emission vehicles (ZEVs) among new cars by 2030 (from 12%, IEA, 2020). To achieve this objective, subsidies for electric vehicles and the renewal of the public sector vehicle fleet have been extended, and charging infrastructure has been developed. Both vehicle taxation and the annual road tax for cars depend on engine capacity and CO2 emissions (European Commission, 2020d). Bans of old polluting cars from city centres are in place, but needs to be reinforced, not least by strengthening enforcement and enlarging traffic-free zones. Accelerating investment in public transport is also crucial to avoid increases in transportation costs for low-income households and ensure access to affordable mobility, as stressed in the previous OECD Economic Survey (Table 1.7).

Transitioning to a circular economy

Despite progress in the transition to the circular economy, waste management remains an important challenge (Figure 1.30, Panel D). Portugal is one of the countries that missed the EU target of recycling 50% of municipal waste by 2020. Lack of infrastructure for separate collection, insufficient incentives for waste management (including low landfill tax and low waste charges for households) and low public awareness on recycling hold back the transition to a circular economy (European Commission, 2020d). Portugal receives considerable amount of waste from other EU countries, including hazardous waste (Reuters, 2020), but has started to demur the entry of this waste destined for landfill disposal since 2020. The landfill taxes doubled from EUR 11 in 2019 to EUR 22 per tons in 2021, but remains below the OECD average (Figure 1.30, Panel E). Portugal needs to increase its landfill tax further, as planned (to EUR 35 by 2025).

Further improving incentives for recycling will also be crucial and call for achieving the recycling targets of the municipalities. The government should expand the door-to-door segregated collection systems for household waste as it is relatively low compared to other European countries (European Commission, 2015b) and phase out the bring-side collection system. Such measures are found to increase municipal recycling levels (European Commission, 2014). The envisaged adoption of pay-as-you-throw schemes by municipalities can create incentives for separate collection. Finally, a new programme aimed at raising public awareness of the need for recycling and waste prevention activity should be developed further. These measures should be included in the Municipal Solid Waste Strategic Plan (PERSU 2030) under preparation.

Improving water management

Despite average water availability above the European average, mainland Portugal has a severe seasonal concentration of precipitation, resulting in frequent droughts and floods, and unevenly distributed water resources. The water supply in the Algarve region is under stress, and the problem is expected to increase with climate change (Azinheira, Segurado and Costa, 2019). The national strategy for Water Supply and Wastewater (PENSAAR 2020) rightly focused on reducing water scarcity and improving water abstraction. The new Strategic Plan for Water Supply and Wastewater and Rainwater Management (PENSAARP 2030) aims, among others, at improving water efficiency, especially in water scarce areas such as Algarve. Water abstraction fees are being improved in order to link them with water availability.

Water infrastructure needs upgrading. The rate of asset renewal is well below the level needed to guarantee service quality over time (0.7% versus 2%) (EurEau, 2017; OECD, 2020m; European Commission, 2020a). Investments needed to upgrade water and wastewater infrastructure are estimated at around EUR 4.7 billion until 2030 (OECD, 2020m). Limited analytical capacity to assess investment needs hinders some municipalities to upgrade their infrastructures. Portugal plans to use EU Funds to close the infrastructure investment gap, including by providing technical assistance to local governments,

but amounts remain limited compared to estimated needs so far (i.e. around EUR 0.4 billion in the Recovery and Resilience Plan).

Total freshwater abstraction per capita remains high, especially in the Southern region (Figure 1.30, Panel F). Water pricing is an important tool to ensure full cost recovery, but also to provide adequate incentives to use it efficiently. Average water billing is relatively low compared to other European countries (EurEau, 2020). A recent OECD study suggests there is room to increase water tariffs: it finds that, in European countries including Portugal, more than 95% of the population could pay more for water supply and sanitation without facing an affordability issue (OECD, 2020m). The regulator (ERSAR) provides guidelines for water billing, but operators can set their own tariffs leading to some large discrepancies. ERSAR should have the necessary enforcement tools (e.g. fines) to ensure compliance of water billing, either to control excessive high tariffs or to avoid the practice of under-pricing.

Table 1.7. Past OECD recommendations on environmental policies

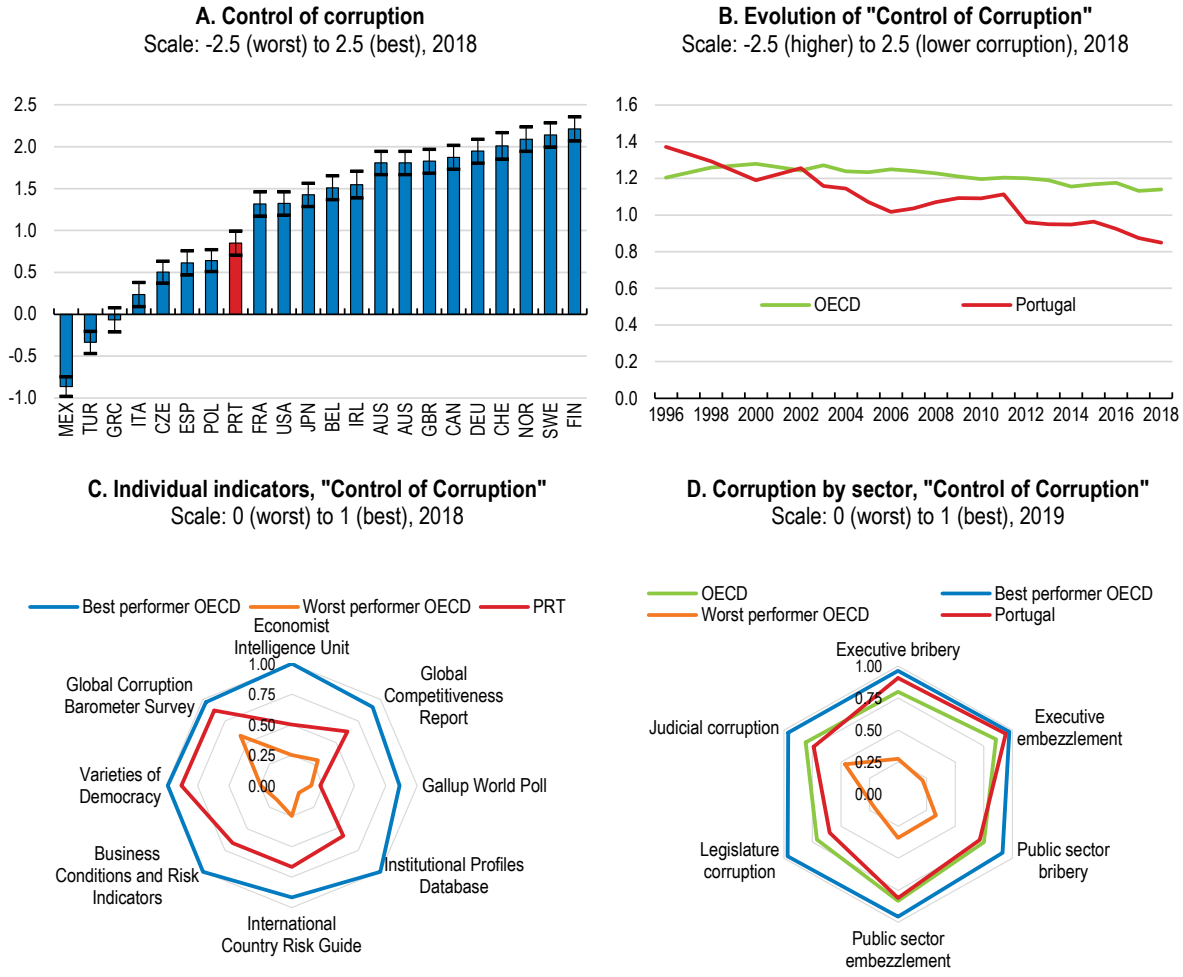
Recommendations in past surveys	Actions taken since 2018
Encourage public transport use and the development of new-shared transport solutions, accompanied by appropriate supervision and regulation.	Investments in public transportation such as the expansion of metro network in suburban areas of Lisbon and Porto are underway. Other measures included the Fare Reduction Program fleet renovations, the full concession of public EV charging network, and the promotion of cycling mobility.
Raise taxes on diesel fuel, and increase energy taxes on coal and natural gas.	The exemption from the oil and carbon taxes in the production of electricity through non-renewable forms (coal, fuel oil, natural gas) is being phased out.

Ramping up efforts to fight corruption and money laundering

Corruption raises the cost of business, undermines public trust and hampers growth. It also disproportionately affects the poor and the vulnerable by diverting resources from essential public services. Over the last decade, Portugal has undertaken some measures to prevent economic crimes. The fight against corruption needs to intensify to improve the business environment and the functioning of the public administration. A recent survey suggests that more than half of Portuguese firms considered corruption as a serious problem when doing business, above the EU average of 37% (European Commission, 2019c). Moreover, only 30% of businesses have confidence that the police or prosecutors will deal with corruption effectively (compared to 60% in Denmark or Finland, European Commission, 2017). This may explain Portugal's relatively high and increasing levels of "perceived" corruption compared to other OECD countries (Figure 1.31).

The new national anti-corruption strategy for the period 2020-2024, which aims to improve the levels of prevention, detection and prosecution of corruption, is thus welcome. It notably includes measures temporarily banning the exercise of certain political offices by people who perpetrated crimes of corruption, imposing the adoption of compliance programmes to some entities, increasing time limitations for sanctioning some corruption-related crimes, and enhancing incentives to provide information on economic crimes. The creation of an anti-corruption authority is foreseen, but not established yet. Information campaigns encouraging citizens to repudiate corruption and educational content in schools will be developed. Portugal has also made progress in strengthening anti-corruption efforts in public procurement. Moreover, a decree aiming at the transposition of EU regulation to protect whistle-blowers was approved in Parliament, which needs to be promulgated to be effective. Going forward, Portugal should continue strengthening the prosecution mechanism (OECD, 2019b). Only 14% of those convicted for corruption in 2017 are serving a sentence in prison (European Commission, 2020a). It is crucial that on-going discussions regarding illegal enrichment against acts of public administration translate into effective legislative amendments.

Figure 1.31. Controlling corruption remains a challenge



Note: The Control of Corruption indicator captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as 'capture' of the state by elites and private interests. Panel A shows the point estimate and the margin of error. Panel C shows individual indicators, which underlie the "Control of Corruption" indicator by the World Bank: Panel D shows sector-based subcomponents of the corruption indicator by the "Varieties of Democracy" Project.
Source: Panels A & B: World Bank, Worldwide Governance Indicators. Panels C & D: the Economist Intelligence Unit; the World Economic Forum; the Gallup Organisation; the French Ministry of Economy and Agence francaise de Developpement; Political Risk Services; Global Insight; Varieties of Democracy Institute, University of Gothenburg and University of Notre Dame; Transparency International.

StatLink https://stat.link/uo430t

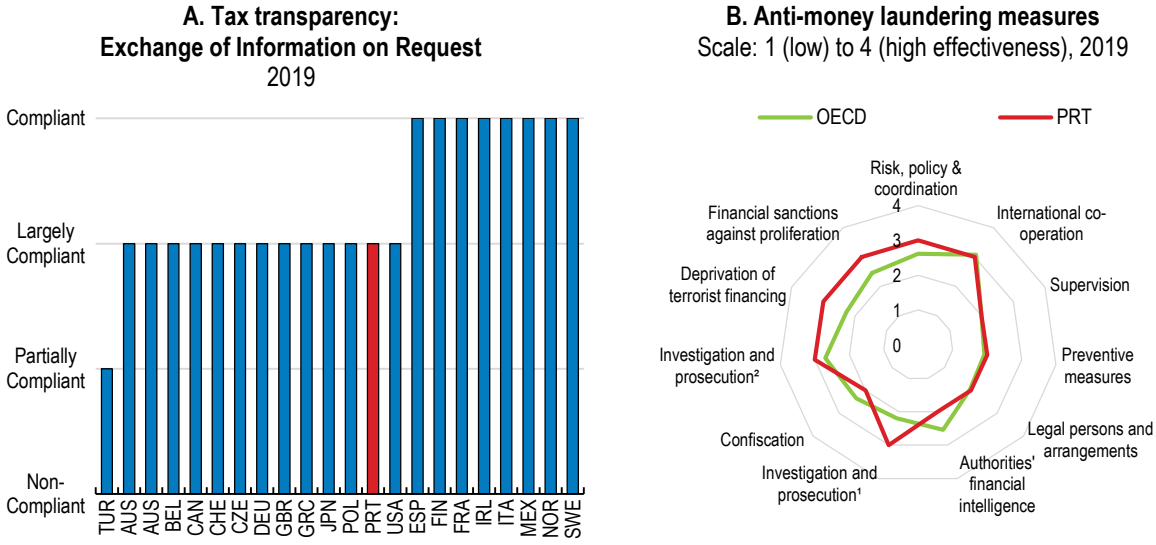
Enhancing the capacity in the judicial system to address cases related to economic and financial crime that are often complex and require specific knowledge and expertise is crucial. As recommended in the previous OECD Economic Survey, the Public Prosecution Office and the Criminal Investigation Police must be allocated adequate resources to continue undertaking investigations (Table 1.8). Specialised training for prosecutors should be reinforced and become mandatory. Finally, specialised courts with national jurisdiction for corruption could be considered and the appeal procedures reviewed to prevent abuses. Massive inflows of EU funds and envisaged relaxation of rules to fasten absorption pose risks of fraud and call for establishing mechanisms that allow adequate scrutiny on the use of funds and accountability of recipients. The national initiative to establish a digital platform to group information on all EU programmes is a step in the right direction.

Measures to improve the accountability and integrity of senior public officials are also needed. Rules on conflict of interest should be made stricter, as there have been repeated reports of engagement of high

ranked public officials in the private sector (especially practicing law) while holding office due to the non-exclusive nature of their mandate (GRECO, 2018). The adoption of a code of conduct for Members of Parliament in 2019 and new rules regarding notably the financing of Members' political activity, intervention in administrative and hiring procedures, and transparency obligations are steps in the right direction. However, an efficient supervisory mechanism is still missing. For instance, the Entity for Transparency, which is responsible for assessing compliance by holders of political and high public offices with rules on individual declaration on income, property, and interests, is not yet functioning. The national anti-corruption strategy acknowledges this issue and stresses the need to put this Entity into function as soon as possible. Moreover, a general reform leading to a more effective disclosure of asset is still lacking (European Commission, 2020a). Asset declarations should undergo frequent checks and be made publicly available. Recent amendments to the relevant law strengthened the coverage of asset declarations, but were not yet promulgated at the time of writing. Finally, rules and codes of conduct on how Members of Parliament engage with lobbyists and other third parties who seek to influence the legislative process should be introduced, as well as other integrity and transparency instruments such as a lobbying register (OECD, 2021e).

OECD indicators show that Portugal has room to strengthen the prevention and supervision of anti-money laundering (Figure 1.32). Portugal has sound regulations to fight money laundering and terrorism financing, achieving a high level of effectiveness in several areas such as the assessment of money laundering risks and domestic coordination, international cooperation, investigation and prosecution of money laundering (FATF, 2017). However, the Financial Action Task Force (FATF) (2017) identifies the lack of transparency in the real estate sector, anonymous operations and transactions, and informal transfer systems as main vulnerabilities in Portugal's anti-money laundering framework. Crosschecks on applicants' source of wealth and funds used for investments in the real estate sector are conducted by the supervisory authorities only ex-post, after the investment has already been made. Ex-ante checks on the source of investments would reduce the high-level money-laundering risk associated in the real estate sector (FATF, 2017). Since 2017, the latest on-site assessment by FATF, Portugal adopted a new law on the prevention of money laundering and terrorist financing and created the Central Register of Beneficial Owners. In November 2019, the Institute for Public Procurement, Real Estate and Construction created a unit dedicated to implement AML/CFT controls, to develop supervisory programmes, to provide thorough guidance to obliged entities and prepare the tools needed to enhance their understanding of the risks.

Figure 1.32. Anti-money laundering efforts need to strengthen



Note: Panel A summarises the overall assessment on the exchange of information in practice from peer reviews by the Global Forum on Transparency and Exchange of Information for Tax Purposes. Peer reviews assess member jurisdictions' ability to ensure the transparency of their legal entities and arrangements and to co-operate with other tax administrations in accordance with the internationally agreed standard. The figure shows first round results; a second round is ongoing. Panel B shows ratings from the FATF peer reviews of each member to assess levels of implementation of the FATF Recommendations. The ratings reflect the extent to which a country's measures are effective against 11 immediate outcomes. 1. "Investigation and prosecution" refers to money laundering. 2. "Investigation and prosecution" refers to terrorist financing.

Source: OECD Secretariat's own calculation based on the materials from the Global Forum on Transparency and Exchange of Information for Tax Purposes; and OECD, Financial Action Task Force (FATF).

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Table 1.8. Past OECD recommendations on anti-corruption policies

Recommendations in past surveys	Actions taken since 2018
Continue to enhance the capacity of the Public Prosecution Office to address economic and financial crime, including corruption. Public prosecutors should continue to undertake specialised training in this area.	The school of magistrates promoted several training actions for judges and prosecutors related to economic and financial crimes.
Establish an electronic register of interests for all government members and senior civil servants that is regularly updated.	No action taken.

Table 1.9. Recommendations on macroeconomic and structural policies from the Key Policy Insight chapter

MAIN FINDINGS	RECOMMENDATIONS (Key recommendations in bold)
Mitigating the impacts of the pandemic and supporting the recovery	
The economic recovery can be slow due to containment measures needed to limit the spread of the virus.	**Maintain fiscal policy support until the recovery is firmly underway, while making it more targeted.**
The development of the pandemic is uncertain, especially due to the emergence of new variants of the virus. The vaccination rate is the highest in the OECD, but other containment measures remain key to control possible future rises in infections.	Stand ready to increase resources allocated to test and tracing. Keep encouraging the take-up of vaccination boosters.
Like in several other OECD countries, the pandemic hit Portugal hard, putting huge pressure on the healthcare sector, which was compounded by shortages of healthcare professionals. The number of nurses and long-term care workers per inhabitant has been low compared to the OECD average.	**Improve the working conditions of healthcare professionals, notably to facilitate recruitment.**
Before the pandemic, the capacity of intensive care units was well below the OECD average. It has increased in response to the surge of hospitalisations.	Permanently strengthen the capacity of intensive care units.
Mental health disorders are relatively high and the COVID-19 crisis has increased them. The availability of public mental health services is uneven and community mental health services are underdeveloped.	Expand regional and community mental health services as envisaged in the Recovery and Resilience Plan.
The COVID-19 crisis has triggered major changes in the labour market. Employment prospects have deteriorated for the youth and the low skilled.	**Increase resources allocated to public employment services to provide individualised support and to reach out jobseekers, especially the younger ones.**
Unemployment benefits do not cover workers with non-standard forms of contracts well due to strict eligibility conditions.	Lower contributions thresholds for unemployment benefits. Consider opening the unemployment assistance to all registered jobseekers.
Addressing financial risks for a robust recovery	
Corporate sector vulnerabilities have increased. Insolvencies are likely to surge after the end of the moratorium on credit instalments, in spite of a new relief measure. The government has started to reinforce support to the capitalisation of firms.	**Strengthen direct aid to companies in a timely, targeted, and temporary way, by using quasi-equity injections, state-contingent loans or non-refundable grants.**
A surge in insolvencies could translate into a marked increase in credit defaults.	**Strengthen incentives for banks to reduce their non-performing loans should they prove insufficient.** **Consider establishing a national asset management company.**
Courts have a large backlog in insolvency cases that risks increasing significantly.	**Encourage the use of out-of-court insolvency procedures.**
High level of corporate debt and low profitability in the banking sector undermine access to finance for SMEs, especially to acquire intangible assets.	Develop equity markets to diversify financing sources, for instance by establishing equity funds. Improve awareness of entrepreneurs on equity instruments tools.
Addressing medium-term fiscal challenges	
Public debt exceeds 130% of GDP and increased contingent liabilities can complicate fiscal consolidation. Details on the strategy to contain public spending in the coming years are missing.	**Once the recovery is firmly established, gradually phase out support measures and announce a clear and credible medium-term fiscal consolidation strategy.**
Available EU funds, including under the Next Generation EU plan will reach record levels. Absorption might be slow due to hurdles in designing, approving and implementing programmes.	**Ensure the transparent and effective implementation of programmes financed with EU funds.** **Prioritise projects that have the strongest economic and social impact by relying on cost-benefit analysis.**
The modernisation of the budget framework, including the introduction of performance budgeting, has been delayed. Capacity to assess public spending efficiency is limited.	Accelerate the implementation of the budget reform. Allocate adequate resources for the development of data collection, data interoperability, and analytical capacity.
A large number of tax benefits do not have clear objectives or do not prove efficient. They are complex and lack transparency.	Phase out inefficient special tax provisions.
Population ageing puts pressure on the financial sustainability of the pension system.	**Duly implement the link between increases in the retirement age and life expectancy gains to continue to ensure the long-term financial sustainability of the pension system.** **Extend that link to the minimum age of early retirement.**

MAIN FINDINGS	RECOMMENDATIONS (Key recommendations in bold)
Fostering a greener and more inclusive growth	
The coverage of the minimum income benefits is low and its level below the poverty line despite recent increases.	Increase the level and coverage of the minimum income benefits.
The supply of social housing is low by international comparison. Administrative burden for promoters is high by OECD norms.	Use EU funds to support investment projects in social housing as envisaged in the Resilience and Recovery Plan. Reduce red tape in the construction sector to increase private supply.
The provision of institutional care is significantly lower than in other OECD countries, resulting in high occupancy rates and long waiting times.	Increase funding allocated to public long-term care services. Integrate the National Network for Long-term and the Network of Social Services to eliminate overlapping services and achieve efficiency gains.
Long-term care workers lack adequate skillset to ensure high quality care.	Introduce a mandatory on-the-job training for personal care workers. Create a curriculum for long-term care nurses.
Meeting the new ambitious climate objectives and reducing air pollution in large cities will require reducing greenhouse gas emissions in the transport sector.	**Accelerate investment in electric mobility and public transportation as envisaged in the Recovery and Resilience Plan. Once the recovery is firmly established, progressively increase the coverage of the carbon tax, while financially supporting the population in adjusting to greener usages.**
The recycling rate of municipal waste is persistently low.	Ensure the municipalities meet their recycling targets. In the medium term, further increase the landfill tax.
The water abstraction rate remains high and current water prices do not provide adequate incentives to use it efficiently.	Provide the regulatory authority with the necessary tools to impose water tariffs to avoid underpricing.
While there are plans to increase resources for upgrading water infrastructure, they will be too low to ensure high quality services and avoid leakages. Municipalities lack expertise to design and implement water infrastructure projects.	**Increase investment in water infrastructure further, and strengthen technical support to municipalities on how to design and implement infrastructure projects, using EU funds.**
Rules on conflict of interest for statespersons are not strict. There are no specific rules for Members of Parliament on how to engage with the private sector and lobbyists.	**Introduce codes of conduct on how to engage with lobbyists including a lobbying register.**
The real estate sector is vulnerable to money-laundering risk.	Conduct thorough ex-ante checks on investments made in the real estate sector.

