OECD Economic Surveys
GREECE

JANUARY 2023



OECD

OECD Economic Surveys: Greece 2023



This document, as well as any data and map included herein, are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Note by the Republic of Türkiye
The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Türkiye recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Türkiye shall preserve its position concerning the "Cyprus issue".

Note by all the European Union Member States of the OECD and the European Union
The Republic of Cyprus is recognised by all members of the United Nations with the exception of Türkiye. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

Please cite this publication as:
OECD (2023), *OECD Economic Surveys: Greece 2023*, OECD Publishing, Paris, https://doi.org/10.1787/c5f11cd5-en.

ISBN 978-92-64-81430-1 (print)
ISBN 978-92-64-41183-8 (pdf)
ISBN 978-92-64-75298-6 (HTML)
ISBN 978-92-64-43293-2 (epub)

OECD Economic Surveys
ISSN 0376-6438 (print)
ISSN 1609-7513 (online)

OECD Economic Surveys: Greece
ISSN 1995-3224 (print)
ISSN 1999-0286 (online)

Photo credits: Cover © Vivooo/Shutterstock.

Corrigenda to publications may be found on line at: www.oecd.org/about/publishing/corrigenda.htm.

© OECD 2023

The use of this work, whether digital or print, is governed by the Terms and Conditions to be found at https://www.oecd.org/termsandconditions.

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 Greece were reviewed by the Committee on 18 July 2022. 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 16 December 2022.

The Secretariat's draft report was prepared for the Committee by Tim Bulman and Timo Leidecker, under the supervision of Isabelle Joumard. Statistical research assistance was provided by Béatrice Guérard and editorial assistance by Michelle Ortiz, Heloise Wickramanayake and Jean-Rémi Bertrand.

The previous Survey of Greece was issued in July 2020.

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

Table of contents

Foreword 3

Executive summary 9

1 Key Policy Insights 14
- Introduction 15
- External headwinds are slowing Greece's recovery 17
- Fiscal sustainability through more effective public investment, spending and revenue policy 40
- A better operating labour market to boost employment and incomes 54
- Boosting private investment to seize emerging opportunities 62
- Main policy findings and recommendations 74
- References 76

2 Transitioning to a green economy 83
- Climate change is making the transition to a green economy imperative 84
- Towards net-zero via the green energy transition 85
- Policy mixes to achieve the green energy transition in key sectors 100
- Policies to adapt to a changing climate 117
- Implementing the policies to transition to a green economy 122
- Policy recommendations for transitioning to a green economy 133
- References 134

FIGURES

Figure 1. Surging global energy and food prices drove the rise in inflation 10
Figure 2. Job growth has been strong but requires further efforts for youth 11
Figure 3. Strengthening private investment would support long-term growth 12
Figure 4. Greece aims to achieve net zero emissions by 2050 12
Figure 1.1. Continued investment and reforms would support growth and help Greece to transition to a greener and more inclusive economy 16
Figure 1.2. Greece's recovery from the COVID crisis has been strong 18
Figure 1.3. The COVID-19 vaccination rate is similar to other OECD countries 19
Figure 1.4. Employment is rising but requires continued efforts to ensure the young benefit 20
Figure 1.5. Russia supplies much of Greece's energy but has become a minor export destination 21
Figure 1.6. Despite growing exports, the trade and current account deficits have widened 22
Figure 1.7. Greece's goods exports are more diversified than its services exports 22
Figure 1.8. Energy prices are leading inflation higher, after many years of little price growth 24
Figure 1.9. Substantial fiscal support is being unwound gradually 25
Figure 1.10. Achieving investment grade could narrow Greek government bond spreads, lower financing costs and support lending 31

Figure 1.11. Banks will need to further improve their health if they are to finance the recovery 34
Figure 1.12. Stronger investment will be central to sustaining growth as the workforce ages 37
Figure 1.13. The economy's rebound and rising prices have put public debt on a downwards path 40
Figure 1.14. Some countries sustain a primary budget surplus above 1.5% of GDP for many years 41
Figure 1.15. Sustained reforms and investments are needed to lower the public debt ratio 42
Figure 1.16. Better spending of EU funds would lift public investment 44
Figure 1.17. Greece's public investment is highly reliant on European funds 45
Figure 1.18. Despite a decade of spending control and reallocation, Greece's overall public spending provides limited resources to growth-enhancing areas 46
Figure 1.19. Improving integrity and reducing perceived corruption will require further efforts 48
Figure 1.20. Consumption taxes and social contributions outweigh income taxes in Greece's public revenues 51
Figure 1.21. Recent reforms have reduced the labour income tax wedge 52
Figure 1.22. Taxes on distributed profits are low 53
Figure 1.23. Despite improving compliance, the VAT gap remains high 53
Figure 1.24. Employment rates remain low, especially among the young and women 55
Figure 1.25. Greece's minimum wage is high relative to the median wage and productivity 59
Figure 1.26. Greece can require jobseekers to be more active in their search 61
Figure 1.27. Raising private investment is crucial for a sustained recovery 63
Figure 1.28. Larger firms can access credit at a premium, while smaller firms have little access and few alternatives to banks 65
Figure 1.29. The integrity of Greece's financial system supports financial innovation 67
Figure 1.30. Few firms dominate many markets in Greece 68
Figure 1.31. Boosting business dynamism would raise investment demand and productivity 69
Figure 1.32. Reducing environmental regulations' administrative burdens and better evaluating new regulations would encourage greater investment 70
Figure 1.33. Better management and digital skills would support digitalisation 72
Figure 2.1. Greece needs to sustain its recent pace of GHG emission reductions to reach net zero 85
Figure 2.2. Greening energy use is crucial for decoupling emissions from economic activity 87
Figure 2.3. Transforming the energy system will achieve the largest emission cuts 88
Figure 2.4. Revising fossil fuel taxes and subsidies to introduce a minimum carbon price floor would make emission pricing more effective 92
Figure 2.5. Lower income households spend a larger share of their income on home energy, especially electricity 94
Figure 2.6. Higher carbon prices would reduce lower income households' real incomes the most 95
Figure 2.7. Scenarios for greening the energy mix 97
Figure 2.8. A faster green energy transition would shift growth to future decades and contribute to reducing the damages from climate change 98
Figure 2.9. Taxes from road transport are a significant source of governmental income 100
Figure 2.10. Greening electricity generation can make significant inroads into Greece's emissions 101
Figure 2.11. Greece plans to rapidly expand electricity generated from renewable sources 102
Figure 2.12. Wholesale electricity prices in Greece are among the highest in Europe 104
Figure 2.13. Greece could further improve competition in its electricity retail market 105
Figure 2.14. Road transport can make a large contribution to reducing Greece's GHG emissions 107
Figure 2.15. Greece is especially reliant on motor vehicles but spends few resources on purchasing them 108
Figure 2.16. Greece's vehicle fleet is old and fleet renewal towards greener vehicles is slow 109
Figure 2.17. Poorer households are less likely to own a car 109
Figure 2.18. Using cars less would reduce Greece's high incidence of accidents and congestion 111
Figure 2.19. Greece's railway network can be expanded and used more intensively 112
Figure 2.20. A large share of the population faces high energy bills and limits heating 113
Figure 2.21. Energy consumption and carbon emissions of Greece's buildings can improve 114
Figure 2.22. Requirements to upgrade buildings' energy efficiency will need to account for Greece's high home ownership rate, low mobility and high share of multi-owner buildings 115
Figure 2.23. Wildfires have already become more frequent and severe 117
Figure 2.24. Climate change is likely to affect the south and west of Greece most 118
Figure 2.25. Greece can increase coverage and reduce costs for climate-related insurance 120
Figure 2.26. Greece can use its water resources more efficiently 121
Figure 2.27. Nine out of ten Greeks perceive climate change to be a major threat 124
Figure 2.28. Pursuing clear long-term policy programmes bolsters private sector investment 126
Figure 2.29. Greece's green economy transition is likely to affect workers across many sectors 130