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Annex 1.A. Progress on structural reforms

This Annex reviews action taken on recommendations from the February 2019 Survey.

Recommendations	Action taken since the previous *Survey* (February 2019)
Improve the business environment	
Revise land use regulations and limit discretionary powers of municipalities in licensing procedures.	No action taken.
Ease entry requirements for professional services.	The Portuguese Competition Authority has taken steps adopting the OECD recommendations from the Competition Review from 2018.
Improve the efficiency of ports by renegotiating concession contracts, attaching service level agreements to any new concessions and promoting intra-port competition between terminals.	No action taken.
Phase out electricity generation schemes with guaranteed prices sooner than currently planned.	In 2020, the feed-in tariff mechanism foreseen to the over-equipment of wind farms and the administrative capacity remuneration scheme applicable to merchant hydroelectric power plants were revoked.
Promote wage bargaining at the firm level, including by placing more binding limits on administrative extensions of wage agreements.	No action taken.
Consider allowing refunds of research and development tax credits for low-making firms or extending the carry-forward period significantly.	The tax credit system SIFIDE includes more benefits for start-ups and SMEs (a 15% increase of the Base Rate - 32.5% to 47.5%); a 120% coverage of the salaries of PhDs hired by companies, a benefit of 110% for projects with ecological design. Companies have 8 years to deduct the tax credit conceded.
Raising skills and equity in education	
Collect and publish indicators of labour market outcomes (employment, unemployment rates, wage premiums) by level of education and area of study and at the regional level to allow for better-guided education and career choices.	No action taken.
Expand well-designed vocational training programmes (i.e. “Aprendizagem” and “Cursos de Educação e Formação de Adultos”), so that they reach more of the low-skilled population.	The improvement of the “Sistema de Aprendizagem” has been a priority including with the revision of the curricula, the creation of conditions for one paid internship at the end of the training, investment in teachers’ training. “Cursos de Educação e Formação de Adultos” are targeted at the adult population with low qualifications and should expand with the implementation of the Recovery and Resilience Plan. Other targeted programmes include Vida Ativa Qualifica+, Jovem + Digital, and Português Língua de Acolhimento.
Take better account of students’ profiles and specific needs when allocating resources across schools and provide more autonomy to schools to adjust class size accordingly.	Extra funds and additional human resources are allocated to schools in disadvantaged contexts in line with the National Program for the Promotion of School Success and Social, Personal and Community Support Plans, among others.
Create incentives to attract the most experienced teachers and principals to disadvantaged schools.	No action taken.
Reduce labour market duality to improve the job quality and strengthen learning incentives.	The 2019 labour market measures reduced the maximum accumulation duration of fixed-term contracts from 3 years to 2 years. The duration of the exemptions of social security contributions for young people obtaining their first job and the long-term unemployed has been extended to promote permanent contracts
Raise managerial skills by developing specific training courses for managers.	A range of training measures have been introduced in the public sector (eg Leadership Skills Development Program, Public Management Training Program, Advanced Public Management Course)

2 Getting the most of the digital transformation

Caroline Klein, Markus Schwabe, Hélia Costa, Sahra Sakha

Digital technologies can help Portugal to address economic challenges, including low productivity growth and to mitigate the negative impact of the COVID-19 crisis. Despite impressive progress over recent years, especially in the public sector, Portugal lags OECD best performing countries in the use of key digital technologies. Broad-based policies should aim at getting the most out of digitalisation, lifting capabilities and sharpening incentives to adopt new technologies, while limiting the rise in inequalities it might generate. While communication infrastructure is good overall, addressing connectivity bottlenecks, improving affordability, and increasing digital security is key for the digital transformation. Equipping citizens with the skills needed in a digital economy is a pre-requisite to ensure the benefits of digitalisation are widely shared. Investment in knowledge-based capital and ICT equipment needs to be supported in SMEs by developing expertise and diversifying financing sources, while further reducing regulatory and administrative barriers to business growth.

Portugal achieved impressive progress in the digital transition over the past decade, catching up best performing OECD countries in some areas. Digital technologies could help Portugal address both new challenges such as the recovery from the COVID-19 crisis, and long-lasting ones such as low productivity growth. During the COVID-19 crisis, businesses have increasingly turned to digital tools, such as e-commerce and teleworking, to maintain and expand economic activity. Going forward, the adoption of digital technological and organisational innovations can unlock the potential for productivity growth from low and declining levels.

However, the digital transformation risks exacerbating pre-existing socio-economic inequalities. Like in most OECD countries, small firms are lagging behind larger ones in the adoption of new technologies. The relative slow diffusion of digital technology in the economy has likely deepened the productivity gap between firms and across sectors. The COVID-19 crisis created new business opportunities that only digitally enabled firms could seize and increased the penalty of delays in the adoption of digital tools. Digitalisation is also transforming the labour market by reducing job opportunities for low and middle skilled workers with jobs at high risk of automation.

Against this background, broad-based policies should aim at getting the most out of digitalisation, lifting capabilities and sharpening incentives to adopt new technologies, while limiting the rise in inequalities it might generate. After presenting the main opportunities and challenges of the digital transition, the chapter will propose policy avenues to achieve these objectives. It will first present policies to improve access to communication infrastructure and e-government. It will then discuss measures to equip citizens with adequate skills to thrive in digitalisation. Finally, it will propose options to remove barriers for SMEs' digitalisation.

Portugal needs to accelerate the digital transition

The digital transition can foster resilience and growth, but risks increasing inequalities

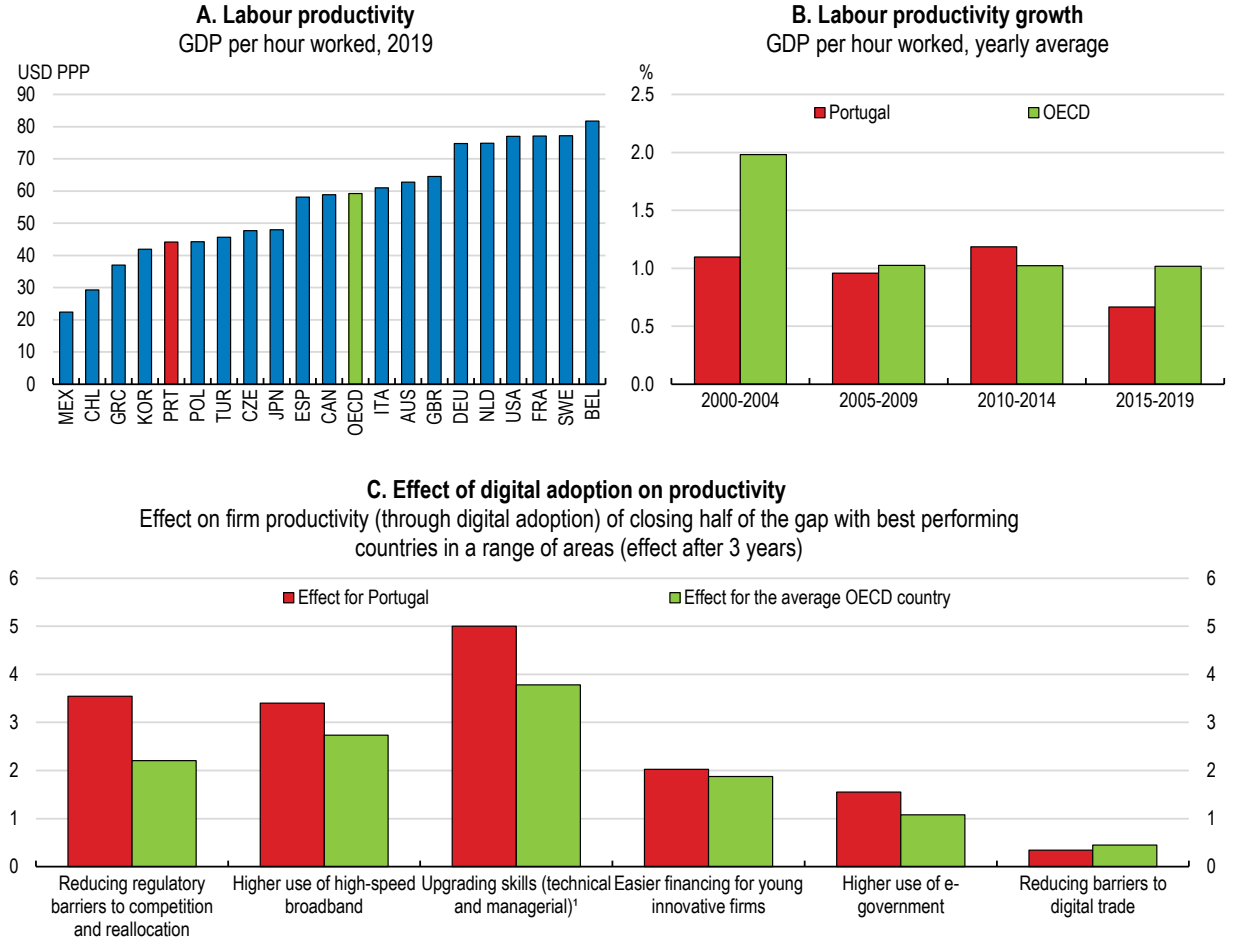
Digitalisation is one of the major global trends of this century. It has accelerated in response to the major economic crisis the COVID-19 pandemic triggered in 2020. Digital technologies have helped to organise policy responses to the pandemic (i.e. provision of online information and advice to the public, allocation of patients across hospitals) and to adapt economic activity to containment measures (i.e. teleworking, online sales). In this context, delays in adopting digital technologies likely undermine economic resilience and competitiveness. It is thus crucial that policy makers ensure that all citizens and firms have access and can use digital tools.

The digital transformation can be an important productivity growth driver for Portugal. Productivity growth has been weak over the past two decades, with a marked slowdown since the global financial crisis, undermining improvements in living standards (Figure 2.1, Panel A and B). A recent OECD empirical study shows that policies that stimulate the adoption of digital technologies can increase productivity significantly (Figure 2.1, Panel C).

Digital technologies enable new business models and opportunities for innovation, with the digitalisation of final products and services and of business processes (OECD, 2020a). They can increase competition pressures to reduce costs. Digital technologies also have complementarities that boost each other's positive impacts (Gal et al., 2019). Productivity increasing technologies, robots in particular, can compensate for the negative impact of a declining and ageing workforce, that is particularly pronounced in Portugal (see Chapter 1) (Acemoglu and Restrepo, 2020; OECD, 2019a). Digitalisation can also boost the innovative capacity of Portuguese firms, by bringing in new process and practices of innovation, for instance with the use of big data analytics, new simulations techniques, and market platforms for commercialisation (OECD, 2020a). Empirical evidence suggests that using advanced technologies can double the odds of reporting innovations (Galindo-Rueda, Verger and Ouellet, 2020). Portugal ranks as "Moderate Innovator" according to the 2021 European Innovation Scoreboard which assessed the national

innovation systems, scoring particularly well on basic conditions for innovation in terms of the attractiveness and internationalization of the research system (European Commission, 2021). However, as discussed below there is room to improve innovative capacity of Portuguese firms further.

Figure 2.1. Digitalisation can help strengthen Portugal's poor productivity performance



Note: 1. Average of peer countries Greece, Italy and Spain.
Source: OECD (2021), Productivity Database; Sorbe, et al. (2019) Digital Dividend: Policies to harness the potential of digital technologies, Economic Policy Papers, 26, https://doi.org/10.1787/273176bc-en.

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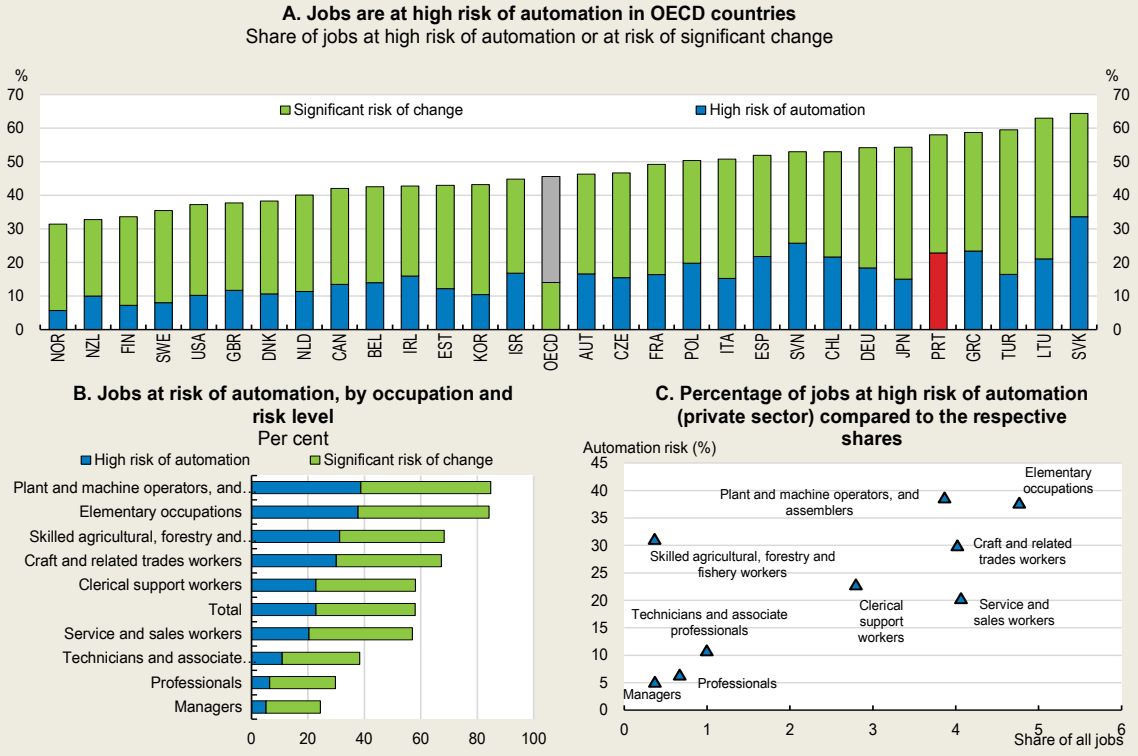
Digitalisation significantly transforms the labour market, changing skills requirements and inducing large job reallocations in the economy (OECD, 2019a and 2019b). Digital technologies, such as artificial intelligence, allow for the automation of jobs and tasks that require low-level, routine skills. Across OECD countries, 14% of current jobs are at high risk of becoming fully automated, and more than 30% of current jobs will change significantly over the next 10 to 20 years (OECD, 2019c; Quintini and Nedelkoska, 2018; Box 2.1). In Portugal, job automation could affect 20% to 25% of the total numbers of jobs, especially in manufacturing and commerce (Nova SBE and CIP, 2019). The COVID-19 crisis may accelerate the automation of jobs as employers are likely to start looking for more technology-intensive solutions to strengthen their capabilities of withstanding similar future shocks (Espinoza and Reznikova, 2020).

Box 2.1. Job automation risks in Portugal

The risk of job automation over the next 10 to 20 years is found to be relatively high in Portugal (Figure 2.2, Panel A). Estimates suggest about one out of four jobs in the private sector are at high risk of automation (i.e. more than 70% of tasks in these jobs are automatable). This is one of the highest shares among all countries and well above the OECD average (14%). 35% of jobs may experience a significant change in tasks (i.e. have between 50 and 70% of automatable tasks), close to the OECD average (32%).

Figure 2.2. Estimates point to large automation risks



Note: Data for Portugal have been estimated based on the average automation risk probabilities for the peer countries, Greece, Italy and Spain, applied to the occupational structure (ISCO08-2-digits) of Portugal.
Source: OECD calculations based Quintini and Nedelkoska (2018), Quadros de Pessoal database (2018).

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There are large disparities in automation risks by skill level. Jobs in occupations with low skill requirements, such as plant and machine operators, and assemblers, are more at risk (Figure 2.2, Panel B). Workers in elementary occupations that account for about 5% of total employees in the private sector are highly exposed (Figure 2.2, Panel C). The risk of automation also varies across regions, between 54% in the Metropolitan Area of Lisbon and 62% in the region of Alentejo.

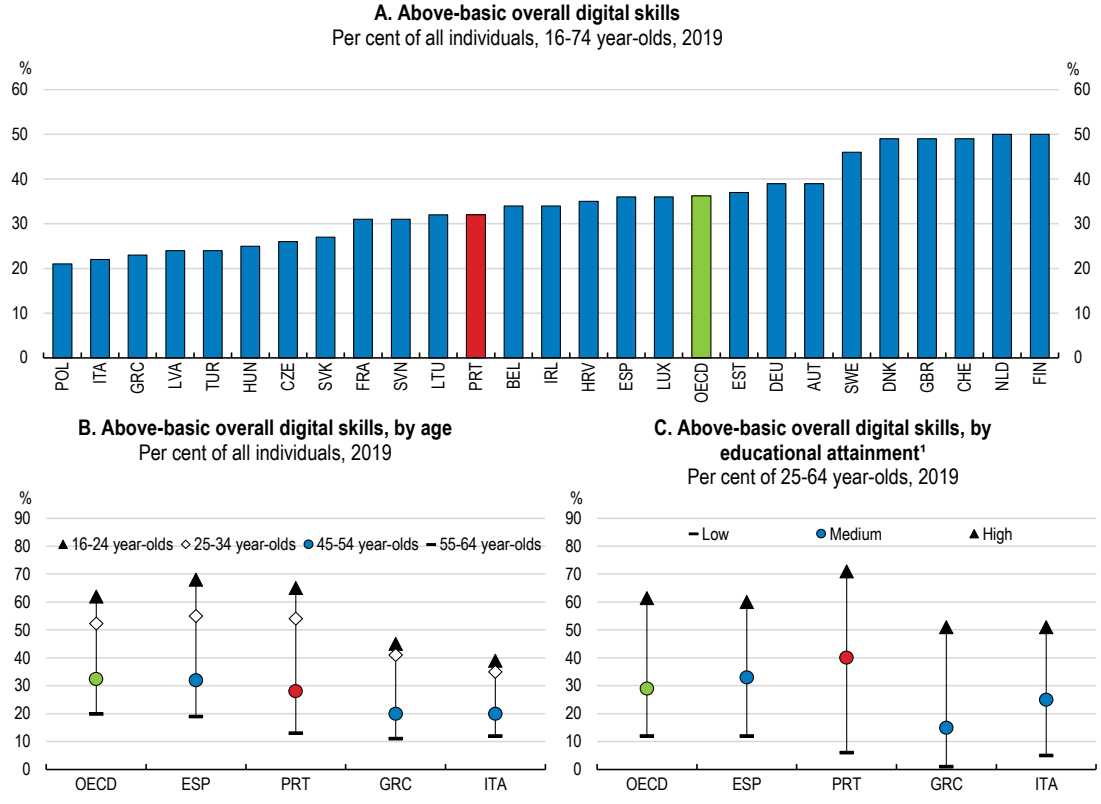
Estimates are based on the methodology used in Quintini and Nedelkoska (2018). Using the share of automatable tasks within each occupation, they estimate the share of jobs at high and moderate risks of automation for most OECD countries, based on country-specific jobs' task-content surveyed in the OECD Survey of Adult Skills (PIAAC). Such data are not available for Portugal, which is not covered in PIAAC. For Portugal, automation risks are calculated by using the average of automation probabilities per occupation of peer countries (Greece, Italy and Spain) and applying them to the occupational distribution of individuals employed in the private sector in 2018 (extracted from the Quadros de Pessoal database).

Like in all OECD countries, the digital transformation of the labour market risks accentuating pre-existing inequalities in Portugal. People with the lowest educational qualifications, who are more at risk of being unemployed, work in jobs that are at greater risk of being automated (Arntz, Gregory and Zierahn, 2016). Digitalisation has already contributed to the polarisation of the labour market and the continued up-skilling of job profiles (OECD, 2018a). Going forward, middle-skilled automatable jobs can be replaced by new jobs in emerging occupations with relatively high skills requirements, such as systems developers, cloud computing specialists, transport network engineers, medical device consultants, data analysts, and electrical engineers for smart grids (OECD, 2019a; Autor, 2015; Autor and Salomons, 2017). Digitalisation also risks deepening regional disparities, as regions with a relatively high share of jobs at risk of automation are also those with less digital intensive sectors.

A large share of the population lacks digital skills

A significant share of the Portuguese population is not equipped to thrive in a digitalised world. By international norms, the educational attainment level is relatively low and the percentage of people with general digital skills (basic or above basic) is below the OECD average, with very large discrepancies across groups. The lack of above-basic digital skills is particularly pronounced among the low educated and the elderly, while the share of young people with above-basic digital skills is high (Figure 2.3). This explains the relatively low take up of digital technologies. Around one out of five Portuguese did not have Internet at home in 2019 and less than 80% used internet in the last 12 months (Figure 2.4, Panel A). In addition, among Internet users, only a minority uses it for a large range of activities and the take up of online services (i.e. banking, e-commerce, job search) is low by international norms (European Commission, 2020a).

Figure 2.3. Adult digital skills are below average



Note: 1. Low education refers to level 0-2, medium education to level 3-4 and high education to level 5-8 of the ISCED-A 2011 classification.
Source: Eurostat (2021), Individuals' level of digital skills.