TABLES

Table 1. The recovery is slowing 10
Table 1.1. Greece's energy cost support for households and businesses is substantial 26
Table 1.2. Greece 2.0 foresees sustained disbursements from its inception 29
Table 1.3. Greece 2.0 prioritises the green transition, employment and skills, digitalisation and private investment 29
Table 1.4. Containing expenditure growth is helping Greece return the primary balance to surplus 30
Table 1.5. Macroeconomic indicators and projections 36
Table 1.6. Continuing investment and reforms would support income growth and the green energy transition 38
Table 1.7. Events that could lead to major changes in the outlook 39
Table 1.8. Recommended reform measures with significant fiscal effects 39
Table 1.9. Greece is cutting labour income tax and contribution rates and indirect taxes paid by households 51
Table 2.1. Policy targets and measures for achieving the green economy transition 86
Table 2.2. Comparing mitigation policy instruments along several cost dimensions 90
Table 2.3. A higher minimum carbon price floor can reduce emissions while raising revenues 93
Table 2.4. Selected measures to help limit fiscal costs of the green economy transition 99
Table 2.5. More ambitious policies focusing on land transport could achieve large emission cuts 106

Follow OECD Publications on:



https://twitter.com/OECD

https://www.facebook.com/theOECD

https://www.linkedin.com/company/organisation-eco-cooperation-development-organisation-cooperation-developpement-eco/

https://www.youtube.com/user/OECDiLibrary

https://www.oecd.org/newsletters/

This book has...

StatLinks

A service that delivers Excel® files from the printed page!

Look for the StatLink at the bottom of the tables or graphs in this book. To download the matching Excel® spreadsheet, just type the link into your Internet browser or click on the link from the digital version.

Basic statistics of Greece, 2021[1]

(Numbers in parentheses refer to the OECD average)[2]

LAND, PEOPLE AND ELECTORAL CYCLE					
Population (million)	10.7		Population density per km²	82.7	(38.7)
Under 15 (%)	13.4	(17.6)	Life expectancy at birth (years, 2020)	81.1	(79.7)
Over 65 (%)	22.6	(17.7)	Men (2020)	78.6	(77.0)
International migrant stock (% of population, 2019)	11.6	(13.2)	Women (2020)	83.7	(82.5)
Latest 5-year average growth (%)	-0.2	(0.5)	Latest general election	July-2019	
ECONOMY					
Gross domestic product (GDP)			Value added shares (%)		
In current prices (billion USD)	216.3		Agriculture, forestry and fishing	4.5	(2.6)
In current prices (billion EUR)	182.8		Industry including construction	18.3	(27.7)
Latest 5-year average real growth (%)	0.6	(1.5)	Services	77.3	(69.7)
Per capita (thousand USD PPP	31.3	(50.7)			
GENERAL GOVERNMENT Per cent of GDP					
Expenditure	57.1	(47.1)	Gross financial debt (OECD: 2020)	225.7	(129.8)
Revenue	49.7	(39.4)	Net financial debt (OECD: 2020)	168.4	(81.0)
EXTERNAL ACCOUNTS					
Exchange rate (EUR per USD)	0.85		Main exports (% of total merchandise exports)		
PPP exchange rate (USA = 1)	0.55		Mineral fuels, lubricants and related materials	27.6	
In per cent of GDP			Manufactured goods	15.6	
Exports of goods and services	40.6	(29.7	Food and live animals	14.8	
Imports of goods and services	48.6	(29.8)	Main imports (% of total merchandise imports)		
Current account balance	-6.7	(0.2)	Mineral fuels, lubricants and related materials	25.5	
Net international investment position	-163.5		Machinery and transport equipment	18.9	
			Chemicals and related products, n.e.s.	16.9	
LABOUR MARKET, SKILLS AND INNOVATION					
Employment rate (aged 15 and over, %)	43.3	(59.2)	Unemployment rate, Labour Force Survey (aged 15 and over, %)	14.8	(6.1)
Men	52.0	(64.1)	Youth (aged 15-24, %)	35.7	(12.8)
Women	35.3	(48.7)	Long-term unemployed (1 year and over, %)	9.2	(2.0)
Participation rate (aged 15 and over, %)	50.8	(60.3)	Tertiary educational attainment (aged 25-64, %)	34.6	(39.9)
Average hours worked per year	1,872	(1,716)	Gross domestic expenditure on R&D (% of GDP, 2020)	1.5	(3.0)
ENVIRONMENT					
Total primary energy supply per capita (toe)	1.9	(3.8)	CO2 emissions from fuel combustion per capita (tonnes, 2019)	5.3	(8.3)
Renewables (%)	16.6	(11.6)	Water abstractions per capita (1 000 m³, 2020)	0.9	
Exposure to air pollution (more than 10 µg/m³ of PM 2.5, % of population, 2019)	96.6	(61.7)	Municipal waste per capita (tonnes, 2019, OECD: 2020)	0.5	(0.5)
SOCIETY					
Income inequality (Gini coefficient, 2019, OECD: latest available)	0.308	(0.315)	Education outcomes (PISA score, 2018)		
Relative poverty rate (%, 2019, OECD: 2018)	11.5	(11.7)	Reading	457	(485)
Median disposable household income (thousand USD PPP, 2019, OECD: 2018)	15.4	(25.5)	Mathematics	451	(487)
Public and private spending (% of GDP)			Science	452	(487)
Health care (2020)	9.5	(9.7)	Share of women in parliament (%)	21.7	(32.4)
Pensions (2017)	15.6	(8.6)	Net official development assistance (% of GNI, 2017)	0.2	(0.4)
Education (% of GNI, 2020)	3.1	(4.4)			

1. The year is indicated in parenthesis if it deviates from the year in the main title of this table.
2. 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.

Executive summary

Greece's strong recovery is facing mounting external headwinds

Greece's strong recovery from the COVID crisis, supported by continued reforms, is being slowed by surging energy prices and renewed global uncertainty, despite evolving fiscal support. Fully implementing the ambitious Recovery and Resilience Plan, managing supply and cost pressures while supporting fiscal health, and completing the restoration of banks' health are key to a sustained recovery.

Greece recovered strongly from the COVID crisis. Government support measures, reviving tourism and other exports, and improving consumer and investor confidence supported a rebound in demand, returning GDP to its pre-COVID crisis level. Continued reforms are improving the business environment, helping to attract rising foreign direct investment. These factors and the end of short-time work schemes contributed to strong jobs growth and reduced the unemployment rate to a 12-year low.

Surging energy prices, supply disruptions and renewed uncertainty, especially since Russia's war of aggression against Ukraine, is sharply slowing the recovery (Table 1). The war is directly affecting Greece's energy supply and costs. Its indirect effects are compressing spending and delaying investment and hiring. The government's accelerating disbursement of its ambitious Recovery and Resilience Plan and expanding fiscal support to energy consumers are buffering these shocks, and will help the recovery resume once the security situation and energy prices stabilise.

Table 1. The recovery is slowing

	2022	2023	2024
Gross domestic product	5.1	1.1	1.8
Private consumption	8.0	0.5	1.4
Gross fixed capital formation	8.5	2.5	5.0
Exports of goods and services	5.1	-0.5	2.9
Current account balance (% of GDP)	-7.1	-8.9	-8.8
Employment	6.2	1.1	0.3
Harmonised consumer price index	9.5	3.7	2.3
Fiscal balance (% of GDP)	-4.3	-2.6	-1.7
Primary budget balance (% of GDP)	-1.6	0.5	1.5
Government gross debt (Maastricht definition, % of GDP)	175.1	170.7	163.6

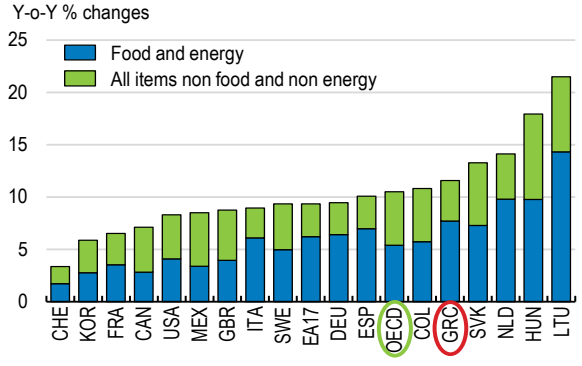
Source: OECD Economic Outlook 112 (database), updated.

The government has extended fiscal support, slowing the budget's return to surplus. It has expanded electricity and fuel price subsidies for households and businesses, and raised social transfers for low-income households. Recovering activity and surging prices have buoyed revenues. Public debt has fallen to its pre-COVID crisis ratio to GDP, and judicious debt management is containing financing costs. Still, the government's energy support measures have delayed the return of the primary budget surplus to its medium-term target of 1.5% to 2% of GDP, weighing on Greece quickly achieving an investment-grade rating.