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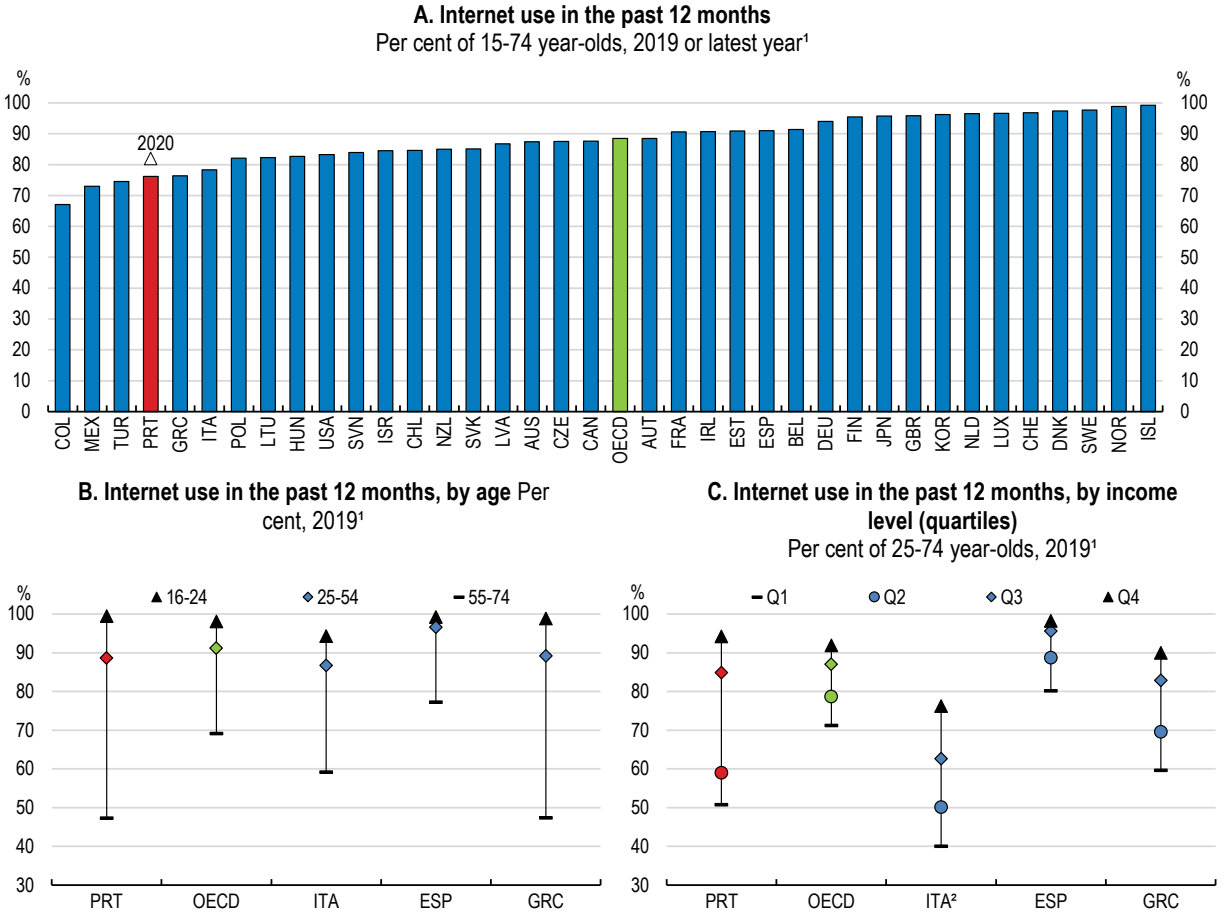
Reflecting differences in digital skills, disparities in Internet access and use by income and age are large (Figure 2.4, Panels B and C). While 94% of the richest people had used the Internet over the past year in 2019, only 50% of the poorest did so, the second largest gap in the OECD. Older people are also less likely to use Internet, with only 38% of users among retirees in 2019. Advanced population ageing in Portugal only partly explains low Internet penetration, as countries with a similar demographic profile fare much better as regards Internet use (i.e. Finland, Germany). This likely reflects low educational attainment levels in the old age population. Disparities across regions are also large by OECD standards, with broadband penetration ranging from 89% in the Lisbon region to 77% in Alentejo in 2020, reflecting differences in demographics and broadband coverage.

In 2020, in response to physical distancing rules, the use of online services accelerated significantly, but remained below the OECD average (Figure 2.4, Panel A for internet use). The percentage of Internet and e-commerce users increased by three and seven percentage points respectively, among the highest annual increases over the last decade (INE, 2020). Following school closures, online communication through educational portals and the uptake of online courses more than doubled (reaching around 31% and 18% in 2020 respectively). Finally, the gap between high and low-income people in Internet use has declined, but remained among the highest in the OECD.

Figure 2.4. Disparities in Internet use are large



Note: 1. Data for Israel and the United States refer to the Internet use in the past 3 months. 2. Data for Italy refer to 2013.
Source: OECD (2021) ICT Access and Usage by Households and Individuals (database).

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Firms' uptake of digital tools remains uneven

Before the pandemic, the uptake of digital technologies by many Portuguese firms had been slow and uneven, reflecting and contributing to the limited use of digital technologies by the population. While Internet penetration has been high, with 41% of firms connected to high-speed broadband network in 2019 (increasing further to 60% in 2020), the adoption of other ICT tools has remained well below the OECD best performing countries (Figure 2.5, Panel A; Box 2.2). The structure of the economy plays a role in this slow adoption. Digital intensive sectors, especially the information and communication sector, account for a small share of the economy (respectively 18.7% and 3.5% of total value added in 2019, compared to 22% and 5.2% respectively on average in the EU).

The high prevalence of micro-firms in the Portuguese economy also plays a role in the technology gap. SMEs lag behind large firms across all technologies, as in other OECD countries (Figure 2.5, Panel B). Disparities by firm size have been persistent and even increased for the same technologies. They are large for the adoption of basic tools, such as having a website, or tools that are found to have a positive impact on firms' performance, and are important for the use of other IT technologies. In particular, SMEs have not caught up to large firms for the adoption of cloud computing. This is unfortunate as cloud computing services are essential for many data-intensive applications and offer firms flexibility by limiting costly investment in large IT infrastructure (Gal et al., 2019).

Box 2.2. ICT tools and technologies

Digitalisation is defined as the use of digital technologies and data as well as their interconnection that results in new activities or changes to existing activities (OECD, 2019d). Digital technologies are very diverse, from basic to more advanced ones. They include:

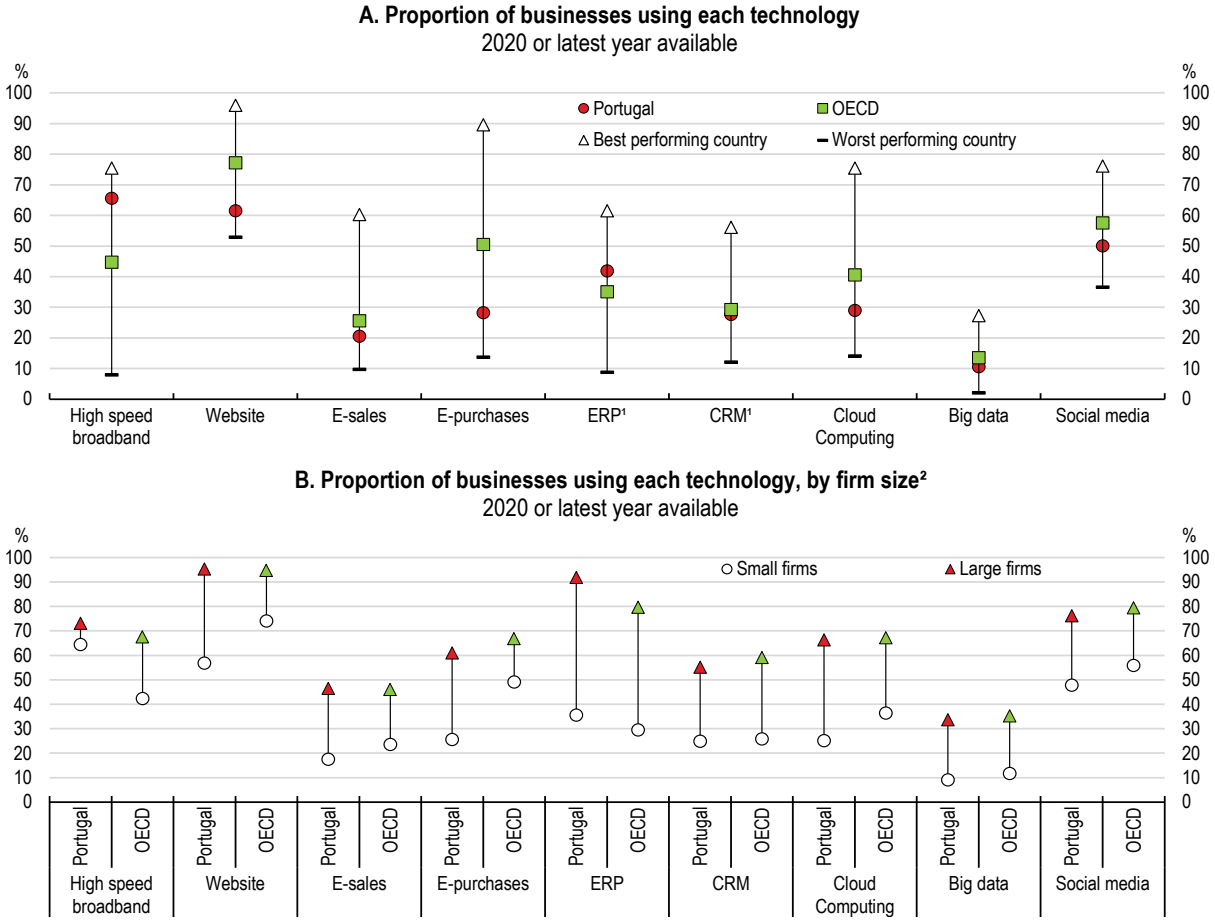
- Basic ICT tools such as broadband and websites that enable firms to digitise information and establish a presence online.
- Tools like Customer relationship management (CRM) software and Enterprise Resource Planning (ERP) that enable firms to digitalise and optimise processes. CRM tools allow firms, through intensive use of ICTs, to collect, integrate, process and analyse information related to their customers. ERP allows firms to benefit from a higher integration of information and processing across their various business functions.
- Cloud computing, which refers to ICT services used over the Internet as a set of computing resources to access software, computing power, storage capacity services. It is useful for advanced process optimisation and for many data-intensive applications in firms.
- Big data analysis that encompasses the use of techniques, technologies and software tools for analysing big data. This, in turn, relates to the huge amount of data generated from activities that are carried out electronically and from machine-to-machine communications.
- Social media, which refer to applications based on Internet technology or communication platforms for connecting, creating and exchanging content on line with customers, suppliers or partners, or within the enterprise.

Source: (OECD, 2020a).

Disparities in the digital uptake, across different technologies and across firms, might have put a drag on productivity growth in Portugal by increasing productivity dispersion between best-performing firms and less productive ones, like in the average OECD country (Sorbe, Gal and Millot, 2018). The productivity gap between Portugal and comparable countries has been substantially larger for small firms (OECD, 2019e). For instance, the average labour productivity level of micro-firms in manufacturing amounts to about only

a fourth of the average productivity in benchmark countries, less than half the level seen in large firms. It is thus crucial that policies continue to address barriers to enable SMEs to embrace digitalisation.

Figure 2.5. Technology uptake by firms is limited, particularly in small firms



Note: 1. CRM stands for Customer Relationship Management software and ERP for Enterprise Resource Planning software. 2. Firm size is defined as small firms (10-49 employees) and large firms (over 250 employees).
Source: OECD (2021), ICT Access and Usage by Businesses database.

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The COVID-19 crisis has accelerated some changes in firms' business models

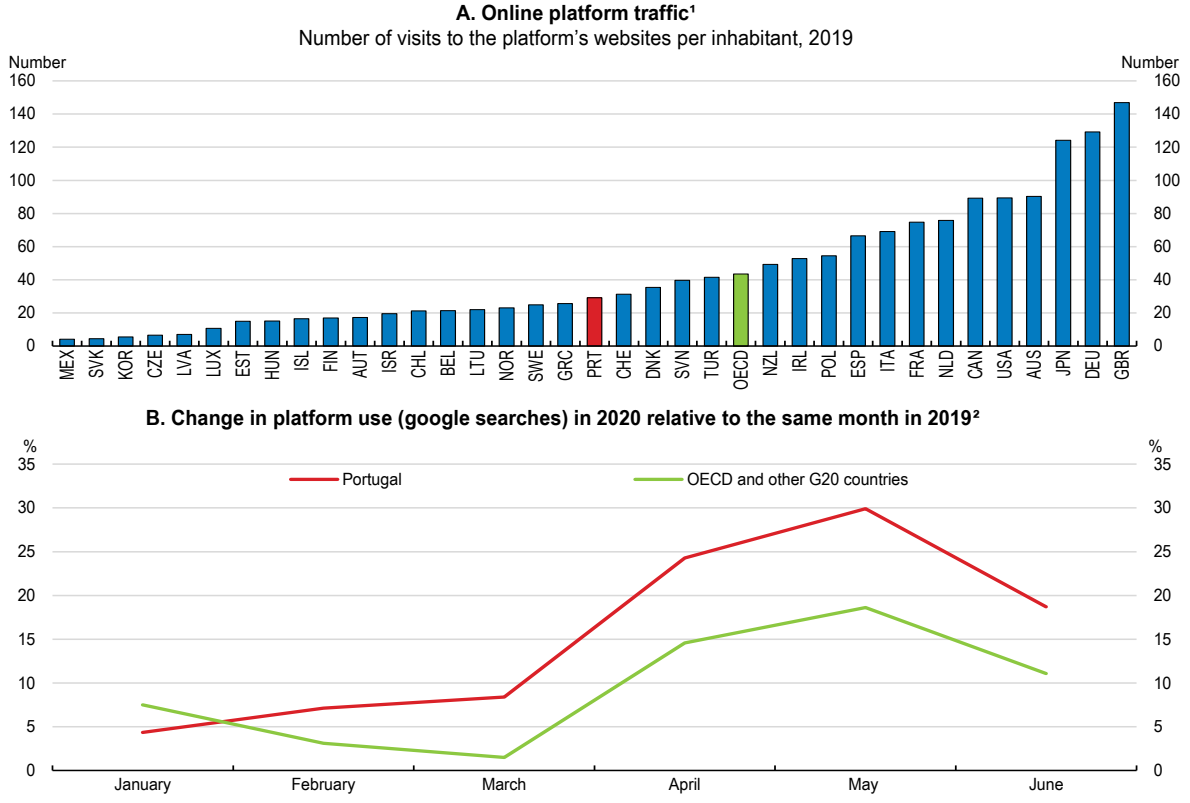
Before the pandemic, digital organisational innovations, such as e-commerce or teleworking, were not widely used in Portugal. In 2019, only 11% of firms had a website allowing for online ordering or booking and 17% received orders through computers. Over the past decade, the development of e-commerce was faster in some sectors (e.g. accommodation and food) than in others, with retail and wholesale trade lagging behind. Furthermore, the gap between large and small firms selling through e-commerce has widened considerably. In 2017, more than half of online business-to-business purchases in Portugal were made to foreign countries, the highest share in Europe (ACEPI, 2017).

The COVID-19 crisis accelerated the adoption of e-commerce, as firms tried to deal with containment measures (i.e. physical distancing measures) and maintain their economic activity (ACEPI, 2020). About 21% of firms used e-commerce in 2020 (from 17% in 2019). The government strengthened public support to e-commerce by ramping up the program, *Comércio Digital,* launched in 2019 with the objective to reach 50 000 SMEs. It includes incentives for businesses to set up a webpage (voucher "3 em 1" for free website registration, webmail access, and tools for website creation), the creation of a quality stamp for online

businesses to increase consumer trust ("Selo de Confiança"), and online courses to increase the knowledge of various tools available for digitalisation ("Academia do Comércio Digital"). The registration of websites under this programme tripled since the beginning of the pandemic. The share of SMEs using e-commerce increased to 18% (from 14%) converging to the EU average and the total turnover from e-commerce sales in SMEs reached 16% in 2020 (from 15% in 2019), the fourth highest among EU27 countries.

Selling through online platforms eases e-commerce by providing firms with tools they would not necessarily have access to, such as rating systems and online payment systems. Online platform diffusion is also associated with productivity growth for traditional firms, especially for SMEs (Costa et al., 2021). In Portugal, online platforms are less used than in the average OECD country (Figure 2.6, Panel A), reflecting that a relatively low share of the population shops online. In 2019, a relatively low number of firms used e-commerce marketplaces (Eurostat, 2020a). At the same time, a growing interest of Portuguese consumers for platforms indicate new market opportunities for Portuguese firms (Figure 2.6, Panel B).

Figure 2.6. The crisis has increased interest in platforms



Note: 1. The following activity areas are considered: accommodation, marketplace to consumers, marketplace b2b, mobile payments, personal services, professional services, restaurant booking, restaurant delivery, and taxi. 2. The following activity areas are considered: mobile payments, marketplace to consumers, professional services and restaurant delivery.
Source: Panel A: Costa, H. et al. (2021) Welcome to the (digital) jungle: a new cross-country measure of online platform diffusion; Panel B: OCDE (2021), « The role of online platforms in weathering the COVID-19 shock », OECD Policy Responses to Coronavirus (COVID-19), OECD Publishing, Paris, https://doi.org/10.1787/2a3b8434-en.

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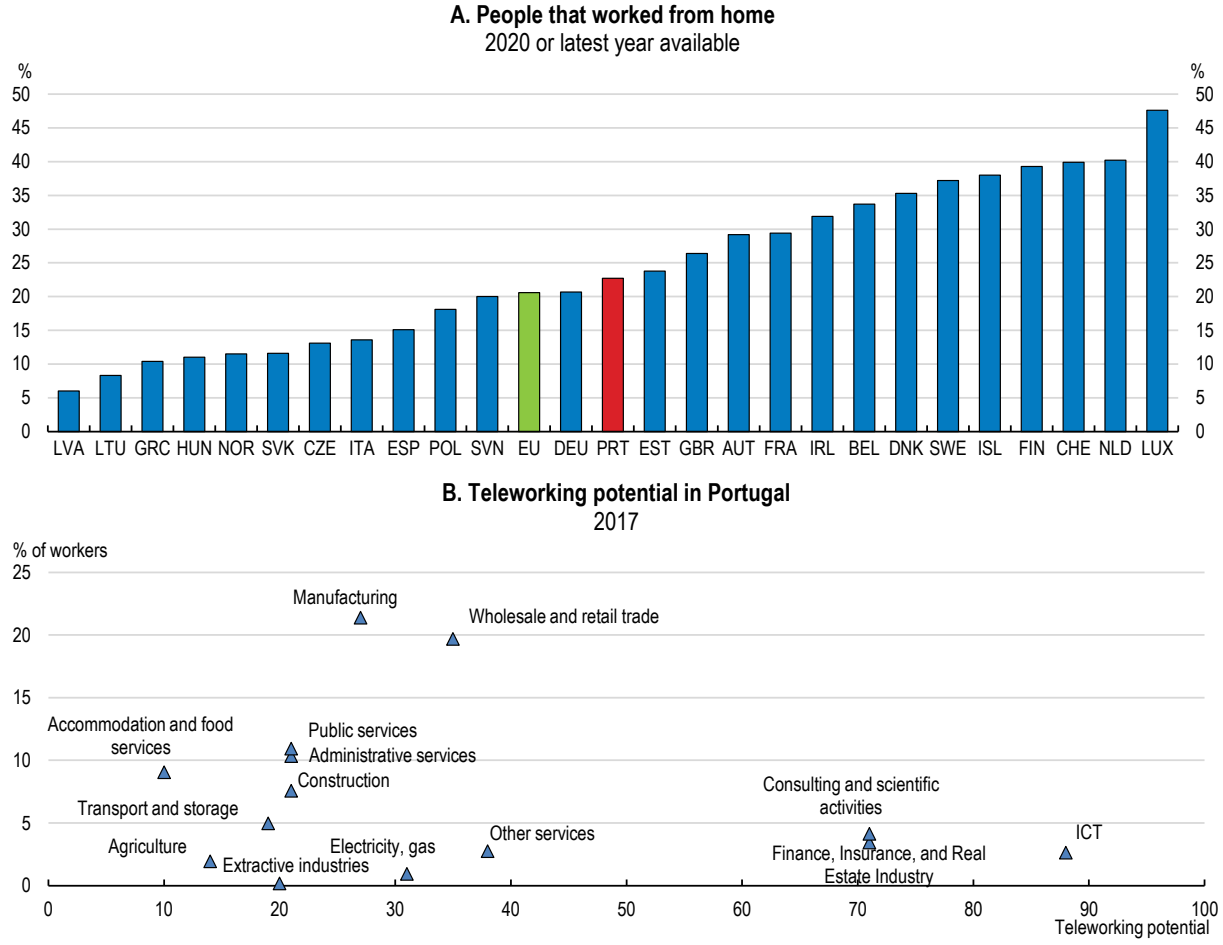
The pandemic triggered a rise in teleworking. In 2019, less than 40% of employees used a computer with Internet access at work and teleworking was used by 16% of the employed persons despite having increased significantly since 2010. In 2020, around 23% of people have worked from home at least once during the year (Figure 2.7, Panel A). The potential for teleworking is estimated to be limited in several

sectors, with 64% of employees having a low or very low teleworking potential (Martins, 2020; Figure 2.7, Panel B). At the same time, teleworking potential is deemed higher in Portugal than in other OECD countries, such as France, Spain or Italy (ILO, 2020a). Updated regulation on remote work conditions has been put forward in 2021 after negotiations with the social partners.

Figure 2.7. Teleworking has increased significantly, but its potential is uneven across sectors



Note: Panel A shows the percentage of people (employed or self-employed) who have worked from home at least once during the reference year (calculated as 100 minus the percentage that has never worked from home).
Source: Eurostat (2021); Martins, P O potencial do teletrabalho em Portugal, Ensaios do Observador, https://observador.pt/especiais/o-potencial-do-teletrabalho-em-portugal (accessed on 19 December 2020).

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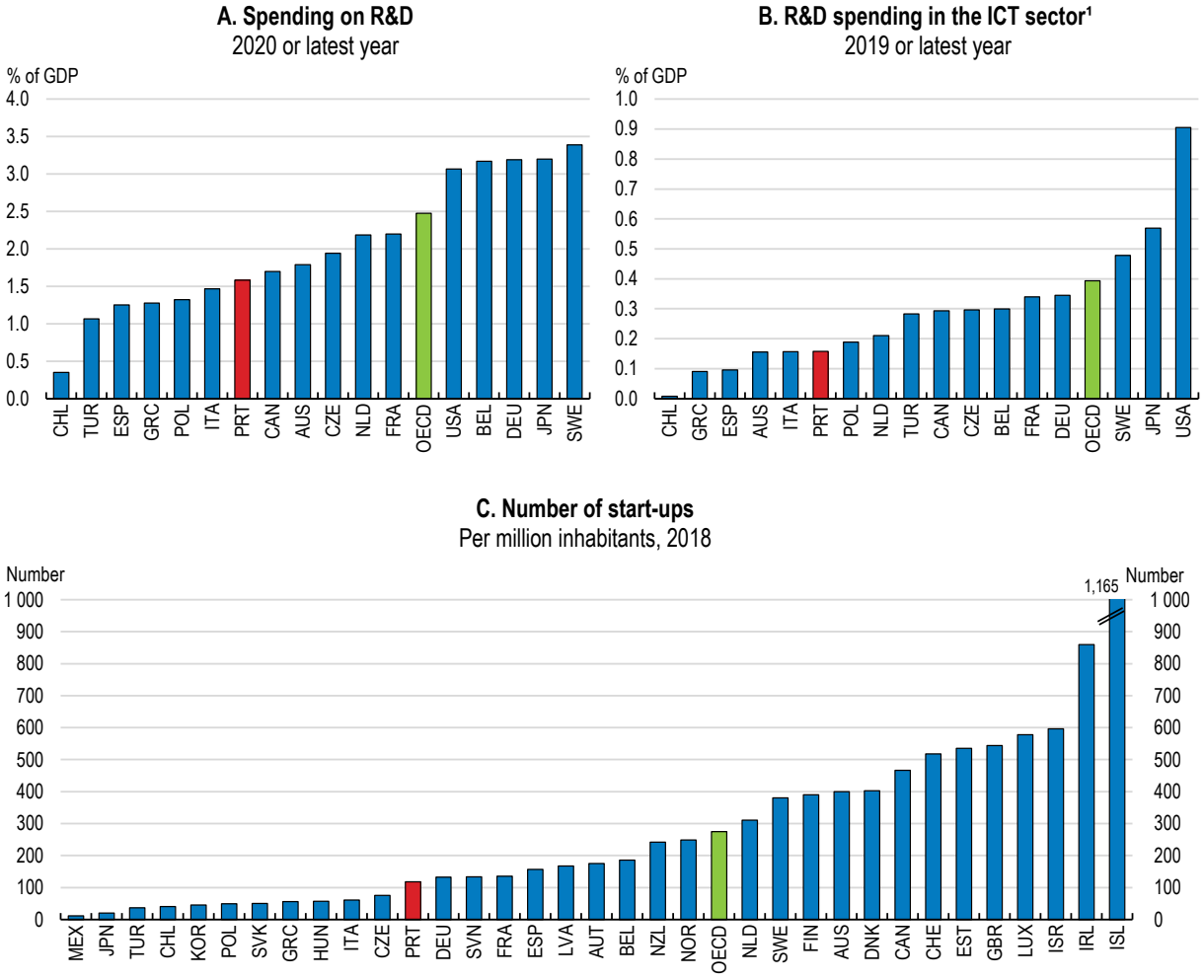
The COVID-19 crisis can exacerbate existing gaps in digital innovation

Research and development (R&D) is important in driving advances in the uptake of digital technologies. Firms in the ICT sectors are among the most R&D intensive firms in Portugal. The share of business having either introduced an innovation or have any kind of innovation activity in the ICT sectors, is large by international standards (OECD, 2020a). The number of PhD graduates and researchers has picked up, the latter growing by 30% since 2015. However, despite strong increases since 2015 (from 1.2% of GDP to 1.6% in 2020), R&D expenditure has remained relatively low, especially in ICT sectors (Figure 2.8, panels A and B). Only around 15% of patents and 20% trademarks patents were ICT related over the period 2014-17, well below the 30% OECD average (OECD, 2020a). Furthermore, R&D spending in the ICT sector has stagnated despite growth opportunities, including in artificial intelligence or cybersecurity. Going forward, the pandemic risks limiting the available resources for business research and exacerbating

existing gaps in business research and innovation activities between “leading” and “laggard” sectors, large and small firms, and geographical areas (OECD, 2021a). At the same time, Portugal’s Recovery and Resilience plan, European Structural Investment Funds through the Multiannual Financial Framework 2021-27 and Centralized EU funds through the new European Research and Innovation Framework for 2021-27 are expected to support the government objective to raise R&D spending to 3% of GDP by 2030.