After a decade when inflation has been among the slowest in the OECD, prices have accelerated as supply pressures broaden. Large increases in energy and food prices lifted inflation to the highest rates in over a quarter-century (Figure 1). Capacity use, input costs, wages and inflation expectations have all risen. In key markets, limited competition, or many small, low-margin-low-productivity firms add to price pressures.

Figure 1. Surging global energy and food prices drove the rise in inflation

Contributions to headline inflation, 2022Q3



Source: OECD Price Statistics database.

StatLink https://stat.link/cv3ey5

Wages are rising after 12 years of little growth. The government increased the minimum wage by nearly 10% in the first half of 2022. Some groups of workers with in-demand skills, such as in ICT and construction workers, are experiencing stronger wage growth. Minimum wage increases provide a safety net for workers with weak bargaining power, but have become the primary source of wage adjustments for many workers paid above the minimum rate. Sectoral collective bargaining on wages and working conditions would better support incomes and productivity.

Bank lending to businesses has started to increase, a step towards financing the renewal of the private capital stock. Banks' health is improving. The Hercules securitisation scheme is enabling banks to shift much of their non-performing loans off their balance sheets faster than new bad loans are emerging. Banks' statutory capital, while meeting regulatory requirements, is being depleted through this process, and 58% consists of deferred tax credits. To expand access to finance, the government is on-lending its NextGenerationEU loans to selected domestic banks and European financial institutions to fund new private investments, although this brings implementation risks. Resolving the existing non-performing loans will release their debtors and assets securing the loans. Resolution often entails restructuring or insolvency processes, which the economy's recovery, the implementation of the new insolvency framework, and efforts to improve judicial processing times are supporting.

More effective public spending and revenue policies would foster fiscal sustainability and lasting growth

Public debt has declined relative to GDP but remains high. Its long maturity structure and interest rates fixed at low rates limit the immediate exposure to rising market rates. Future fiscal pressures include substantial investment needs and any realised contingent liabilities.

Greece's ambitious Recovery and Resilience Plan includes many reforms and investments to improve the public sector's performance and to sustain growth. Implementation has started in earnest, and dedicated bodies are steering progress. In recent years, low disbursement rates have held back public investment. Recent public investment management reforms can help to address challenges such as shortages of well-trained staff and fragmented responsibilities across many different bodies, such as for public procurement. New dedicated public project implementation and auditing bodies may further build spending quality and integrity, furthering recent improvements in perceptions of corruption.

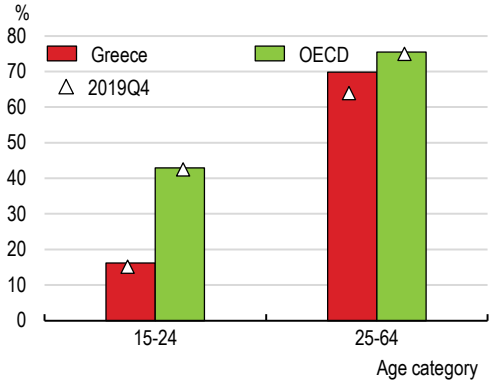
Recent tax cuts have reduced the large labour income tax wedge. Compliance is generally improving, although significant shortfalls remain. For consumption and recurrent property taxes, coverage has broadened, while some rates have been cut. Income tax and social contribution rates are being cut. A significant number of targeted reliefs across different taxes have been introduced to support specific policy goals. Some of Greece's tax rates and receipts, such as those on distributed corporate profits, are now relatively low.

A sustained recovery will require tackling long-standing challenges

The share of adults in work lags other OECD countries, especially among women and youth, despite the post-COVID recovery in employment (Figure 2). Yet skill shortages are emerging and ageing is reducing the working age population. A legacy of low private investment weakens productivity and firms' ability to seize emerging opportunities in digitalisation and the green economy transition.

Figure 2. Job growth has been strong but requires further efforts for youth

Employment rates 2022 Q2, % of population



Source: OECD (2022), Short-term Labour Market Statistics database.
StatLink https://stat.link/m3gxwk

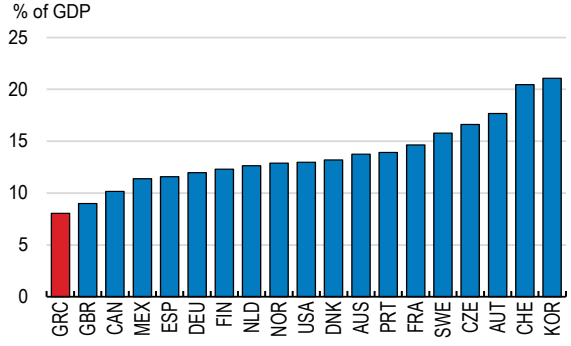
Recent strong employment growth must continue for Greece to achieve the employment rates of other OECD countries. The public employment service can help improve the match between jobseekers and employers. It is gaining capacity to tailor individual employment support programmes, which can particularly help younger jobseekers, but it is burdened by large numbers of registered jobseekers loosely connected to the workforce. The relatively low share of women in paid employment is gradually rising as work arrangements become less inflexible and workers

have greater capacity to influence their work arrangements. The new paternal leave scheme can help improve the sharing of household tasks, if it is widely taken up. Foreign-born workers make a large contribution to Greece's labour force, but their skills are often unrecognised and underused.

Private investment has been low for many years (Figure 3)**.** Scarce finance, the high share of very small firms, and limited dynamism are contributing factors. Streamlining complex administrative processes as part of the public sector's digitalisation efforts is helping to improve the business environment. Digitalisation and the green economy transition are creating new investment opportunities. Rising foreign direct investment creates opportunities for domestic firms to raise their productivity and expand their markets. Expanding the role of medium-sized and larger firms, and deepening management capacity, will help Greece to seize these opportunities.

Figure 3. Strengthening private investment would support long-term growth

Private business investment, 2021



Source: Calculations based on data from OECD Economic Outlook.

StatLink https://stat.link/o53yxu

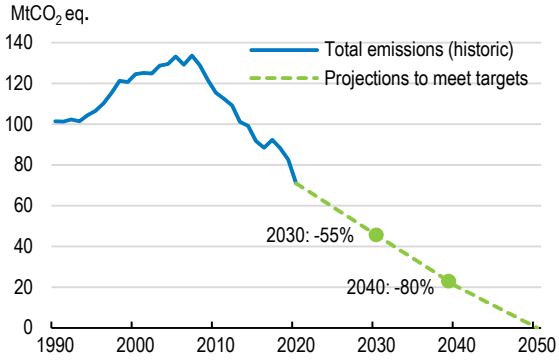
Ambitious policies are key to reach net-zero greenhouse gas emissions and prepare for a warming climate

Greece's economy remains intensive in greenhouse gas emissions (GHG) mostly due to its fossil fuel use. Replacing fossil fuels with renewable energies would help achieve emission reduction goals (Figure 4). This will require energy consumers to invest and adapt.

Transforming the energy system cost-effectively will be crucial given large investment needs and scarce fiscal space and finance. Making buildings more energy efficient promises large energy savings but requires sizeable upfront investments. Shifting transport off the road and onto Greece's underused railway system would reduce emissions at modest costs compared to replacing fossil-fuelled cars with low-emission alternatives. Strengthening carbon pricing, while protecting vulnerable groups, and gradually tightening regulations on the use of fossil fuels and energy efficiency can provide policy certainty. This will be crucial to guide investments and productive capacities through this extended transition.

Figure 4. Greece aims to achieve net zero emissions by 2050

Total greenhouse gas emissions in Greece



Note: GHG emissions include land use, land-use change and forestry. 2030 and 2040 reductions are relative to 1990 GHG emissions.
Source: OECD (2022), Environment: Air and climate database.

StatLink https://stat.link/y1dpiq

Greece is particularly exposed to a warming climate with more extreme weather events, coastline erosion and less rain. Adapting to climate change will require adjusting public infrastructure and encouraging people to take protective measures. Publicising information about risks and protective measures, and boosting low property insurance coverage to clarify the sharing of risks between the public and private sectors, can reduce vulnerabilities and limit fiscal costs.

Climate policies can stoke opposition and risk being reversed. Responsibility for implementing climate policies is spread across many bodies, weakening implementation. Many workers and firms will need to adjust their skills and activities. Climate-related active labour market measures focus on workers in the most directly-exposed sectors.