Figure 2.8. Innovative activities remain below the OECD average



Note: 1. ICT sector refer to ISIC Rev.4 categories 26 and 58-63. OECD excludes Colombia, Luxembourg, Mexico, New Zealand and Latvia.
Source: OECD (2021), ANBERD (database) and MSTI (database); Ministro Da Ciência, Tecnologia E Ensino Superior; Crunchbase and World Bank (2021).

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Innovative start-ups are other key drivers for digital innovation and diffusion (Lassébie et al., 2019). In particular, digitally enabled start-ups can provide solutions to adapt to the pandemic, including innovations in tele-medicine, remote personal care, medical equipment, home delivery, teleworking, online education, and contact tracing. Portugal’s start-up ecosystem gained momentum in recent years, with major hubs in Lisbon, Porto, Braga, and Coimbra (EIT Digital, 2020a). Since 2016, Lisbon hosts the Web Summit, one of the biggest tech conferences worldwide, with a significant positive impact on the economy (Cerejeira, 2018). Innovative start-ups have contributed to 1.1% of GDP in 2018, compared to 0.7% in 2016 (Start-up Portugal, 2019) and six Portuguese start-ups have recently achieved the unicorn status, i.e. are valued over USD 1 billion. Nevertheless, the start-up ecosystem can be further developed. The number of start-ups is still below the OECD average and a relatively large majority remains early stage ventures

(Figure 2.8, Panel C). While the COVID-19 crisis has provided opportunities for digital innovative firms, start-up creation has declined during the first phase of the pandemic (EIT Digital, 2020a). The crisis can undermine their survival and growth prospects, not least by reducing available financing sources (see Chapter 1).

A successful digital transition hinges on the effective implementation of the Action Plan for Digital Transition

To seize the opportunities and ensure that everyone benefits from the digital transformation, OECD countries need a national strategy that ensures policy coherence and tackles multiple barriers to the digital transformation (OECD, 2020b). However, Portugal has a vast range of measures that lacked coordination in the past (Box 2.3). The digital transition is now under the responsibility of the Minister of State, Economy and Digital Transition, with political coordination ensured by the Secretary of State for the Digital Transition. It is also welcome that an Action Plan for Digital Transition, approved in April 2020, aims at identifying priorities and creating synergies between different initiatives. A task force "Portugal Digital" is in charge of coordinating and monitoring the 57 initiatives defined in the Plan, but implementation will be challenging. In particular, data that are crucial to assess progress and to orient policy action still need to be collected.

Effective implementation of the Digital Transition Action Plan and on-going programs, such as Incode.2030, using available EU funds can contribute significantly to the digital transition. A successful strategy requires a clear timeline for implementation, quantifiable targets with related indicators to monitor progress, and a long-term budgeting strategy to ensure continuity of well-performing initiatives. Providing the coordination entity with a budget to incentivise co-operation among different actors can also be envisaged (OECD, 2020b). As discussed in Chapter 1, improving the management of public funds will also be crucial to get the most out of the EU funds, including those provided for the implementation of the Recovery and Resilience Plan that is set to dedicate EUR 3.7 billion to the digital transition (around 2% of 2020 GDP).

Box 2.3. Main initiatives promoting the digital transition

Building up on a digital society has been high in the Portuguese agenda for some time, with a range of policy plans (e.g. the Digital Portugal Agenda in 2015, the ICT Strategy 2020 in 2017, and the Action Plan for Digital Transition in 2020). Main on-going initiatives include:

- The Strategy **Industry 4.0** aims at promoting a fast and generalised uptake of digital technologies in the industry. Its first phase launched in 2017 focused on raising awareness. Its second phase launched in 2019 aims at developing training and offering financing options for investment in digital equipment.
- The national initiative on digital skills, **INCoDe.2030,** aims at broadening digital literacy, promoting employability and professional training in digital technologies and raising participation in R&D networks (see Box 2.5).
- The **Digital Commerce Programme** (*Comércio Digital*) aims at developing digital marketing in 50 000 SME by 2021. It includes a platform to share best practices, the provision of vouchers for training, free website, mailbox, and website accreditation.
- The SIMPLEX Programme for the simplification and modernisation of the public administration is based on a bottom-up approach for the identification of stakeholders' needs and expectations, including for the development of the digital government.
- Other national initiatives that include an important digital dimension comprise the Strategy for State and Public Administration Innovation and Modernisation 2020-2023, the Strategy of Technological and Business Innovation 2018-2030, Artificial Intelligence Portugal 2030, and

Advanced Computing Portugal 2030. Initiatives for the digital transformation in healthcare are detailed in Box 2.4.

Under the Portuguese Presidency of European Council important achievements regarding the digital transformation have been agreed upon, such as, the e-Privacy Regulation, the EU Start-up Nation Standard of Excellence (Ministerial Declaration), the European Data Gateways as a key element of the EU's Digital Decade (Ministerial Declaration) and the Green and Digital Transformation of the EU (Ministerial Declaration). Likewise, relevant progress has been made on other digital files, such as the Digital Services Act and the Digital Markets Act. The Portuguese Presidency encompassed also a number of initiatives to promote the digital transformation at the EU level, such as the Lisbon Declaration, which includes a framework of digital rights.

Securing a safe and high-quality digital environment for all

Providing affordable access to high-quality communication infrastructure

Affordable and high-quality fixed and mobile broadband is a prerequisite for the digital transition. It is paramount to develop data-driven activities, for cloud computing, and data-intensive applications (i.e. industry automation, medical imaging). High-speed broadband encourages the adoption of digital tools as cross-country evidence shows that firms that have access to high-speed broadband tend to adopt more ICT tools and engage in digital activities (Andrews, Nicoletti and Timiliotis, 2018).

The demand for high-speed broadband communication services such as online education, teleworking, and communication services (TV over the Internet, instant messaging, video calls) has increased during the pandemic. In 2020, average fixed traffic per line increased by almost 50%, and average mobile data by user increased by around 27%, compared with 2019. In the more critical period of the COVID-19 crisis, tests by customers of the quality of Internet service surged, indicating increasing attention to the quality of services. Going forward, the development of digital technologies will increase data intensity (Cisco, 2018), and thus will require high quality broadband networks. Policies and regulatory measures that seek to promote investment and reduce obstacles to infrastructure deployment will be key for an inclusive and successful digital transformation.

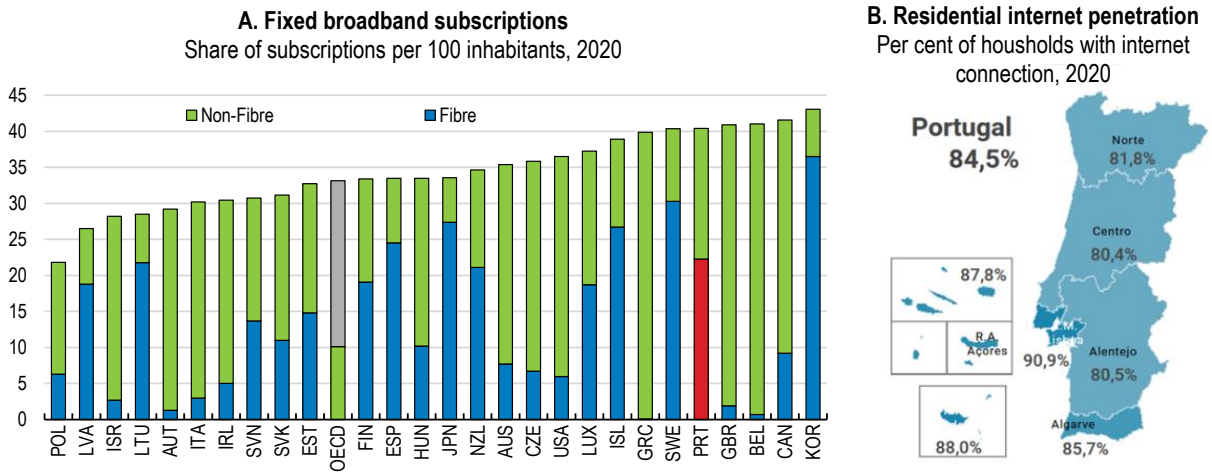
Portugal's communication infrastructure is well developed with fast and ultrafast broadband connectivity in most areas. In 2019, fast broadband and fixed very high capacity network covered 83% of the households (European Commission, 2020a). The take up of fixed broadband has increased fast and the number of fixed broadband subscriptions has reached high levels by international norms (Figure 2.9). The share of high-speed fixed broadband subscriptions (above 100 Mbps) in total subscriptions is among the highest in the OECD, reaching around 80%, compared to less than half on average in the OECD.

Investment in high-speed fixed broadband must keep its momentum, while increasing focus in remote areas. In 2018, around 67% of households in rural areas had access to high-speed fixed broadband (minimum 30 Mbps), above the EU average of 53%, but still lagging best performing countries (OECD, 2020a). In addition, fibre to home connections account for around half of subscriptions and needs to expand further to increase the quality of services.

There are only few regulatory barriers to fibre deployment in Portugal. Like in France and Spain, all operators can have access to civil engineering (ducts, poles, masts, street cabinets etc.). Transparency on existing infrastructure is high, thanks to a centralised information system. Nevertheless, lengthy administrative procedures – mainly from municipalities – to access public property, to obtain the way rights and construction permits can delay infrastructure investment. This calls for harmonising and improving coherence in the rules and requirements to access infrastructure at the municipal level.

Expanding coverage in rural areas requires public intervention when not attractive for private operators, given deployment costs and uncertainty on future investment returns. The creation of a "Connectivity Working Group" in October 2021 tasked with analysing the existing needs in the national territory regarding the coverage of fixed and mobile networks, as well as the availability of public funding funds, in particular from the European Union, and private funds for investment in connectivity infrastructures is a welcome step. EU funds should be used to support local initiatives for fibre deployment in rural areas following identified best practices (European Commission, 2020b; OECD, 2018b). Finally, when transposing the new European Electronic Communications Code, Portugal should also envisage changes to its regulatory framework to encourage fibre deployment, like done in the UK.

Figure 2.9. Connectivity to fixed broadband is good, with some regional disparities



Source: OECD (2020), Broadband Portal, http://www.oecd.org/sti/broadband/broadband-statistics/; INE, Inquérito à Utilização de Tecnologias da Informação e da Comunicação pelas Famílias, 2019-2020.

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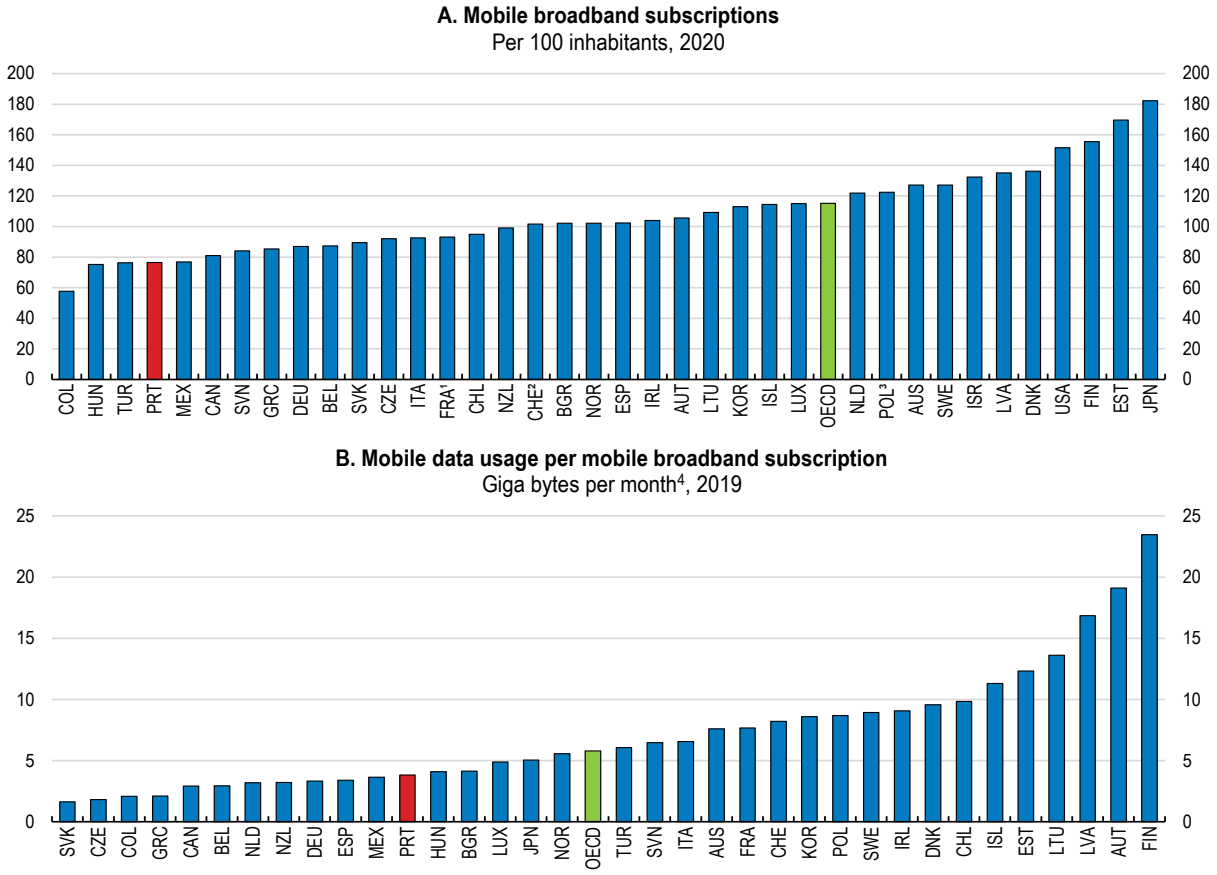
Mobile broadband constitutes an alternative in areas where fixed connection is not good or non-existent, like rural areas, and thus can play a role in decreasing inequalities in broadband coverage across different regions. However, the uptake of mobile broadband in Portugal remains low by international norms. Mobile broadband subscriptions per 100 inhabitants and data use by mobile broadband subscriptions are around 30% lower than the OECD average (Figure 2.10).

Mobile network performance measured by the average download speed and 4G availability is below the OECD average, according to speed tests (42 Mbps) (Speedtest, 2020) and (26.3 Mbps) (OpenSignal, 2020). In 2018, more than 5% of households living in rural areas did not have 4G mobile coverage, one of the highest shares in the OECD (OECD, 2020a). Existing deficiencies of mobile networks in coverage and capacity are particularly acute in low-density areas and the Autonomous Regions of the Azores and Madeira.

Deployment of 5G has been lagging behind other OECD countries. In November 2021, 32 out of 38 OECD countries offered 5G commercial services, but not mainland Portugal. Multiband auctions, initially planned for spring 2020, started in December 2020, and have been completed in October 2021, after 1,727 rounds and significant delays. The regulator offered reduced fees to speed up infrastructure investment and imposed, on the future holders of frequency rights of use, 4G coverage obligations, especially in low-density areas, as well as 5G network development obligations. Two suppliers entered the retail market, but with a relatively low share of the auctioned rights.

Figure 2.10. The use of mobile broadband lags behind



Note: 1. Data for France are active subscriptions that have only made 4G connections in the last three months are not included. 2. Data for Switzerland are preliminary. 3. Data for Poland are OECD temporary estimates. 4. The multiplier 1024 is used to convert TB into GB; the total amount of GB is divided by the yearly average number of Mobile broadband subscriptions.
Source: OECD (2021), Broadband Portal, http://www.oecd.org/sti/broadband/broadband-statistics/.

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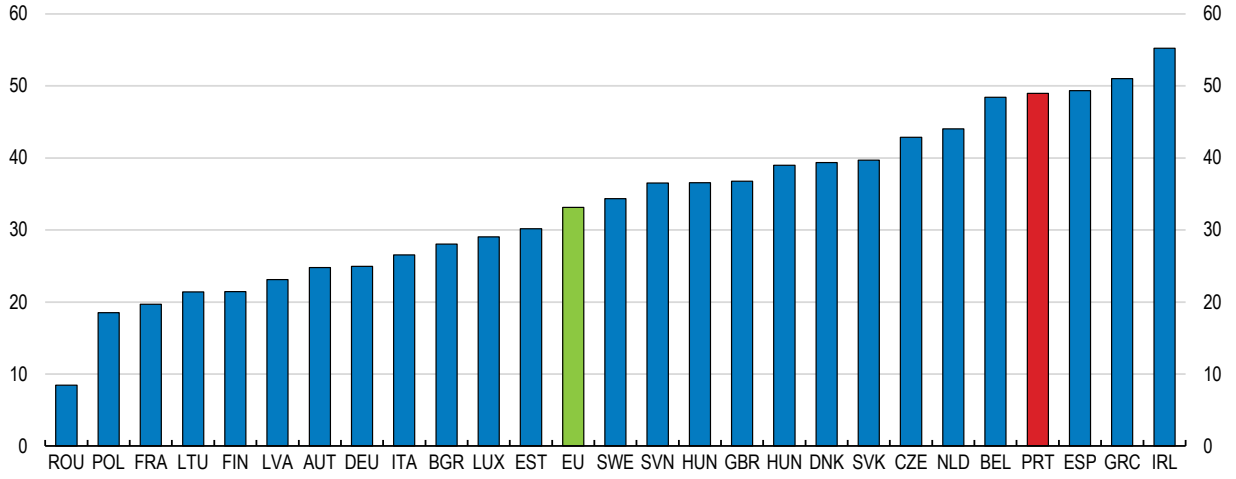
While they stand around the EU average for some services, prices of electronic communications are relatively high in Portugal overall (Figure 2.11; ANACOM, 2020a; empirica/TÜVRheinland, 2020). This might partially explain the relatively low take up of mobile services and the large gap for Internet penetration by income level: only around half of the poorest households had a fixed broadband connection at home in 2019. A social tariff for broadband will be in place starting January 2022. Nevertheless, underlying causes for high price levels should be investigated further. Competition issues in the telecommunication sector certainly play a role, suggesting market forces could help to improve affordability of broadband.

Competition can spur investment and drive up the quality and speed of broadband, including of the underserved population groups (OECD, 2020a). However, competition pressures are relatively low in Portugal. The telecommunication markets are concentrated with three operators holding significant market shares (Figure 2.12). Profit margins are high compared to other European countries (ANACOM, 2020b). Operators mainly offer bundled services and when doing so tend to mimic competitors' offers (package and prices) or try to upgrade offers to higher-priced services rather than decreasing prices. The Competition Authority found evidence of market sharing and price fixing of mobile and fixed telecommunications by two providers in 2020, resulting in higher prices and decreased quality of services (including lower geographical coverage). The largest provider was sentenced to pay a EUR 84 million fine. Efforts to uncover collusive behaviours should intensify to foster competition in the sector.

Figure 2.11. Broadband prices are relatively high

Broadband Price Index 2020



Note: The broadband price index measures the prices of representative baskets of fixed, mobile and converged broadband offers. The index is normalised to the range 0 to 100, with 100 being the worst score referring to the highest prices.
Source: European Commission, DESI 2020.

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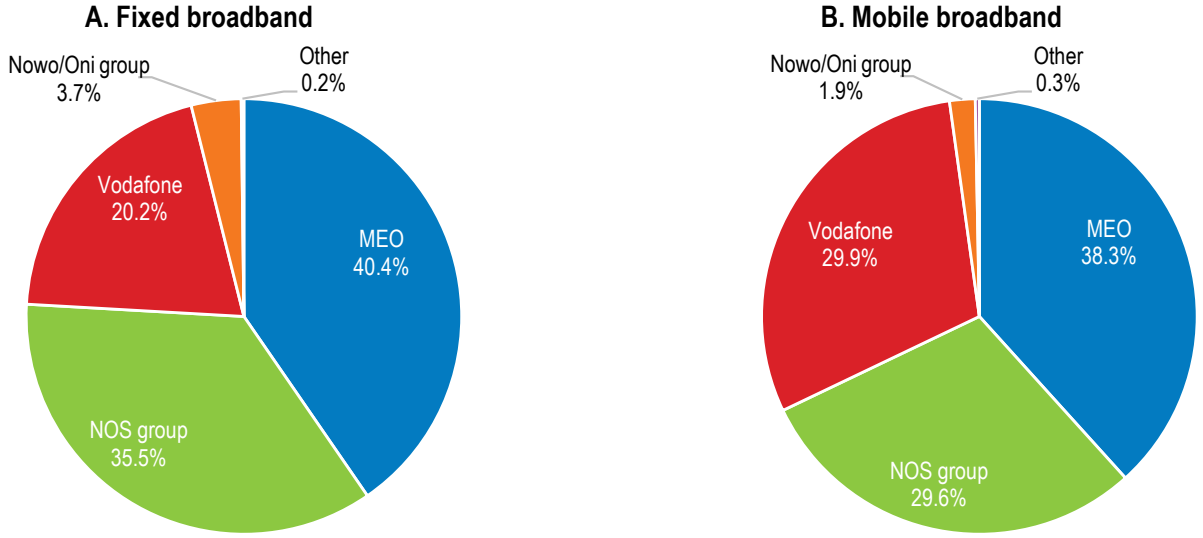
Figure 2.12. The telecommunication markets are concentrated

Fixed broadband and mobile broadband market share by number of customers, first semester 2020



Source: ANACOM, Portugal.

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New entries on the mobile market can foster competition, diversify offer and business models, but barriers to new entrants in the telecommunication sector, such as difficulties for newcomers to get the necessary amount of spectrum to begin operations, is a main barrier. 5G auctions offer an opportunity to modify the market structure. The regulation for auctioning 5G licences included a reserved spectrum for new entrants (in the 900MHz and 1800MHz bands). New entrants will also have national roaming access for 10 years, regardless of their investment level, but subject to coverage obligations. The auction rules also include spectrum caps, reserve prices similar to those in other EU countries, and payment facilities (50% of the payment can be deferred over 7 years). Incumbents complained against 5G auctions rules, considering them unfair, and some of them threatened to cut investment and employment. Portuguese authorities should maintain measures to strengthen competition, while continuing to reinforce incentives to accelerate infrastructure investment.

Constraints to consumer switching reduce its disciplinary effect on market prices, innovation and service quality, weakening incentives to compete and making consumers more vulnerable to market power (OECD, 2020c). Loyalty clauses together with other factors, such as the complexity of the procedure for contract termination and the lack of transparent information, weaken competition in the telecommunication sector by limiting mobility of consumers in Portugal (AdC, 2020) New retail services contracts are bundled, including fixed and mobile services, and with a lock-in period clause (generally 24 months) and high termination costs for consumers cancelling the subscription within that period. Renewing loyalty clauses is a generalised practice.

Reducing switching costs would strengthen competition between providers to the benefit of consumers. The regulator has already limited the duration of loyalty clauses and imposed the obligation to offer contracts without a loyalty period. Recent changes in the legislation increased transparency with respect to contract obligations. Additional options to foster customer mobility include reviewing limits applied to charges payable by subscribers in the event of early termination of contracts with lock-in periods, and linking them with estimated costs to the operators. As recommended by the Competition Authority, the extension of lock-in periods should be associated with additional services.

Providing information on the quality of services could help to increase competition and encourage network improvement. Many OECD countries, including Austria, France, Germany and Korea, disclose information on network quality, providing incentives for operators to self-regulate (OECD, 2020a). Portugal's regulator could work with network operators to develop and publicise a set of comparable indicators relating to the quality of service or collect data from users for instance *via* online surveys (crowdsourcing). Further monitoring the quality of service of mobile telecommunications providers and making this information available could also help consumers compare signal strength, coverage, call quality and promote consumer mobility if framed in a way that makes choice easier.

Promoting the effective and inclusive development of digital government

Portugal has been among the frontrunners of digital government in the OECD (Figure 2.13, Panel A and B). It ranks well in the OECD Digital Government Index 2019 that measures the extent to which governments are becoming digitally competent to foster integrated and coherent operations as well as end-to-end transformation of service design and delivery (OECD, 2020d). In line with the OECD Recommendation of the Council on Digital Government Strategies (OECD, 2014), the development of digital government in Portugal has not only focused on improving efficiency and transparency of public sector organisations (e-government), but also on using digital technologies and data for further integration and coherence within the public sector to improve public services. Ongoing initiatives like the Centre for Innovation in the Public Sector (the Public Administration experimentation and innovation laboratory), and the SIMPLEX Programme (for the simplification of administrative procedures), have a clear focus on encouraging the participation of both citizens and companies, as enablers to redesign public services so that they respond to their needs in a more efficient, effective and satisfactory way.

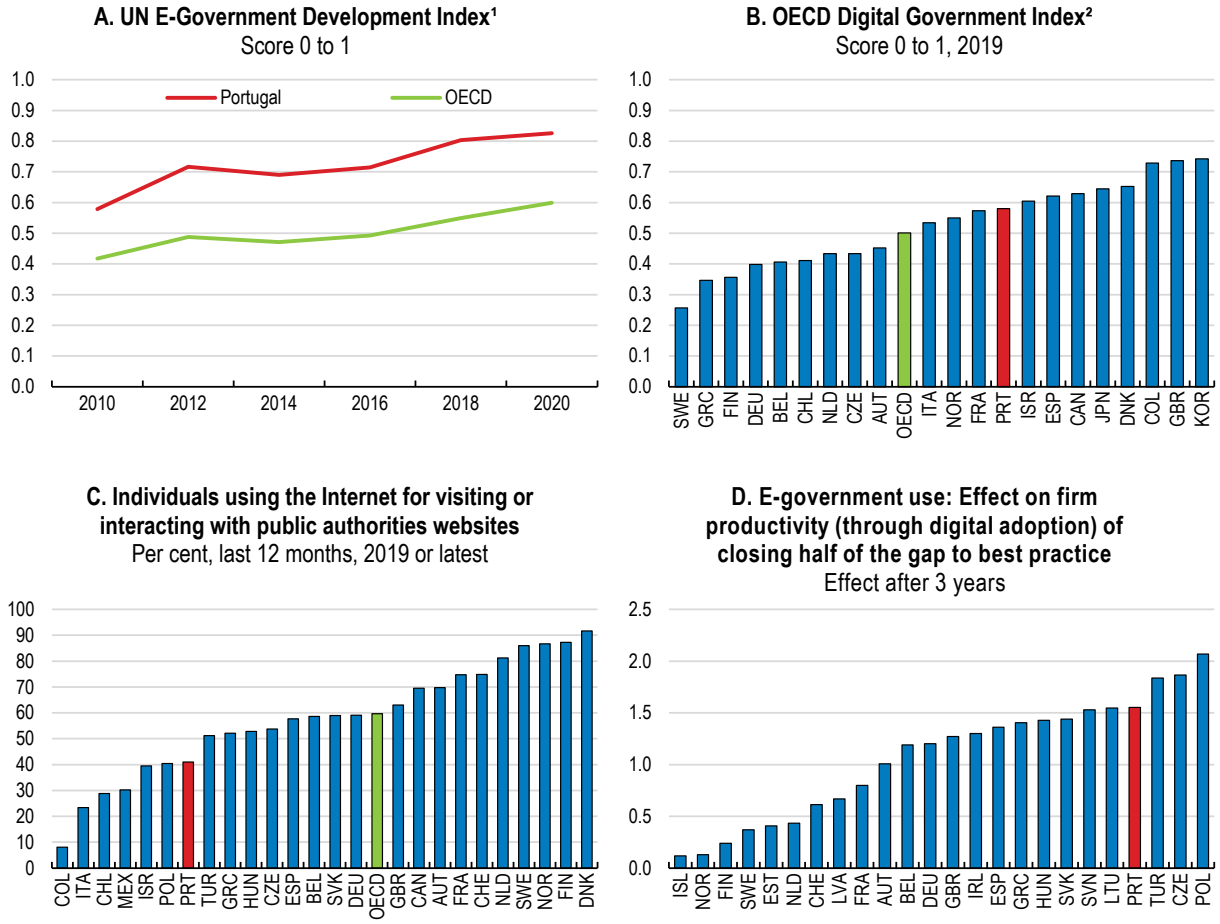
Citizens and businesses have access to a vast range of public services online portals. The Digital Mobile Key enables online authentication and signature to several public and private services speeding up processes and declarations. “id.gov.pt” - a public mobile application allows citizens to store on their smartphone, consult and share, at any time, the data of their identification documents that are available in the application (e.g. citizen cards, drivers’ licence). An interoperability platform for the public administration facilitates the exchange of service-related information within government and applies the “once only” principle, meaning citizens do not have to supply same information twice to the government. Effective information sharing across administrations allowed the automation of the provision of social energy tariffs. Finally, digital technologies have been widely used in the healthcare sector (Box 2.4).

Nevertheless, it is crucial Portugal continues its effort to develop digital government. In particular, while a wide range of public services are available online and despite efforts to integrate digital technologies in the development of these services, less than half of citizens and businesses use digital public services (Figure 2.13, Panel C). This is unfortunate as a large use of such services can stimulate the adoption of digital technologies in the private sector and trigger productivity gains (Sorbe, Gal and Millot, 2018). Closing half of the gap to the highest level of use in the OECD could increase firms’ productivity by 1.6% in 3 years (Figure 2.13, Panel D).

The low take-up of digital public services reflects the lack of digital skills and low trust in digital technologies (see below), but also accessibility issues. A number of promising initiatives aim at improving accessibility (e.g. online provision of guidelines and training for developers of digital services), which is one of the priority areas of the new Strategy for Innovation and Modernisation of the State and Public Administration 2020 – 2023 (Portugal Government, 2020). The centralisation and availability of resources for the digital government policy should enabled access and coherence of digital and data solutions across public agencies, and allow teams to concentrate on understanding users’ needs and ways to offer joined-up and effective end-to-end service experiences. Most of these measures aim at fixing existing systems though.

To limit the need for such costly ex-post measures in the future, all digital government projects should include a thorough ex-ante evaluation, adopt a user-centred approach in service design and delivery and involve stakeholders. The service delivery should places citizens and businesses at the core of the development process in order to meet their final needs (OECD, 2020e). Entrusting citizens and businesses with a central role in shaping processes, services and policies and adopting inclusive mechanisms for collaboration and a more knowledge-based public sector can help to increase the adoption and use of digital services. Integrated and long-sighted digital government programmes from Denmark and the UK could serve as a benchmark given their advance development of digital government policies (OECD, 2020d).

Figure 2.13. Portugal is among the frontrunners of digital government, but its use can improve.



Note: 1. The E-Government Development Index presents the state of E-Government Development of the United Nations Member States, and includes the provision of online services, telecommunication connectivity and human capacity. 2. The Digital Government Index aims to measure the extent to which governments are becoming digitally competent to foster integrated and coherent operations as well as end-to-end transformation of service design and delivery.

Source: UN (2021). Government Knowledgebase; OECD (2020), "Digital Government Index: 2019 results", OECD Public Governance Policy Papers, No. 03, OECD Publishing, Paris, https://doi.org/10.1787/4de9f5bb-en; Sorbe, et al. (2019) Digital Dividend: Policies to harness the potential of digital technologies, Economic Policy Papers, 26, https://doi.org/10.1787/273176bc-en.

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The digitalisation of the public sector went together with programmes to reduce the administrative burden on firms (one of the main priorities of the Simplex programme), but there is room to improve online public services for businesses (Martins and Veiga, 2018). The share of public services needed for starting a business and for conducting regular business operations that are available online remains below the best performing EU countries (European Commission, 2020a). In addition, efforts to streamline administrative procedures need to continue. For instance, despite availability of pre-filled forms, time to pay taxes remains much higher than in the OECD average (World Bank, 2020). The number of authorisations needed to run a business remain high, with long deadlines for approval (European Commission, 2020c). This calls for accelerating simplification efforts and exploiting digital technologies to achieve this objective, using international best practice (i.e. the UK, Denmark) as a source of inspiration. It is thus welcome the Resilience and Recovery Plan includes a reform of licenses procedures.

Box 2.4. The digital transformation in healthcare

Portugal is a frontrunner in the take-up of digital technologies in healthcare services. Telemedicine, artificial intelligence-enabled medical devices (i.e. health apps), and real-time patient data management are few examples of the digital transformation in the sector. Furthermore, the COVID-19 pandemic has led to an unprecedented increase in reliance on digital technologies in the healthcare system. Initiatives included the development of platforms to manage available hospital resources at the national level and applications to trace and communicate with COVID-19 suspects and home patients. Digital service infrastructures, such as telemedicine and the 24-hour telephone help desk, were reinforced to deal with higher demand (European Commission, 2020a).

Even before the COVID-19 outbreak, Portugal made strong efforts to promote and implement telemedicine (Hashiguchi, 2020). The number of users has been growing substantially from 12 127 in 2013 to 28 448 in 2017, thanks to special financial incentives (e.g. lower co-payments for patients). Patients can access their electronic health records, make appointments, and check vaccination cards online. Portugal is also leading in terms of e-prescriptions. 96% of the surveyed doctors use e-prescriptions, the second highest in Europe after the Netherlands (Deloitte, 2020).

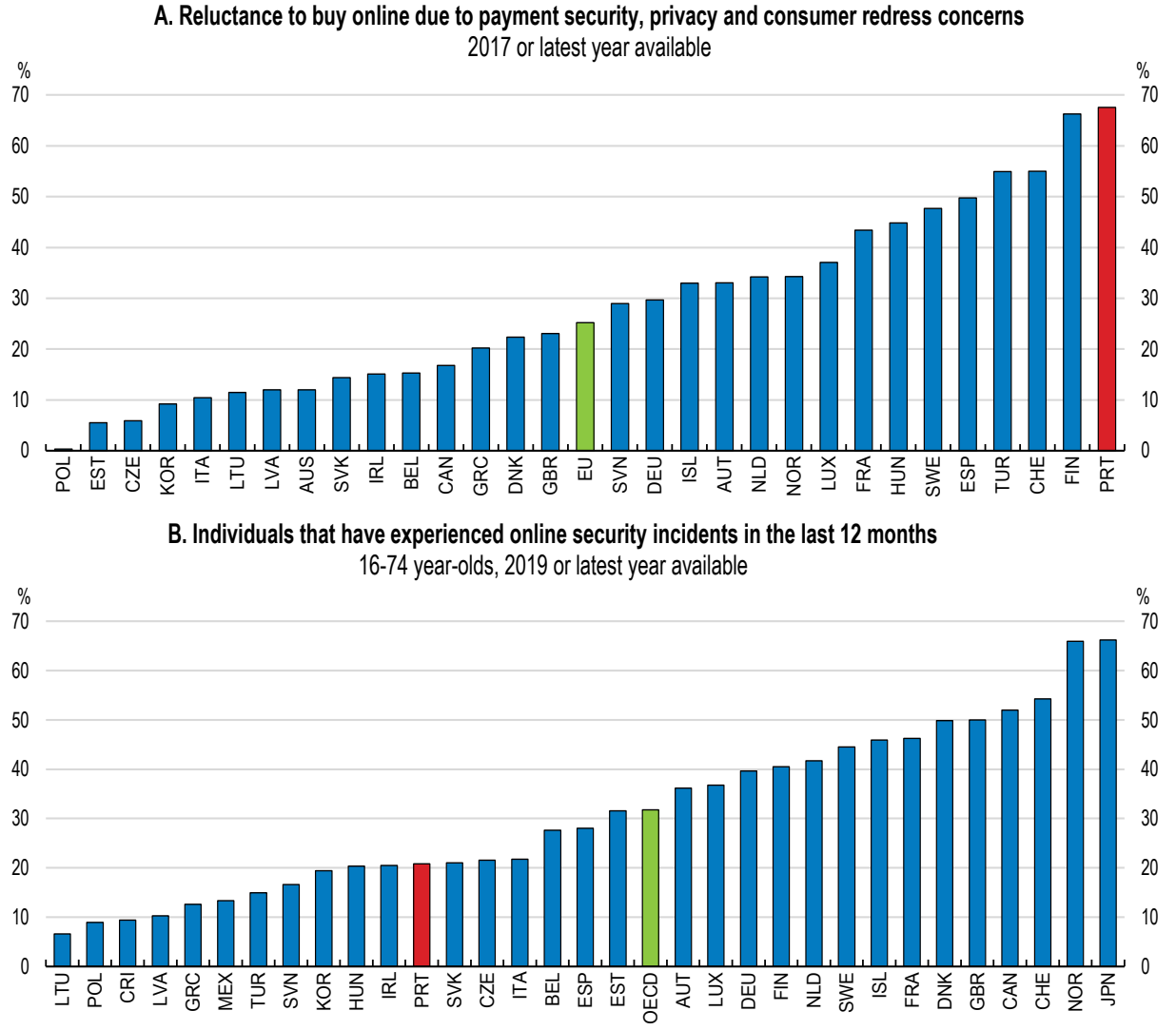
Portugal has the highest use of on-line platforms and tools in hospitals across Europe. It developed a real-time clinical management information system, known as '*ePatient*', which allows hospital doctors, nurses, social assistants and administrators to access patient information quickly across multiple systems (Deloitte, 2020). *ePatient* can also connect to different peripheral smart devices, enabling integrated vital sign monitoring. Doctors can access over 300 indicators of real-time patient data, such as heart rate and temperature. Patient data is centralised and analysed using AI to help improve the quality of services provided. Empirical evidence has shown that using *ePatient* has led to a more than 20 per cent reduction in the average hospitalisation time and more than 75 per cent reduction in the average shift handover time between doctors (Deloitte, 2020).

Source: Hashiguchi (2020), Deloitte, (2020), WHO, (2018).

Fostering digital security and improving users' perceptions

Low trust in digital technologies is a barrier to their adoption and the use of digital services. Fear of cybersecurity risks, like phishing, denial of service, and ransomware attacks, can deter people from taking advantage of the benefits that the digital economy offers (OECD, 2020a). EU Survey data suggest that almost 70% of respondents in Portugal were reluctant to buy online due to payment security and privacy concerns in 2017 (Figure 2.14, Panel A). Concerns around data integrity and security is one of the main obstacles to the adoption of cloud computing in OECD countries, especially by SMEs (OECD, 2019f). In 2014, the shares of individuals and businesses that did not use cloud computing due to security concerns were among the highest in the EU (OECD, 2017a). Perceptions of low digital security is also a barrier to the use of e-government. In 2018, 26% of individuals submitting official forms chose not to do it online due to security and privacy concerns.

Figure 2.14. Trust in digital technologies is low, despite a limited number of cybersecurity incidents



Source: Eurostat (2021); OECD (2021), ICT Access and Usage by Households and Individuals database.

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Cybersecurity incidents in Portugal have been relatively infrequent by international norms. Only 20% of surveyed individuals and 8.5% of businesses had experienced an online security incident in 2019, well below the EU average (Figure 2.14, Panel B). Less than 20% of Internet users stated knowing someone that had been victim of a cybercrime (CNCS, 2019). However, the number of cybercrimes increased exponentially with the COVID-19 crisis in the OECD and in Portugal, as malicious actors took advantage of the surge in the use of technologies (OECD, 2020a; Agostinho and Luz, 2020). Stepping up efforts to promote digital security is key to ensure citizens and businesses can safely use digital services, such as e-commerce and e-government, needed for the continuation of activity despite physical distancing measures.

Raising awareness on cybersecurity risks is crucial. The percentage of Internet users in Portugal that follow basic digital security rules (e.g. changing passwords regularly, installing antivirus software) is below the EU average (CNCS, 2020a). While almost all firms have ICT security measures, only 28% had defined an ICT security policy, below the EU average and only around half make employees aware of their obligations in ICT security related issues (Figure 2.15; Eurostat, 2020b). SMEs are not as prepared as large firms to

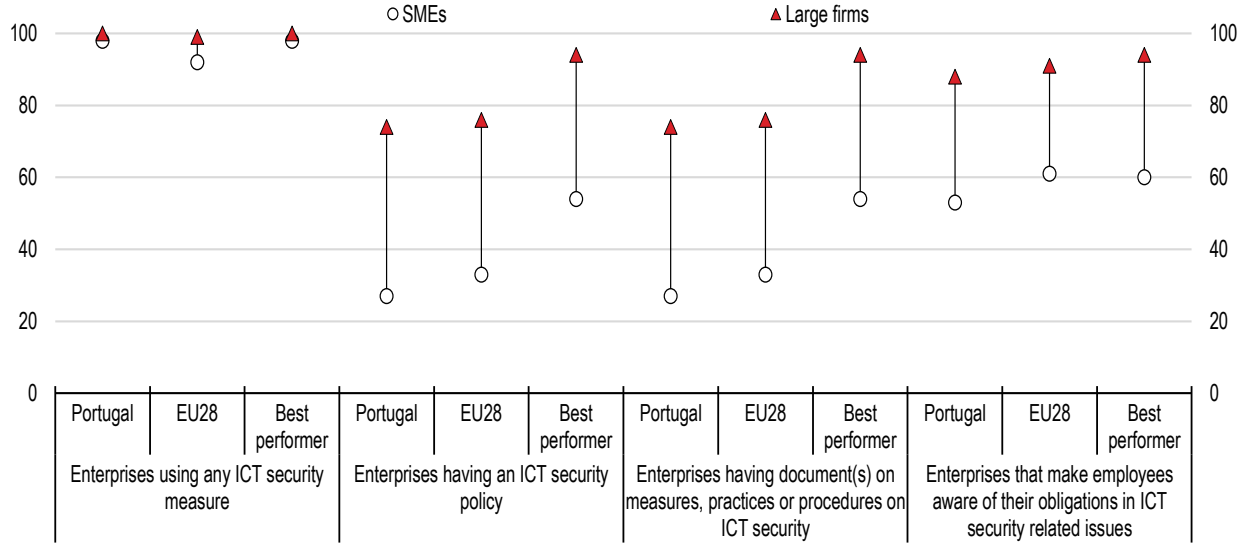
face cybersecurity threats, as they lack the resources for effectively assessing cyber-risks and implementing appropriate prevention and management measures (OECD, 2019f). Only 37% of small firms made ICT risk assessments in 2019, above the EU average of 29%, but still lagging behind best performing countries (OECD, 2020a).

Portugal lags behind most OECD European countries in the 2020 National Cyber Security Index (E-governance Academy, 2020). A weak cybersecurity culture, an insufficient digital maturity to address security needs in both the public and private sector, and difficulty in training, maintaining and attracting human and financial resources have been identified as the main areas for improvement (Council of Ministers, 2019). The second National Cybersecurity Strategy (2019-2023) aims at addressing these issues and rightly focuses on digital literacy among others.

The National Cybersecurity Centre provides a range of tools, including an evaluation framework to measure and increase cybersecurity capacity (i.e. a National Cybersecurity Framework, a Cybersecurity Capacity Maturity Model, a Roadmap for Minimum Cybersecurity Capabilities, with a special focus on SMEs, and a Framework for Assessment of Cybersecurity Capabilities for organisations). It also provides free online training, with almost 50.000 participants so far (NAU, 2021; CNCS, 2020b). Nevertheless, to encourage firms and citizens to invest in cybersecurity, it should also provide more information on economic benefits of cyber risks management through targeted awareness campaigns. Including security issues in existing digital training initiatives should be prioritised. Introducing economic incentives and funding mechanisms to SMEs to accelerate the adoption of digital security measures should also be considered (ENISA, 2020).

Figure 2.15. Small firms lag behind in the adoption of digital security measures

Per cent, 2019



Source: Eurostat, Security policy: measures, risks and staff awareness.

StatLink https://stat.link/jh17ry

The increase in the quantity and quality of data, technology developments like AI and big data analytics, and in the use of third-party data storage services raise concerns of privacy and personal data protection. The EU General Data Protection Regulation (GDPR) governs processing of personal data in Portugal. Citizens and businesses have the right to access, edit, delete, and restrict processing of their data (OECD, 2019g). Online courses are provided to inform citizens and public workers on the existing privacy regulation and its enforcement, with over 40.000 attendees by November 2021 (NAU, 2021). The 20-21 Simplex edition includes an initiative (My Data) that will allow citizens and businesses to monitor and validate the use of their personal data by the public administration. However, there have been a relatively low number of measures to support SMEs in their compliance with the GDPR, compared with most other European countries (EDBP, 2020). Stepping up the efforts to provide seminars, workshops, and trainings directed at SMEs, as well as implementing hotlines for consultations, as in Denmark, Poland, or Spain, are paramount to ensure personal data protection. In the Recovery and Resilience Plan, Portugal envisages cybersecurity and privacy measures targeted at SMEs, including the introduction of certification stamps covering cybersecurity, privacy, usability and sustainability.