Main Findings and Recommendations

MAIN FINDINGS	KEY RECOMMENDATIONS
Supporting a fiscally sustainable recovery	
Fiscal support helped the economy rebound. It is buffering surging energy prices for households and firms. Capacity use and supply constraints are rising. The rebound in activity and prices are buoying government revenues and reducing the deficit, although more slowly than earlier planned. The public debt ratio is declining, but Greece's sovereign rating remains sub-investment grade, widening spreads.	Return the primary budget balance to surplus from 2023 and maintain a primary budget surplus thereafter of at least 1.5% to 2% of GDP.
Investment spending has regularly fallen well short of budget allocations. Despite the size of the public workforce and payroll being comparable to other OECD countries, skill gaps in key areas impede service delivery. Recent public investment management and public procurement reforms may help raise disbursement speed and investment quality, and further recent improvements in perceptions of corruption.	Avoid growth in overall public servant numbers by promoting reallocation of staff to areas short of resources. Consolidate fragmented activities, such as public procurement, into dedicated agencies with deeper capacity.
Public sector digitalisation accelerated during the COVID pandemic and is bringing tangible benefits to service delivery and public sector operations.	Pursue digitalisation and administrative simplification across the public sector, prioritising work process reforms and raising skills.
Public revenues are weighted to consumption taxes and social contributions rather than income taxes. Targeted cuts are reducing Greece's large labour income tax and contribution wedge. Taxes on capital and profits are among the lowest in the OECD. The shift to electronic transactions is raising tax compliance, but exemptions and discounts weaken the system's efficiency.	Focus future income tax rate changes on maintaining revenues, while expanding the base of taxpayers. Publish regular and comprehensive reviews of the costs and benefits of all tax expenditures and subsidies, highlighting those that apply to fossil fuels.
Raising employment and incomes	
Employment rates remain low, particularly for women and the young, despite strong job creation with the post-COVID recovery. Few activation requirements and substantial benefits contribute to large numbers registered with the public employment service, many of whom are little engaged in the job market, dragging the service's effectiveness.	Promote women's participation in paid employment including by encouraging workplaces to adopt more flexible work arrangements. Strengthen incentives for employers to hire young workers with limited experience, such as waiving employer social security contributions for new hires. Consider replacing non-monetary unemployment benefits provided to the registered unemployed with targeted income support.
The government has increased the minimum wage by almost 10% in the first half of 2022, ahead of the rise in prices. The minimum wage is a central protection for low-income households and has become the main wage adjustment mechanism for other workers.	Strengthen the use of collective bargaining at sector level as a key instrument for setting wages, focusing on support to social partners to apply sectoral agreements at workplace level.
Investing in an enduring recovery	
Banks have made large inroads into non-performing loans. Banks' capital, while within regulatory requirements, is low and mostly consists of deferred tax credits, weighing on new lending and weakening banks' ability to invest.	Encourage banks to build their capital bases by increasing profits organically and by considering raising capital buffer requirements.
After a decade of prices growing some at the slowest rates of OECD countries, inflation has risen and broadened. In many markets price competition is low due to weak contestability or many low-productivity operators. Entry barriers remain high in some key professions, such as legal services.	Lower entry barriers, prioritising professional services, and simplify land zoning rules.
Regulatory burdens to operate in some key sectors and to re-develop land impede new entrants and raise costs.	Improve the legal system's effectiveness by including it in horizontal measures to review and simplify all administrative processes.
Achieving Greece's green economy transition	
Effective carbon prices differ substantially between fuels and users and are below levels expected to be necessary to reach net-zero. Higher carbon prices would disproportionately affect low-income households under current social support schemes.	In the medium term, raise the price of emissions to at least the level of the EU Emission Trading Scheme, accompanied by temporary and targeted measures to help households adjust.
The railway network is under-used and underdeveloped with low perceived efficiency. Infrastructure investments prioritise road transport.	Raise investment in public transport informed by cost-and-benefit analyses.
The government targets renovating the energy efficiency of 60 000 dwellings annually. This pace will need to approximately double to renovate all insufficiently insulated buildings by 2050.	Mandate a timeline of tightening minimum energy efficiency standards, to apply to all existing buildings by 2050.
Public compensation for damages from extreme weather events imposes fiscal costs and provides little certainty. Insurance coverage is low and the sharing of risk between the public and private sectors is not transparent.	Formalise risk-sharing, for example by making property insurance for extreme weather events compulsory for all buildings.
The transition to a green economy will require many workers, firms and regions to adapt their existing activities to new opportunities.	Increase access and quality of active labour market policies and training of workers across all sectors and regions affected by the green economy transition.