Equipping workers with the skills needed in a digital economy

Individuals need a broad mix of skills – strong cognitive, socio-emotional, and digital skills – to participate in the digital society. Skills are also key for the adoption of new technologies in businesses (Gallego, Gutierrez and Lee, 2015; Andrews, Nicoletti and Timiliotis, 2018). A large share of the population does not have general digital skills with large disparities in the population. Addressing large skills gaps in the population is crucial to ensure all reap the benefits of the digital transition (OECD, 2019a).

Improving the digital skills of individuals has been high on the political agenda. The Portuguese National Initiative on Digital Competences 2030 (INCoDe.2030), launched in 2017, aims at broadening digital literacy, promoting employability and professional training in digital technologies and raising participation in R&D networks (Box 2.5). Nevertheless, policy action should tackle inequalities in learning opportunities, both in initial and adult education. Evaluation reports pointed to the need to increase resources allocated to the initiative and to establish medium term strategic plans to ensure continuous reviews (Crouzet et al., 2019). The 2020 Action Plan for Digital Transition and the Recovery and Resilience Plan, which have a strong focus on digital skills, offer a great opportunity to address the skill divide and raise the effectiveness of related measures.

Box 2.5. Portugal's initiatives for the development of digital skills

The Portuguese National Initiative on Digital Competences 2030 (INCoDe.2030) supports the development of a wide range of skills, from basic digital literacy to software development. It aims at providing Internet access to all Portuguese and having 90% regular users by 2030. Other objectives include almost tripling the share of ICT specialists in employment to 8% and increasing the share of SMEs with a high level of digital intensity to 40%. It takes a broad view of digital competences, including skills to effectively use digital technologies and manipulate data as well as information processing, communication and digital content production skills (Governo de Portugal, 2017).

- The Eu Sou Digital (I'm Digital) programme, launched in 2020, aims to train, by 2023, more than 1 million adults in basic digital skills, involving a national network of 30 000 young volunteers and 1 500 formation centres, with a focus on 45+ year olds. The development of Comunidades Criativas para a Inclusão Digital (Creative Communities for Digital Inclusion) promotes digital inclusion of vulnerable groups through community projects.
- The "Escola Digital" programme aims at improving ICT equipment, connectivity, and ICT teacher training in the public-school system. Early 2021, the programme delivered more than 400 thousand computers and mobile broadband internet access, covering around 40% of the

total student population and nearly 70% of the total of teachers, with an objective to reach full coverage by early 2022. Additional funds to equip schools with internet and ICT equipment and provide personal equipment to all teachers and students by 2023 will be allocated via the Recovery and Resilience Plan. The programme includes other digital educational resources (digital schoolbooks, collaboration tools digital contents). Plano de Capacitação Digital dos Docentes (Active Teachers Learning) aims at providing digital skills for approximately 100 000 teachers in Schools Association Training Centres (CFAE), by 2023.

- The "Emprego + Digital" programme focusses on the specific digital reskilling and upskilling needs in different business sectors. Over 25 000 employees are expected to participate in specialised short training in the digital area by end 2021. The objective is to reach a minimum of least 200.000 employees in 2025.
- The "Upskill" programme should reskill 3 000 people in advanced digital skills needed on the labour market.
- "Digital Guarantee" aims to ensure that, by 2023, all unemployed people receive a digital training offer appropriate to their level of qualification and skills profile. It covered 52 500 people in 2020.
- The "Jovem + Digital" has been set up to improve the digital capacities of young unemployed adults.
- "Academia Portugal Digital" will provide an online platform for digital skill assessments, personalised training plans and training courses, connected with other public and private online training platforms. The objective is to reach at least 800.000 users

Concomitantly, two main projects promote digital skills in the public administration "Info exclusion Zero" (assessment of basic digital skills and design of training plans) and "AP Digital 4.0" (training in advanced digital skills for ICT workers).

Source: https://www.incode2030.gov.pt/en/goals, Ministry of Labour, Solidarity and Social Security.

Providing foundational and digital skills to all

While digital skills are crucial for the use of ICT technologies, foundational skills (including basic literacy and numeracy skills and cognitive skills) are also important for workers to adapt to the digital transition (OECD, 2019c; Schleicher, 2018; OECD, 2020a). Foundational skills allow people to thrive better in a digital world, by facilitating adaptation to new technologies and occupations. For instance, using the Internet in diversified and complex ways and getting non-routine tasks jobs require good reading and problem-solving skills (OECD, 2019a). Furthermore, foundational skills are a pre-requisite for developing specific competencies and for participating in lifelong learning (Rammstedt et al., 2013). Those who lack foundational skills are most likely to bear the costs of the digital transformation (OECD, 2019a).

In the past decade, Portugal has made tremendous progress in upskilling the younger generations. Between 2009 and 2019, the share of young adults aged 25-34 year-olds with low education level halved. The share of graduates with higher education in the resident population between 30 and 34 years old reached 43% at the end of 2020, exceeding the EU target of 40%. In 2020, the number of new entries in higher education grew by 13%. Learning outcomes of young students improved significantly. According to PISA, the Programme for International Student Assessment assessing the proficiency of 15-year-old students in reading, mathematics and science, Portuguese students have made significant progress in all three domains since 2003 and now score close to the OECD average (OECD, 2019h; OECD, 2019i).

Nevertheless, despite the efforts to raise educational attainment levels, the share of low educated young adults remains 10 percentage points higher than the OECD average. Furthermore, the difference in educational performance between students from different socio-economic backgrounds remains large. The

performance gap between disadvantaged and advantaged pupils in reading equals about two years of education and about one in three disadvantaged pupils does not attain a minimum level of proficiency in reading (OECD, 2019j).

The suspension of face-to-face teaching for the large majority of pupils during the COVID-19 pandemic has likely increased these inequalities as children from a disadvantaged background are less likely to benefit from online learning (OECD, 2020f). Despite the distribution of electronic devices, and the provision of host schools and of tutorial support among others, Portugal only partly addressed the needs of vulnerable students, as many pupils still lack adequate equipment. Plans to accelerate the provision of personal computers or tablets are welcome (Box 2.5), but will not be sufficient to mitigate the impact of the lockdowns on inequalities in educational outcomes. Targeted initiatives to respond to the special needs of vulnerable students are key to provide quality learning opportunities to all (OECD, 2020f). Education policies, such as the 2019 inclusive education law, the 2020 Strategy to combat school dropouts through monitoring of children and young people considered at risk of dropping out, and the Learning Recovery Plan 21/23 Escola+ are important milestones, whose success hinges on the provision of adequate resources and continuous monitoring.

Introducing computational thinking to the majority of students at early stages of education can empower people in the digital world. When students are exposed to computational thinking through programming, they can increase both their problem-solving and digital competencies, as well as acquire a deeper understanding of the underlying mechanisms and concepts of new technologies (OECD, 2019a). Portugal has recently reformed the national curriculum by including digital competences in primary and secondary education programmes and programming has been including in learning objectives. Introducing a mandatory upper secondary school course on computational sciences and technology, as in France for instance, should be envisaged to ensure all acquire solid digital skills (OECD, 2019a). Expanding the scope of successful local initiatives, such as “Make Code - Programa o teu futuro”, which aims at introducing students and teachers to coding and computer science, should also be considered.

Strengthening schools’ capacity for ICT use for teaching

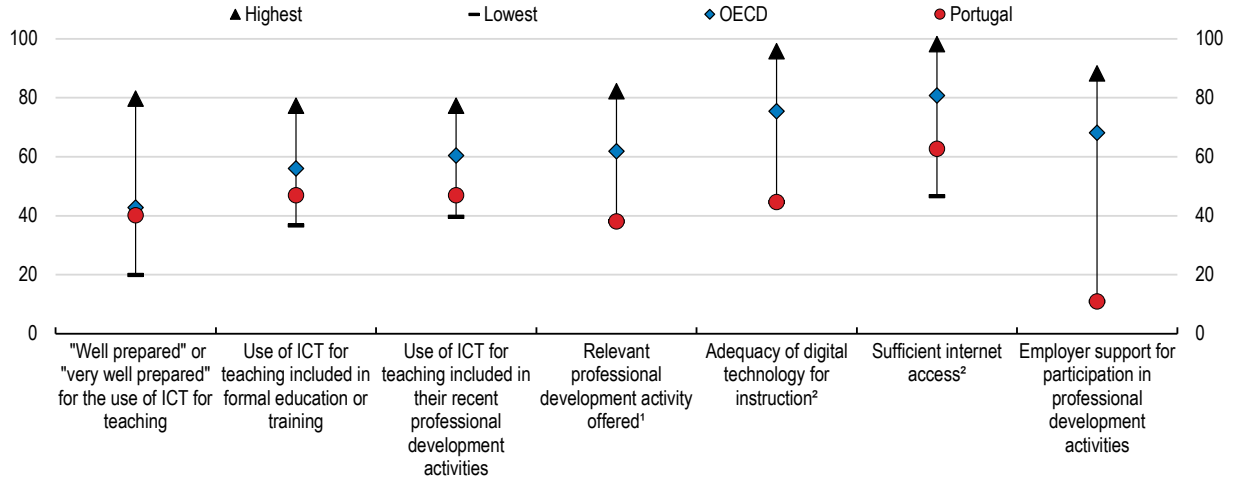
ICT use for teaching in schools is important for the development of digital skills at an early stage. Shifting from developing digital skills as part of stand-alone ICT classes to a more comprehensive approach in which digital skills are also fostered in other learning areas, as in Australia, can be challenging however (OECD, 2019a). Doing so requires providing adequate ICT equipment and high quality professional development programmes for teachers (OECD, 2019a). In Portugal, less than half of school principals report having adequate digital equipment for instruction, the lowest share in the OECD. In 2018, only 60% pointed to sufficient basic digital infrastructure, such as Internet access (Figure 2.16).

In the same vein, while teachers are willing to use ICT tools for teaching, a large majority does not feel sufficiently prepared to do so (Figure 2.16). Half of teachers point to the lack of “use of ICT for teaching” in teachers’ formal education or training, and almost two out of three teachers report a lack of relevant professional development activities. Furthermore, 90% teachers do not feel supported by their employers for participation in professional development activities, which is almost three times more than in the average OECD country.

To address these issues, the “INCoDe.2030 Strategy” includes programmes for the improvement of technological infrastructure in schools and the professional development of teachers (e.g. Formação de Professores em Serviço or Escola Digital, both launched in 2020, see Box 2.5). Portugal also rightly plans to use funds allocated in the Recovery and Resilience Plan to accelerate investment in ICT tools in schools (EUR 538 million) and teachers training. A digital training plan aims at providing almost all teachers of all cycles and grades of schooling above basic digital skills.

Figure 2.16. Conditions for ICT use and teaching in schools need to improve

Share of upper secondary teachers reporting about the "use of ICT for teaching", per cent



Note: 1. Refers to all professional development activities. 2) Reported by school principals.
Source: OECD, TALIS 2018 Database, Table I.3.63, Table I.4.13, Table I.4.20, Table I.5.18, Table I.5.36.

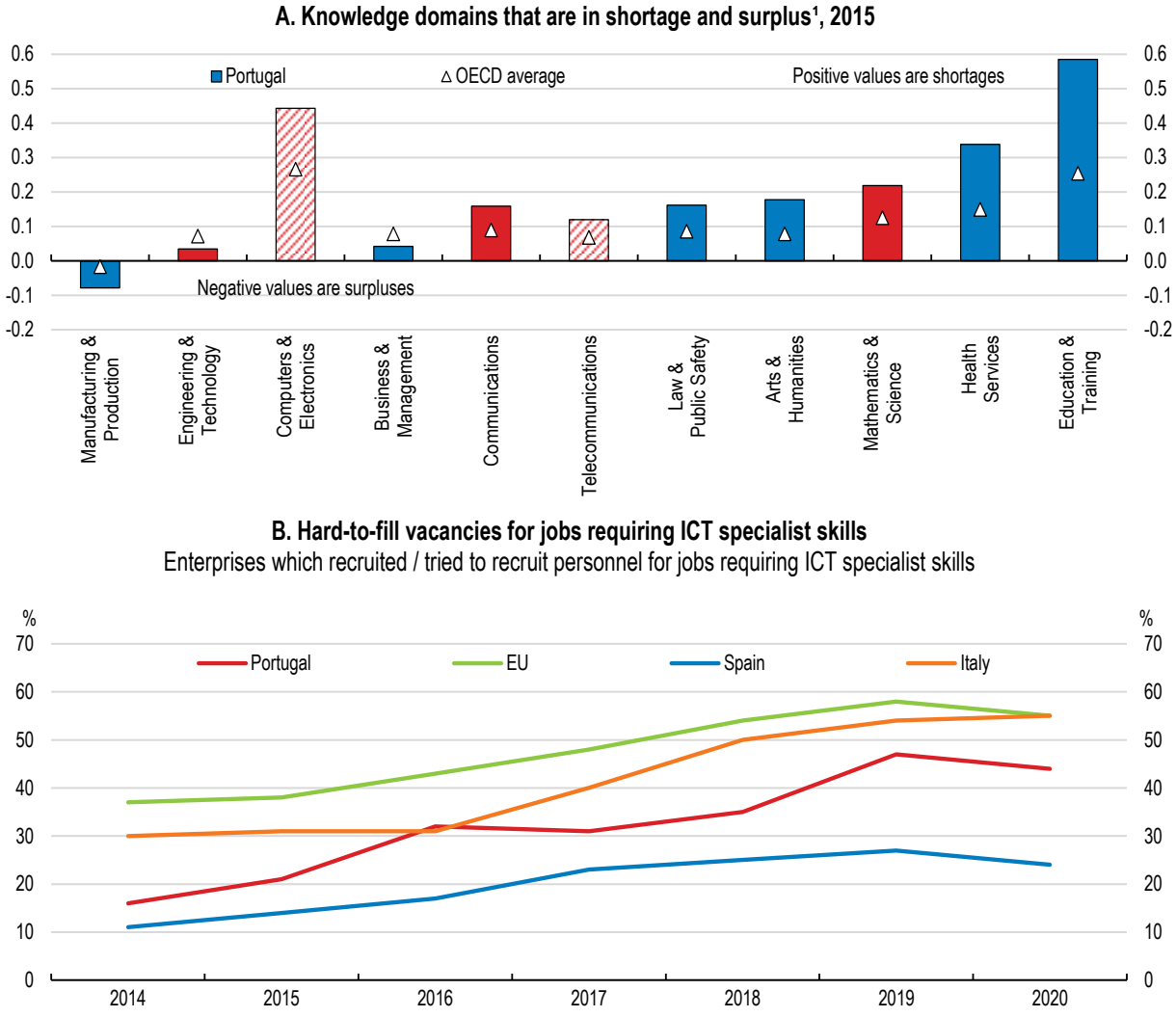
StatLink https://stat.link/z6pcyo

When implementing the "Escola Digital" project, Portugal could also get inspiration from other OECD countries on programmes to develop ICT use for teaching. The creation of a platform in 2020 to provide information and educational material on the use of digital technologies in schools is welcome, and should be further developed and improved, benefiting from international experiences, for instance the French on-line teacher network, Viaéduc, or Wales' network of Digital Pioneer Schools (European Commission, 2019).

Addressing shortages in ICT and other STEM fields

Shortages in Science, Technology, Engineering and Mathematics (STEM) fields, including in ICT skills, are large (Figure 2.17). Adults with a tertiary degree in engineering, manufacturing and construction and those with a degree in ICT related fields earn about double compared to those with upper secondary education, one of the highest premiums among OECD countries, reflecting high unmet labour market demand in those fields (OECD, 2019k). This calls for increasing the number of graduates in STEM fields, especially young ICT experts. Portugal has one of the highest share of young adults able to program across EU countries (Figure 2.18, Panel A). However, over the past decade, the share of tertiary graduates in ICT has remained low and the share in STEM fields has stabilised close to the OECD average (Figure 2.18, Panel B).

Figure 2.17. Significant shortages exist in ICT and other STEM related knowledge domains



Note: 1. Positive values represent shortages, with the maximum and minimum values among OECD countries normalised to 1 and -1. STEM field related knowledge domains are highlighted in red. Selected subcategories are shown in line pattern.
Source: OECD, Skills for jobs database; Eurostat, Digital economy and society database.

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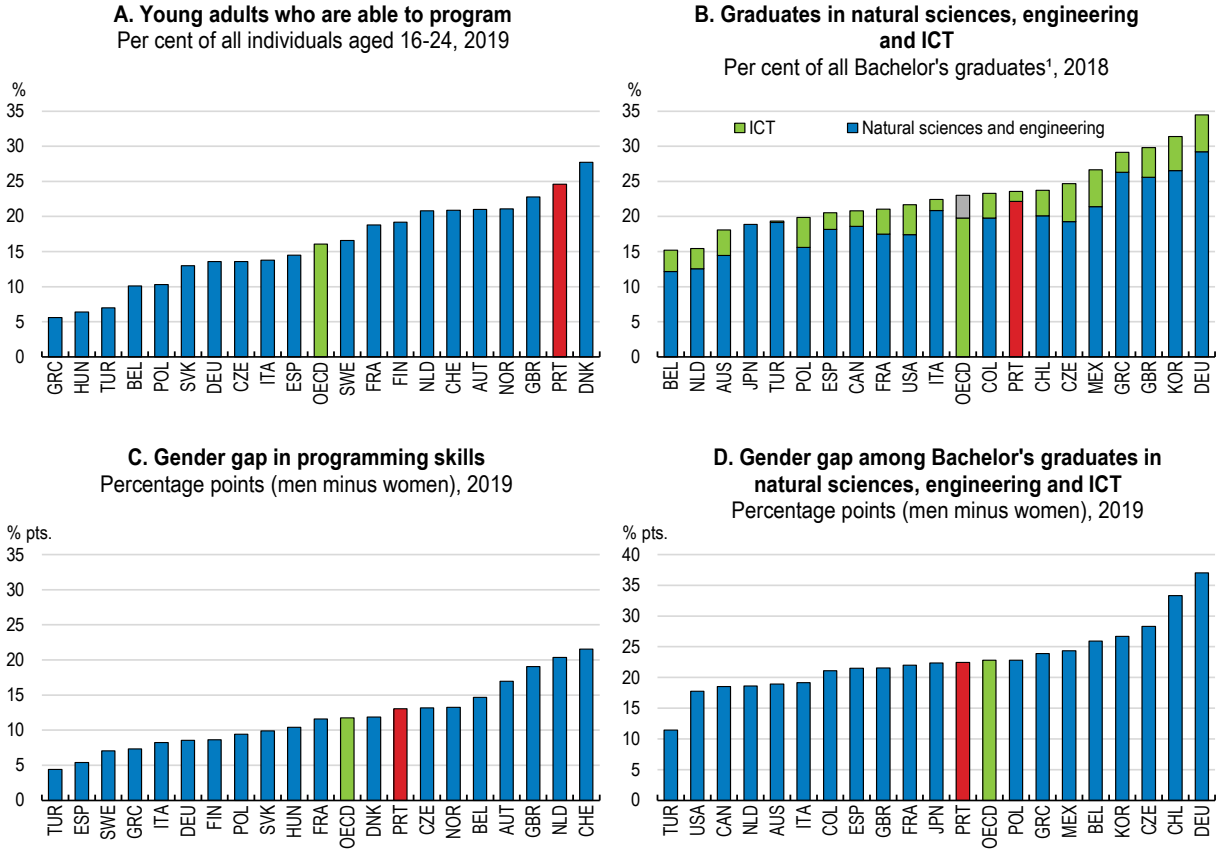
Tapping into the women's talent pool will help address shortages in STEM professionals, ICT graduates and experts. The share of women among employed ICT specialists reached 21.8% in 2020, above the EU average of 18.7%. However, like in most other countries, the gender imbalance in the choice of studies and in computing programming is high (Figure 2.18, Panels C and D). At 15 years of age, less than 1% of girls in Portugal wish to become ICT professionals (e.g. software developer, applications programmer), compared with 6% of boys (OECD, 2019j).

Making female role models more visible, fighting gender stereotypes and providing girls with opportunities to interact with technology at the earliest ages could help change gender-specific perceptions about ICT (OECD, 2019j). For instance, giving first-grade girls an opportunity to try programming can eliminate gender differences in interest in technology (Master et al., 2017). In Italy, a coding course targeting female middle-school students resulted in a 10% increase in participants' interest to become a computer programmer (Carlana and Fort, 2020). In the US, a large range of programmes, including one-to-one mentoring, STEM camps, experiential learning opportunities, aim at increasing underrepresented groups', including girls' participation in STEM education and career paths.

Figure 2.18. STEM fields attract many young adults, but with a large gender gap



Note: 1. Bachelor's or equivalent graduates refer to tertiary education attainment level 6 of the ISCED 2011 classification.
Source: OECD Going Digital Toolkit. https://goingdigital.oecd.org/en/indicator/54/; OECD (2020) Education at a Glance Database.

StatLink https://stat.link/a5w3vm

Some initiatives (*Ciência Viva, Engenheiras por 1 Dia*) that provide contact with science and technology for children at younger ages, promote experimental science teaching, and deconstruct stereotypes about technological professions have been put in place in Portugal. The Recovery and Resilience Plan includes initiatives to tackle gender stereotypes and encourage a greater involvement of women in the field of digital

technologies.Besides early interventions, upskilling and reskilling initiatives can be also an opportunity to increase women participation in the ICT sector.

Diversifying the talent pool entering higher education could also help to increase the number of STEM young professionals. However, pathways to higher education had been limited and only few graduates from upper secondary vocational programmes had access to tertiary education in Portugal. In 2020, access to higher education by students from secondary vocational education almost tripled. The entrance system was revised and a special access channel to the students from upper secondary vocational education created. The impact of these measures on tertiary education outcomes should be carefully evaluated. Developing reskilling pathways in ICT for learners from diverse professional backgrounds like done in Ireland, would be another step in the right direction (OECD, 2020a). This type of measure is envisaged under the Recovery and Resilience Plan. The Youth STEAM Impulse Program and the Adult STEAM Impulse Program aim at increasing the number of STEAM graduates by fostering upskilling and reskilling through higher education short courses.

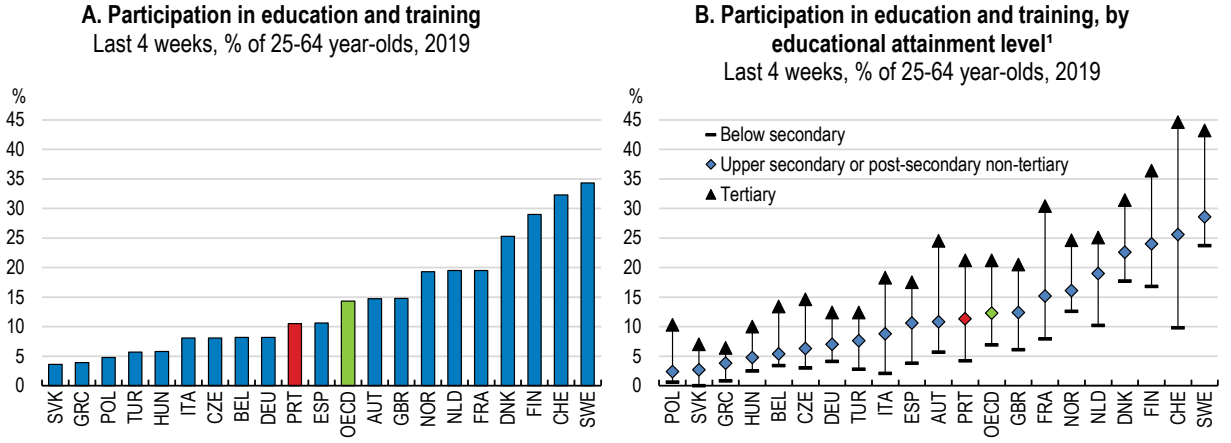
STEM related programmes in VET remain limited (less than 30%) (OECD, 2020g). Government plans to expand the offer of vocational courses in emerging areas of high technological intensity is thus welcome. Adapting the content of vocational education and training (VET) to the fast changing labour market needs will be challenging though. The VET offer is supposed to adjust on an annual basis, to local business needs and anticipated skills needs identified by the Qualification Needs Anticipation System (SANQ). Nevertheless, the SANQ faces several challenges, including an uneven commitment at the political level, a need for co-ordination between all relevant stakeholders and a lack of human resources with the relevant knowledge and experience. As recommended in the recent OECD Skills Study, in order to further strengthen the reliability of the assessments and projections for future qualification needs, Portugal should incorporate international best practices, for instance take a stronger sectoral approach, undertake complementary data collection exercises and offering employer and worker organisations a better defined, more active role (OECD, 2018a).

Promoting adult education

The extent to which individuals, firms and economies can thrive in the digital transition will depend critically on the readiness of adult learning systems to help people develop and maintain relevant skills over their working careers. Lifelong learning is crucial for workers to adapt to changes in job requirements, and participation in lifelong learning is found to foster the adoption of digital technologies by firms, with a stronger impact in firms with a number of low-skilled workers (Andrews, Nicoletti and Timiliotis, 2018). Providing reskilling opportunities is particularly important in Portugal, as adults have relatively low education levels and gaps in digital skills are large (see Figure 2.3). Around half of 25-34 year-olds have above-basic digital skills, compared to 30% among those aged 45-54. In the absence of policy action, this generational divide risks exacerbating inequalities between younger and older generations.

Despite strong political willingness to foster upskilling of adult population, participation in adult learning has remained well below levels seen in many OECD countries (Figure 2.19, Panel A). While other countries, such as Finland, Sweden and Switzerland, managed to increase participation rates significantly since 2011 and display participation levels of about 30%, participation rates remained stable over this period in Portugal. Furthermore, like in most other OECD countries, participation in adult education increases with the educational attainment level (Figure 2.19, Panel B), which can exacerbate inequalities. In 2019, only 5% of low educated participated in training over the preceding four weeks, four times less than those with tertiary education.

Figure 2.19. Participation in adult education is low, especially among low-educated adults



Note: 1. Below upper secondary refers to ISCED levels 0-2, Upper secondary or post-secondary non-tertiary refers to ISCED levels 3-4 and Tertiary education refers ISCED levels 5-8 of the ISCED 2011 classification.
Source: OECD (2020) Education at a Glance Database; Eurostat (2020), Participation rate in education and training (last 4 weeks).

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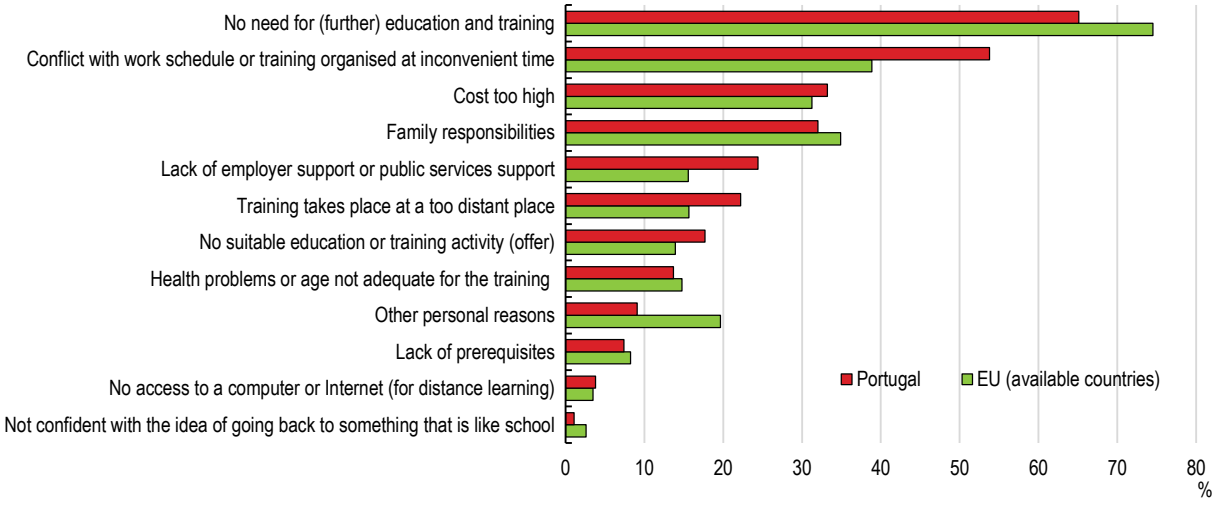
Portugal has taken a number of measures to reskill its adult population by encouraging participation in training, developing adult vocational education, and improving the lifelong learning guidance system (OECD, 2018a). It embarked on massive up-skilling of low-skilled adults and implemented processes of recognition, validation and certification of competences. The Qualifica programme set up in 2017 notably aimed at providing half of the population with upper secondary education and increase participation in lifelong learning to 15%, with more professional work related training and better screening of skills needs by 2020 (Düll, 2018). The INCode2030 initiative includes a vast range of programmes for the development of digital skills among the adult education (see Box 2.5). However, national training programmes with specific focus on enabling adults to understand the implications of artificial intelligence or to learn artificial intelligence methods are still missing (Ferreira, 2020). Portugal plans to allocate EU funds to support employee and business digital training in these areas.

Coordination between the Adult National Qualification Plan (PNLA) and programmes directed to adults in the Incode2030 initiative will be key to maximise the effectiveness of measures and avoid overlaps. As stressed in previous OECD reviews (OECD, 2019l; OECD, 2020h), improving governance of the adult learning system, especially coordination among training providers, can strengthen its impact, as the management of training programmes is now fragmented across different line ministries. Portugal should set up dedicated governance bodies to oversee adult learning, for policy design and implementation (OECD, 2018a).

There are multiple barriers to participation in adult education, that are more pronounced for under-represented groups (i.e. lack of time, financial constraints, lack of prerequisites, negative feelings about training often associated with difficulties experienced in initial education, etc., Figure 2.20). Low motivation is an important one. In 2016, around two thirds of adults reported they do not need further education and training. A comprehensive communication campaign can raise awareness of skills investments, including in digital skills, especially if tailored for specific groups, which are difficult to reach (i.e. youth Not in Education, Employment or Training, managers in SMEs, low-skilled older workers). Complementing past effort in the public sector, measures should also target the public administration and providers of social services to inform of the value of upskilling both for themselves and for their users (OECD, 2018a).

Figure 2.20. Improving information on and flexibility of adult training can raise participation

Obstacles to participation in adult learning as a percentage of total, 2016



Note: EU average based on available countries in 2016.
Source: Eurostat (2016), Adult Education Survey 2016.

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While workers might be aware of the importance of reskilling, they might have difficulty in identifying their specific skill needs and appropriate training. Portugal provides a large range of tools to address that issue. 310 Qualifica centres across the country provide information on training pathways and certification of prior learning acquired in formal, non-formal and informal contexts. Between 2017 and 2020, around 568 000 persons used the service (95% of the initial target for 2020). The Qualifica Passport allows individuals to record qualifications and skills online and identify further learning pathways (ANQEP, 2020). In addition, with the online platform "Academia Portugal Digital" citizens will be able assess their digital competencies and their development needs, based on the Digital Competence Reference Framework. While self-assessment tools for digital skills are helpful to help individuals understand their training needs, personalised training guidance, face to face coaching, like done in Australia or Colombia, would be a step forward to increase active participation in digital training (OECD, 2020a). Users of self-assessment tools should be directed to training centres that can provide personalised guidance and services. This can help to reach out individuals who need upskilling.

There is large scope to foster financial support to participation in adult education in Portugal (OECD, 2018a). Workers are entitled to at least 40 hours of continuous training that employers should provide. Workers have to finance the costs of training attended at their own initiative (except if the employer has not provided the training for up to two years, the worker can use equal number of credit hours to carry out training). Tax incentives are at place (30% of education and training expenses can be deducted from the personal income tax up to a maximum of EUR 800), but they do not benefit low-paid workers who do not pay income tax. Co-financing requirements and lack of replacement income when individuals take time off work likely hamper participation for the most disadvantaged groups. Portugal provides training subsidies, "Cheque Formação", but their value is low and allow only training of short duration. Subsidies should increase and target workers for which training cost is a major barrier and those working in jobs with risk of job automation. Income support could be higher for training that helps the reallocation of workers from distressed sectors to sectors of high demand.

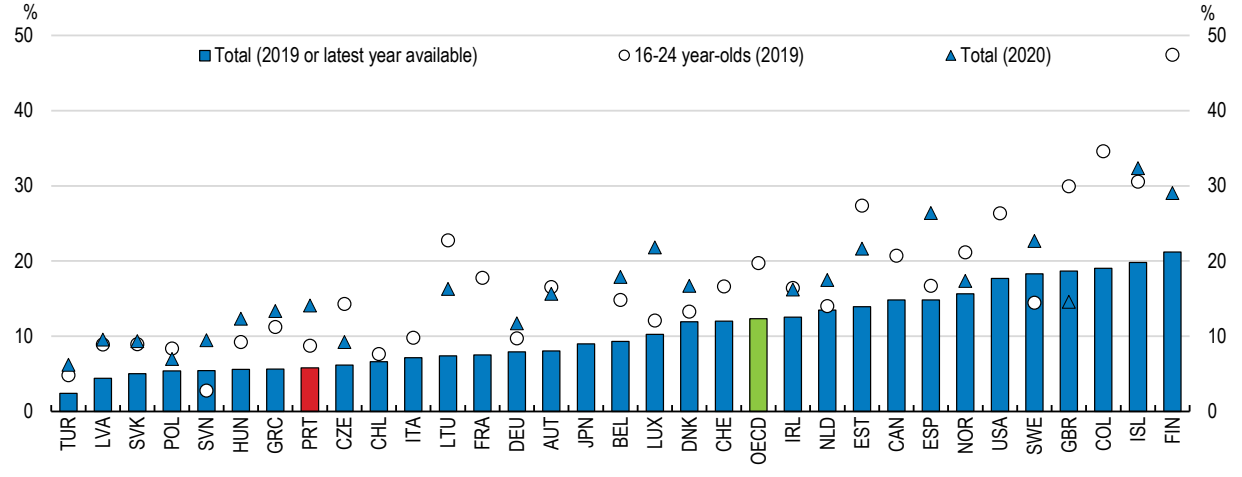
Training vouchers could be allocated *via* individual learning accounts, like done in France for instance. Such schemes present attractive features, as training rights can accumulate over time, are portable from one job to another and can be targeted (OECD, 2019m). For instance, the French "Compte Personnel de Formation" offers training credits that accumulate faster for the low skilled (individuals with at less than secondary education get 800 EUR per year vs. EUR 500 for the others). However, the schemes have a poor track record as far as participation of the low-skilled is concerned and need to be complemented by strong reach out mechanisms, clear and simple eligibility criteria for the use of funds, and good quality assurance (OECD, 2019m). In 2021, the Agreement for Vocational Training and Qualification between the Portuguese government and social partners identified the need to improve incentives for adults to train and plans to assess individual learning accounts.

Another important barrier to participation in adult learning, raised by more than half of adults, is the difficulty to combine training with work obligations (see Figure 2.20). Portugal should utilise digital technologies to overcome this barrier, for instance by developing distance and modular learning. Digital education systems, such as massive open online courses (MOOCs), provide a wide range of courses by top universities, the business sector, international institutions or independent experts. E-learning allows studying and working at the same time and even obtain full degrees with modular learning, providing flexibility to workers and savings to firms, especially in SMEs, where lack of time is the main barrier for workers to training (OECD, 2019a).

In Portugal, before the pandemic, participation in online courses was among the lowest in the OECD, even for young adults (Figure 2.21). To foster online learning, Portugal created MOOC courses in Advanced Digital Technologies as part of the INCoDe.2030 initiative, but their scope is relatively narrow, focusing on emerging new areas, such as artificial intelligence, cybersecurity, and big data. In 2020, containment measures forced the transition to online training for some programmes. In 2020, 14% of all citizens have participated in online courses, above the EU average. The abovementioned programme "Academia Portugal Digital" should contribute to facilitating access to online education. Online training directed to civil servants will also be developed in the public sector under the reform of the Public Administration Institute, partly financed by the Recovery and Resilience Plan. Nevertheless, Portugal should adopt a comprehensive strategy to expand online learning. It should take inspiration from Finland, Korea and Mexico, where participation rates exceeded 20% in 2019.

Figure 2.21. Room to develop online teaching is large

Per cent of individuals participating in online courses



Note: Participation in online courses last 3 months.
Source: OECD (2021) IICT Access and Usage by Households and Individuals Database.

StatLink https://stat.link/kvcho6

Making qualification pathways more flexible to suit individual needs can also facilitate participation in adult learning. Flexible pathways between different programmes can allow low-skilled adults to progress between different programmes more easily as they gain higher levels of skills. For instance, adults that have acquired post–secondary competences outside the formal education system should have options to participate in short-cycle tertiary education courses. Doing so would require facilitating the recognition of vocational education credits and competences, and ensure pathways exists between courses (OECD, 2018a). In line with the OECD recommendations, the operating conditions of the short-cycle tertiary education courses were changed, namely through the extension of the conditions for the recognition of professional experience, namely allowing the recognition of up to 50% of total credits of this study cycle to anyone who holds more than five years of professional experience. These efforts should continue. Breaking learning programmes up into self-contained certified modules, which allow individuals to gradually build up credits and qualifications over time, as done for example in France and in the United States, can also help.

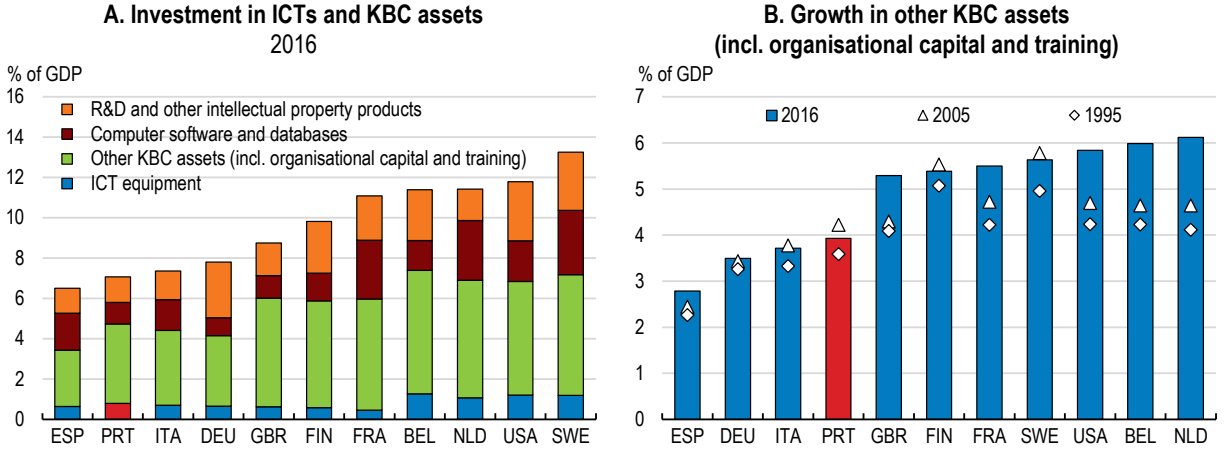
Providing information on the quality and outcomes of training courses can also enable adults to make informed choices about training and raise motivation. Portugal's adult education system lacks a proper quality assurance framework and its capacity to monitor and evaluate the performance of adult learning providers is limited, not least because it does not have a formal mechanism to track learning outcomes (OECD, 2021b). Developing a general monitoring framework would contribute to improving the efficiency and the quality of the adult-learning system. The Slovenian Monitoring framework could serve as an example. The Slovenian Institute for Adult Education has developed comparable indicators to monitor quality of adult education providers. A complementary student satisfaction survey, like for instance in Estonia, could expand feedback on the quality of education. Introducing a unique ICT instrument to monitor training outcomes and a toolkit to help staff in implementing the tool, as planned in the Netherlands for basic skill training, would be helpful.

Addressing barriers to the successful digital transition of SMEs

Unleashing the potential of the digital transformation requires firms to invest in ICT equipment and knowledge-based capital (KBC), including R&D, intellectual property, software, data, organisational capital, design and training. Indeed, the impact of technology adoption on firms' productivity significantly hinges on complementary investment (OECD, 2019n). Investment in KBC assets has been low in Portugal (Figure 2.22, Panel A). Investment in ICT equipment and in software and database has been comparable to levels seen in peer countries (Spain, Italy), but 15% below of the OECD average (OECD, 2019o). Investment in organisational capital and training has increased in line with GDP growth over the past three decades, faster than total investment, but not fast enough to catch up with best performing OECD countries (Figure 2.22, Panel B).

SMEs face several size-related barriers in terms of awareness, skills and finance for adopting new digital tools and implementing complementary organisational changes (OECD, 2020a). According to the Portuguese businesses representatives, the lack of skilled employees, of knowledge of digital technologies, as well as the inability to cover large investment costs are the main setbacks to digitalisation (ACEPI, 2019). Imperfections in product, credit and labour markets and administrative burdens have a more pronounced impact on smaller firms and play an important role in their difficulty to adapting to technological change (OECD, 2019f).

Figure 2.22. Investment in ICT and knowledge-based capital remains low



Note: KBC stands for knowledge based capital. Other KBC assets are estimated on the basis of INTAN-Invest data and cover all industries excluding real estate activities, public administration, education, health and households.
Source: OECD calculations based on OECD National Accounts database and INTAN-Invest data, http://www.intaninvest.net/

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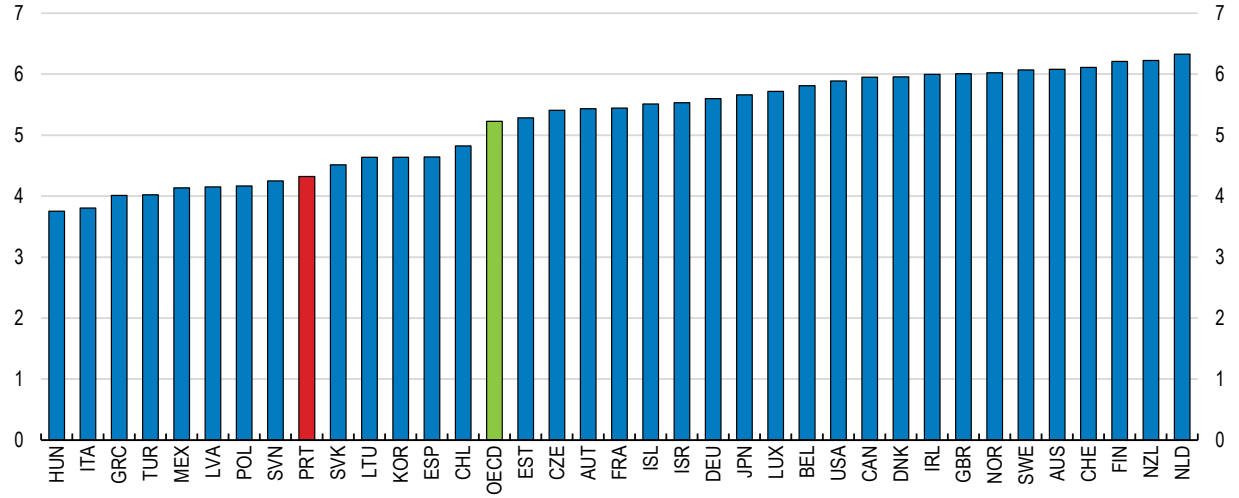
Increasing awareness and management competences

The lack of awareness of the benefits of digital tools, and competences on how to implement digital solutions limit firm digitalisation, in particular for SMEs. SMEs have difficulties identifying their needs and finding appropriate suppliers of digital solutions. In Portugal only around 30% of SMEs have a digital strategy (ACEPI/IDC, 2020). It is thus welcome that Portugal promotes access to consulting services and training for those who lack market expertise. For instance, the 'Dinamizar' project that offers on-the-job training and consultancy services to SMEs includes programmes for firms that want to implement digital strategies in their business models and increase their digital skills. In addition, the Industry 4.0 strategy includes vouchers for the digital transformation of 1 500 SMEs. Measures including Coaching Vouchers, Digital Transition Accelerators and Digital Innovation Hubs are included in Portugal's Recovery and Resilience Plan. Collecting information on digital suppliers in one place would facilitate SMEs access to experts and match SMEs needs with existing offer, for instance *via* a centralised repository, like done in Singapore. Another example is the France Num platform that connects SMEs willing to digitalise with a network of specialised consultants (both public and private) across the country (OECD, 2021c).

Managerial skills play a significant role in the capacity of firms to effectively use digital technologies and innovate (Andrews, Nicoletti and Timiliotis, 2018; Galindo-Rueda, Verger and Ouellet, 2020). This is because the effective use of digital technologies requires the adjustment of business processes. In Portugal, the use of ICT is found to be lower in firms with less structured managerial practices (INE, 2018). Managerial skills that are needed to lead organisational transformations are low in Portugal: only a few firms are managed by professional managers, especially in domestic firms (Figure 2.23). Several institutions have developed entrepreneurship-training programmes in Portugal, but these have often had a strong focus on the initial start-up phase and lacked solid training in business management (OECD, 2018a). The new programme "Coaching 4.0" to support top and middle management in the process of integrating digital technologies in industrial businesses is a step in the right direction. Nevertheless, as recommended in previous OECD reviews (OECD, 2017b; OECD, 2018a), targeted training should be provided to managers and owners of SMEs, especially to those with management responsibilities but without specific prior training in management. Developing advanced management courses for professionals at higher education institutions that can be attended part-time could improve participation (OECD, 2017b).

Figure 2.23. Relatively few firms are managed by professional managers

Reliance on professional management, score from 1 (lowest) to 7 (highest), 2017-18



Note: Score based on responses to the question: "In your country, who holds senior management positions in companies? [from 1 = usually relatives or friends without regard to merit to 7 = mostly professional managers chosen for merit and qualifications]".
Source: World Economic Forum (2017), The Global Competitiveness Index Historical Dataset 2007-2017.

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Employers in small firms might not have the capacity to anticipate their future training needs or have little awareness of training benefits. Small companies are less likely to have a training plan (Kitching and Blackburn, 2002). In 2015, around 30% of small Portuguese firms regularly assessed their skills needs (80% in large firms). In 2020, 22% of SMEs using a computer provided training to their employees to develop ICT skills. While Portugal performs above the EU average, this calls for strengthening information, guidance, and staff capacity of advisory services (OECD, 2018a). Academia Portugal Digital will partially address these challenges through its digital skill assessment tool, that will provide training recommendations. Information gaps could also be addressed by building networks of employers to aggregate expertise and practical experience, as in Australia or Ireland. In Ireland, 70 sectoral "Learning Networks" managed by Skillnet Ireland, a public agency, assist businesses to identify and address their skills needs and mutualises training for firms operating in the same industry.

Public support to firms providing training has been patchy, mostly financed *via* EU programmes. In 2020, firms that had training plans validated by public employment services and covered by the short time working scheme could receive grants, with training costs covered by the public employment services, but the uptake has been low (see Chapter 1). Measures in place require application procedures that can be very burdensome for small enterprises and information on their outcomes is missing. Closely monitor performance of these programmes, especially their impact on small firms, would help to identify loopholes and concentrate resources on the more effective ones.

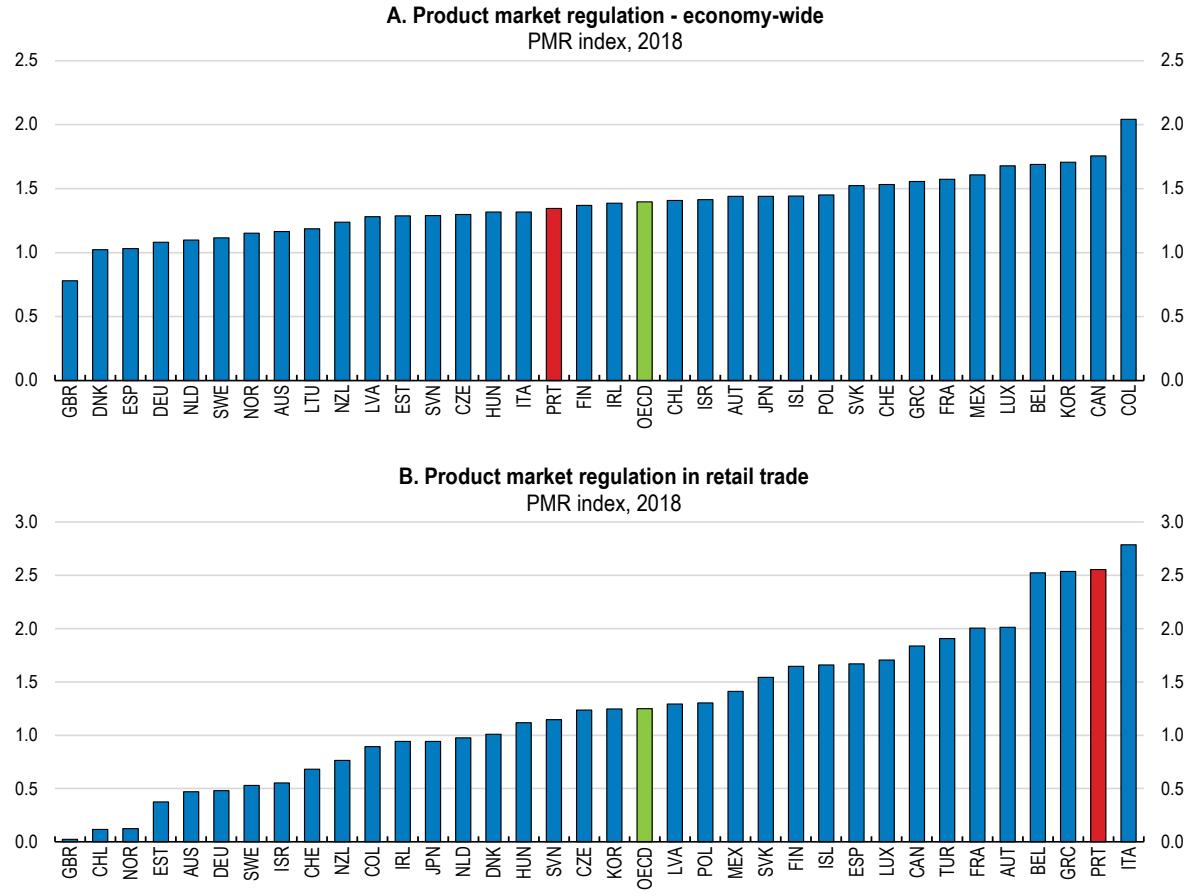
Removing barriers to firm growth

The small size of firms is a significant barrier to the use of costly technologies that require investment and expertise. New firms tend to grow less in Portugal than in similar OECD countries (OECD, 2021c). Firms creation in digital intensive industries is more dynamic than in their low-digital counterparts, in particular in services, but business growth was lower, indicating difficulties to break into new markets and upscale (OECD, 2021c). Policies could encourage co-investment or infrastructure sharing. For instance, some municipalities put in place platforms for local shops to sell online. Firms could also be encouraged to grow, by eliminating disincentives that prevent them from reaching optimal size and exploiting economies of scale. In particular, a transition from size-dependent to age-dependent policies may help boost firm growth over their life cycle. For example, the general exclusion from the labour code of businesses with fewer than ten workers or differences in fiscal reporting standards can contribute to keep firms small.

The corporate income taxation is linked with firm profitability and size. At 25.6%, the composite effective average tax was the ninth highest in the OECD in 2019. While the effective marginal rate at -20.5% is among the lowest by OECD norms, a tax surcharge applies to large and profitable companies: the top marginal rate is 10 percentage points higher than the average rate for 88 jurisdictions covered in the OECD tax statistics in 2018. The system may hamper investment and aggregate productivity growth (OECD, 2019l). Recent introduction of tax exemptions on reinvested profits can mitigate this effect by reducing the tax burden. Nevertheless, the current corporate tax system should be evaluated and reforms to create incentives for corporations to expand and obtain a critical scale could be considered.

Portugal has a reasonably supportive regulatory and incentive environment for entrepreneurs, strengthened by recent reforms. Portugal ranks relatively well in the OECD Product Market Regulation (PMR) indicator, which measures how favourable national regulations are to economic activities (Figure 2.24, Panel A). Nevertheless, regulatory settings that do not sufficiently promote competition in important industries that produce intermediate inputs, such as professional services, can raise costs to firms and hamper growth (OECD, 2019l). They include nationality requirements for owning and practicing in some professional services, protective powers of the regulatory professional bodies, the use of exclusive rights that reserve certain tasks for members of the profession. In 2018, the OECD Competition Assessment of self-regulated professions in Portugal provided recommendations to address these barriers. As stressed in the previous Economic Survey, their full implementation should be a priority for policymakers (OECD, 2019l). In addition, regulatory settings in the area of retail distribution are more restrictive than in most other OECD economies due to relatively strict registration and licencing requirements (Figure 2.24, Panel B). The European Commission's Retail restrictiveness Index also points to retail specific taxes and para fiscal fees based on the outlet size for establishment or operation of the shops (European Commission, 2018). Further simplifying procedures by reducing the number of permits, the number of entities involved, shortening procedural deadlines by using more tacit approval, and reducing the cost of expanding businesses should contribute to supporting firm growth.

Figure 2.24. Regulation on retail trade is restrictive



Source: OECD (2018) PMR database.

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Diversifying financing sources for ICT and intangible investment

Providing diversified financial services that can facilitate both firm growth and investment in digital and complementary digital assets is key. Portuguese SMEs rely heavily on debt to fulfil their start-up, cash flow and investment needs, and bank lending is their most common source of external finance. However, the pandemic put a halt to past improvements in access to bank lending for SMEs. Despite low interest rates and increased public support during the pandemic through various credit lines (i.e. Apoio às Micro e Pequenas Empresa, Apoio às Médias Empresas), the financing gap for Portuguese SMEs increased from 3% in 2019 to 11% in 2020 and 13% in early 2021 (European Central Bank's Survey on the Access to Finance of Enterprises in the euro area). It remains well below levels seen during the sovereign crisis though.

A vast range of programmes is in place to facilitate access to finance by SMEs. Several credit lines through the *Capitalizar* programme offer preferential conditions, such as subsidised risk-sharing public guarantees. In response to the COVID-19 crisis, the government provided state loan guarantees. However, these measures do not support the supply of unsecured loans as banks continue to ask for personal guarantees, including for limited liabilities companies. The creation of the development bank, *Banco Português de Fomento,* that merged existing public financial institutions, in November 2020, can expand credit supply and streamline public support to finance. Nevertheless, the implementation of financing programmes has

been delayed and needs to accelerate as financing conditions might deteriorate further in the medium term (see Chapter 1).

Diversification of SME financing sources away from debt-related instruments towards long-term, market-based financing needs to gain momentum. Equity financing could play an important role in recapitalising firms, while at the same time mitigating debt overhang (European Investment Bank, 2019; Demmou et al., 2020). Improving access to equity finance for small and young firms could boost digitalisation by allowing more intangible investment (Demmou, Franco and Stefanescu, 2020). The use and availability of corporate bond financing could help lengthen maturities and facilitate long-term investments. However, alternative to debt financing is missing in Portugal. The equity market is underdeveloped despite recent efforts to reduce the asymmetric tax treatment of debt and equity, to encourage investors to invest in SMEs, and increases in public funds allocated to start ups. In 2019, the Portuguese share of European private equity investments was less than half of its share in the GDP of the European Union (OECD, 2020i).

Introducing schemes for equity-type capital injections directed to SMEs, as planned by the government, can contribute to developing equity funding. Several countries have recently started to develop equity-type instruments for SMEs (Box 2.6). In Portugal, a Capitalization Fund for Companies was created to help firms strengthening and recovering solvency. Reducing costs and streamlining listing requirements can also facilitate access to equity markets for smaller firms, as stressed in the 2020 OECD capital market review of Portugal (OECD, 2020i). A strategic plan for the development of corporate bond markets could include creating an appropriate credit rating mechanism and a special framework for private bond placements by small companies, following successful examples in Europe (e.g. the mini-bond market in Italy).

Box 2.6. Country examples on non-debt instruments for SMEs

- **Equity funds and convertible bonds in France:** A new fund, Bpifrance Entreprises, enables non-professional investors to invest in a group of 1 500 SMEs and young firms for a period of six years and thus bring a new source of equity funding to these businesses. In addition, the French Tech Bridge provides convertible bonds to firms that were expected to raise funds through venture capital investments. The scheme required co-investments from private actors and is aimed at high-potential start-ups, typically in the “high-tech” sector.
- **Convertible loans in the UK:** A convertible loan allows a loan to be converted to equity if a borrower is unable to repay it. The Future Fund in the United Kingdom has set up convertible loans for SMEs. To be eligible, SMEs need to meet some conditions such as a minimum of GBP 250 000 previously raised in equity investment (British Business Bank, 2020).
- **Equity crowdfunding in the US:** Crowdfunding instruments could potentially address finance needs of a slightly larger segment of the SME population compared to capital market instruments, allowing them to raise capital by selling securities in the form of equity, revenue share, or convertible notes. In the United States, the Securities and Exchange Commission (SEC) announced temporary rules that provide flexibility for issuers that meet specific eligibility criteria to accelerate the offering process and get faster access to funds as stated in the Regulation Crowdfunding.

Source: Boschmans, K. and S. Raes (Forthcoming), Policy measures to support SMEs in the context of the COVID-19 pandemic: Takeaways so far and implications going forward", OECD SME and Entrepreneurship Papers, OECD Publishing, Paris.

Initiatives to improve awareness among entrepreneurs on equity instruments, such as the issuance of preferred shares that allow obtaining the additional financing without losing control of the company, can foster the take up of such instruments (Boschmans, 2017). In Portugal, *IAPMEI’s Portal do Financiamento* a platform available to entrepreneurs includes information on financial instruments. Granting more voting

rights to owners holding shares for a relatively longer period or actively engaged in companies' governance can also foster equity.

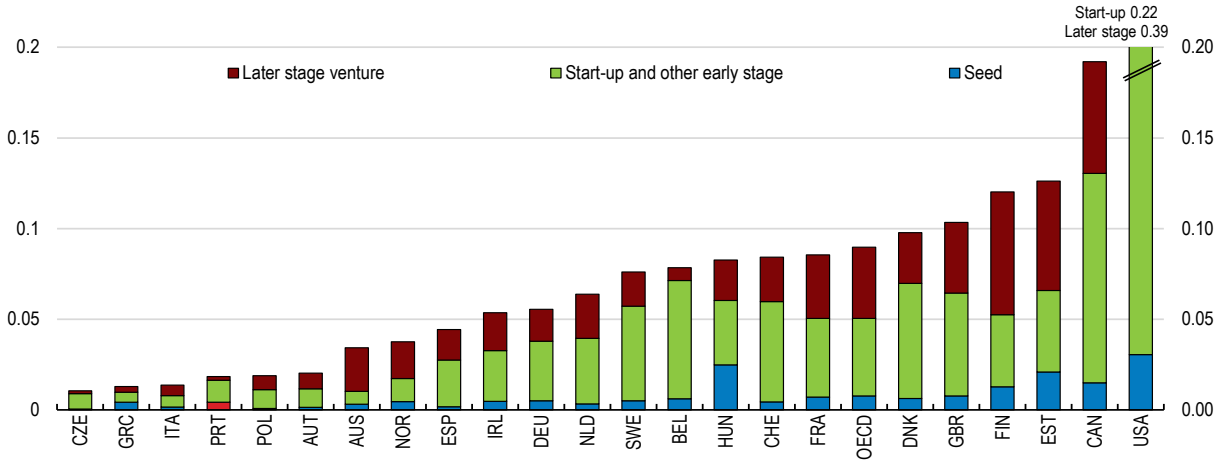
Supporting start-up activity

The COVID-19 crisis negatively affected start-up financing and start-up activity in some sectors. In response, the government has provided financial support to start-ups through credit lines totalling EUR 325 million (*Linhas de financiamento com Parcerias - Fundo de Coinvestimento 200M*) and furlough scheme for employees (*Start-up RH COVID19)*. Around 90% of start-ups report awareness of the government support programmes, but only 66% resorted to these measures (Start-up Portugal, 2020). Administrative and bureaucratic hurdles hamper start-ups obtaining bridge financing. The government should step up short-term financial support with minimal bureaucracy, as done in other OECD countries, including France, Germany, and the UK (OECD, 2020j).

Venture capital is a valuable source of investment for innovative start-ups since they have few or no tangible assets that can serve as security for obtaining finance (Lassébie et al., 2019). Despite significant improvements in the past, namely through the Venture Capital Funds (e.g. Business Angels) and Co-investment Funds (e.g. 200M), the availability of venture capital financing is low in Portugal, (Figure 2.25). In addition, there is a wide gap in the availability of funds between early stage and later stage start-ups, that is significantly larger in Portugal than in other European countries (EIT Digital, 2020b), reflecting a lack of later stage financial options for start-ups to scale up.

Figure 2.25. Venture capital investment is low, especially in later venture stage

Percentage of GDP, 2019



Source: OECD (2021), Enterprise Statistics (database).

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Later stage financing is mainly limited to the public VC entity, Portugal Ventures, and foreign investors (with a share of 87.6% in the total investment in start-ups). Very few domestic investors invest in mature start-ups. Portugal provides tax incentives for individual investors through the *Semente* Program. However, little is done to increase the participation of domestic institutional investors from low levels (EIT Digital, 2020a; OECD, 2020i). The initiative Portugal TECH II launched in 2021 aims to support the development of the venture capital industry and to attract private and institutional capital for investment in technology-based companies headquartered in Portugal.

To foster innovative activities, the government offers generous tax credits to business R&D expenditures over a pre-defined amount and a preferential tax treatment to small firms. This is welcome since small firms are more responsive to tax incentives compared to large firms (Appelt et al., 2020). Unused tax

credits can be carried forward over the next 8 years, for young innovative firms, that often are unprofitable and do not pay taxes in first years. In line with past OECD recommendations, the government should allow unused tax credits to be indefinitely carried forward like in Belgium, Italy and the United Kingdom (OECD, 2019l). Other options to strengthen support include allowing cash refunds for loss making firms like in Australia, Canada and France or reductions from withholding payroll taxes for labour inputs related to R&D. The benefits of such a reform should be weighed up against the associated fiscal cost and its impact regularly monitored ex-post.

Contrasting with fiscal incentives, and despite increasing since 2016, direct public support to business R&D is low by OECD standards (OECD, 2021a). Direct funding seems particularly important for encouraging basic research (Appelt et al., 2020). Moreover, compared to tax credits, R&D grants are, in principle better suited for young and innovative firms, as they lack the financial capacity against which decisions to award R&D loans are often made. Furthermore, they are direct and can be targeted to innovation with high potential for knowledge spillover. Portugal should increase the share of direct government funds by exploiting the synergies between different funding sources namely with the support of Portugal-Europe R&I Network – PERIN and develop performance-based funding.

Tailored advice on regulations relevant to new business models enabled by digital technologies would also be useful. With the Portugal FinLab project, ten innovative firms are selected every year to ask questions to the regulatory authorities on the regulatory requirements for implementing their projects and on how to operate within the applicable legal framework. These in-depth consultations should be used to identify main regulatory issues and lack of information in the Fintech sector and improve guidance services to innovative firms. In addition, the government has established the framework for the creation of regulatory sandboxes “Technological Free Zones” in 2021 to encourage experimentation on specified technologies and sectors, geographically located, with the support and monitoring of the competent entities. This is welcome as regulatory sandboxes allow the pilot testing of newly developed technologies within a well-defined space and duration, with safeguards to contain the consequences of failure.

Strengthening the link between companies and universities and research centres could facilitate access of small businesses to digital innovation. The Interface Programme has been giving support through collaborative laboratories working on innovative solutions with and for companies and creating, directly and indirectly, qualified employment and scientific employment through the implementation of research and innovation agendas. Pacts for Competitiveness and Internationalisation have been signed in 16 sectors, including Health, Automobile, Engineering & Tooling, Information Technologies, Communication and Electronics or Architecture, Engineering and Construction (EY, 2020).

Clusters and business incubators foster the collaboration across firms for them to mutualise fixed cost and benefit from knowledge spillovers through collaborative research (OECD, 2019p). 35 collaborative laboratories operated in 2021, with a total budget of EUR 40 million and staff of 435 agents. Several incubators and accelerators on the local level (e.g. Beta-I, BGI, Start-up Lisboa) focus on technological innovation and help entrepreneurs develop and test their ideas. For example, the innovation centre Hub Criativo de Beato, created in Lisbon, connects around 3000 entrepreneurs working on digital innovation. Portugal is building a national network of Digital Innovation Hubs, interconnected with the European network, within the scope of the Digital Europe Program.

The Recovery and Resilience Plan includes further measures, including i) reinforcing Start-up Portugal’s capacity to act as the main public policy implementation agency and ecosystem monitoring, including the development of a new platform that connects Start-ups and Investors; ii) bringing additional financial support to incubators and accelerators and iii) introduction Start-up Voucher’s to support the development of new digital and green innovative products and services. These initiatives should be expanded, if they prove effective in promoting innovation in small firms.

Table 2.1. Policy recommendations

MAIN FINDINGS	RECOMMENDATIONS (Key recommendations in bold)
Securing a safe and high-quality digital environment for all	
Coordination and monitoring of the 2020 Action Plan for Digital Transition will be challenging due to the significant number of initiatives, a lack of data and limited evaluation capacity.	Expand data collection and evaluation capacity to ensure an effective coordination and monitoring of programmes.
Access to high-speed broadband is good, but gaps remain in fibre deployment and coverage in rural areas.	Use EU funds and strengthen incentives for operators to expand coverage in rural areas and for fibre deployment.
The prices of broadband are relatively high. High market concentration in the telecommunication sector and low consumer mobility suggest competition pressures to reduce them is low.	**Remove constraints to consumer mobility across telecommunication providers, for example by restricting the use of loyalty clauses in contracts and providing clearer information on the quality of services.**
A vast range of public services is available online, but there is large room to increase uptake. Measures to promote accessibility of online public services are ad-hoc.	Ensure that future users are systematically consulted when designing and developing digital government projects.
Trust in digital technologies is low, hampering their diffusion. Many Internet users do not follow best practices for online safety.	Integrate cybersecurity in all digital training activities.
Equipping workers with the skills needed in a digital economy	
Schools and teachers are not well equipped to use and teach ICT. The government has initiated a range of measures to address this issue under the Recovery and Resilience Plan.	**Accelerate and expand the provision of adequate digital resources to schools and teachers, including regular in-service training on ICT use.**
The number of STEM and ICT professionals has to increase to address skill shortages. More women could engage in STEM and ICT studies. Improving gender equality one of the targets of the Recovery and Resilience Plan.	**Further promote the enrolment of women in STEM fields, by reinforcing communication campaigns and early exposure to ICT projects, as planned.**
Participation in adult learning is low, especially among low-skilled workers, more at risk of being affected by the digital transition. Ambitious programmes are in place to address that issue, but those not covered by these programmes have few incentives to train.	**Consider introducing a personal training account for adults, with more generous vouchers for low-skilled workers.**
Information on the quality of training programmes is limited, hampering informed choices by trainees and good allocation of resources in the adult education system.	Develop a general monitoring framework for all training providers.
Addressing barriers to the successful digital transition of SMEs	
Lack of awareness and expertise in digital technologies undermines the adoption of digital tools in small firms. Implementation of cybersecurity measures and data protection legislation is difficult for SMEs. The Recovery and Resilience Plan includes a range of programmes to support the digital transition in SMEs.	**Expand the coverage of programmes for small companies to acquire digital training, advisory services and information on security and privacy after a thorough evaluation of their impact.**
Many business managers of small firms lack the managerial skills needed to operate the digital transformation.	Provide management training targeted at small firm owners. Develop part time advanced management courses for professionals at higher education institutions.
Small firm size is a barrier to digitalisation. Some size contingent policies can discourage firms from growing. The corporate income tax rate system includes incentives for investment and a preferential tax rate for small and medium firms.	Review exemptions for small firms to the labour code. Assess the effectiveness of investment incentives in the corporate income tax and remove disincentives to small firms' growth.
Burdensome administrative procedures in the retail trade sector can hamper business growth.	Reduce red tape in the retail trade sector.
Direct public support to business R&D is low. Tax incentives are generous, but do not reach young innovative firms.	Expand R&D grants. Allow cash refunds for loss making firms or exemptions from withholding payroll taxes for labour inputs related to R&D.

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As in most OECD countries, the pandemic triggered a deep recession in Portugal and put huge pressure on the healthcare system. The policy response helped to weather the shock and the recovery has gained speed, sustained by progress in vaccination. However, the crisis is likely to leave scars, with increased poverty and inequality. Ensuring an inclusive recovery will require strengthening health and labour market policies. Policy action also needs to tackle new financial and fiscal risks. A swift and effective implementation of the Recovery and Resilience Plan will help to address these challenges and ensure a durable recovery. A higher uptake of digital technologies – through better infrastructure and skills development – can boost long-term growth. Equipping the population with digital and foundational skills while promoting investment and innovation in small firms will be crucial to reap the benefits of the digital transformation, while leaving no one behind.

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