1 Key Policy Insights

Greece has rebounded from the COVID-19 crisis, through a revival of tourism and other exports, a strong investment rebound, substantial public support and implementation of the Greece 2.0 Recovery and Resilience Plan, and improving competitiveness and dynamism following a decade of reforms. Headwinds from the surge in global energy prices and Russia's war of aggression against Ukraine have slowed this rebound. This chapter presents priorities to ensure that a sustainable recovery continues over the longer term. Achieving and maintaining modest primary budget surpluses will support debt sustainability and improve the prospects of Greece achieving an investment-grade sovereign rating. They can be achieved while supporting growth through better allocating spending and public resources, and maintaining public revenues while further broadening the tax base, improving collections and addressing distortions. More flexible work environments and wage setting, and a strong push to expand participation in quality skill training, can boost job creation and support workers' productivity. Completing the restoration of banks' health, while developing alternative sources of finance, will help finance new private investments. Ensuring markets are more competitive, and continuing efforts to improve the business climate, such as increasing the justice sector's responsiveness, can further raise firms' willingness to invest in the emerging opportunities in Greece.

Introduction

Greece's economy rebounded well from the deep COVID crisis. Substantial government and EU support measures, lower interest costs, a revival in tourism receipts, households' rising confidence and spending, and improving foreign investment and construction activity drove the rebound. Exports of goods and services have been rising and diversifying, reflecting Greece's improving competitiveness. The government has continued its reform programme, designed to address many of the country's long-standing structural challenges. These developments have supported strong employment growth, returning unemployment rates to decade-lows, and supporting households' incomes. The rebound has boosted government revenues, allowing the government to reduce the budget deficit and to return the public debt-to-GDP ratio to its level at the onset of the COVID crisis. The improved fiscal situation and progress in policy reforms agreed with the European institutions led in August 2022 to Greece exiting the 'Enhanced Surveillance' following its financial support programme.

However, mounting headwinds from the surge in global energy prices and global supply disruptions, amplified by the war in Ukraine, and tightening monetary conditions are reducing global growth and slowing Greece's recovery. Energy and food prices drove headline inflation to 25-year highs, and supply bottlenecks are lifting prices more broadly. The pressure on real incomes and uncertainty are compressing demand, delaying investment and setting back recent gains for vulnerable households (Figure 1.1). Fiscal measures to buttress energy costs are absorbing scarce fiscal space. Following a substantial increase in the minimum wage, wages risk accelerating, slowing employment growth and entrenching higher inflation.

To sustain growth beyond the post-COVID rebound and the surge in commodity prices, Greece needs to make further progress in tackling both long-standing and looming challenges. Recent improvements in investment, the business environment and the public sector will need to continue to sustain growth as population ageing reduces the labour force and the boost to growth from completed reforms fade. In addition, climate change is already leading to increasing natural disasters in Greece. Transitioning to a net zero emissions economy will require substantial investments by businesses, households and the public sector to transform the entire energy system, improve energy efficiency and limit other emissions. Reviving investment will be also essential for firms to seize emerging opportunities, both in terms of the green economy transition and those created by digitalisation. These needs are against a background of years of insufficient private investment to even maintain firms' existing capital stock, held back by banks' poor health and firms' reluctance to invest.

While Greece is reducing its high rates of poverty, its economy still leaves too many groups behind. The young in particular are burdened by the legacies of the past crises, including high public debt, weak private investment and sizable if decreasing social security contributions to finance the pension system. The share of youth in work lags other OECD countries, despite gains since the end of the COVID epidemic. Legal reforms are improving gender equality but, in practice, and despite progress in recent years, relatively few women earn an income from work. Greece benefits less than it could from the skills of its substantial foreign-born workforce, even as employers across a growing number of sectors report increasing difficulties recruiting staff with both specialised and general skills.

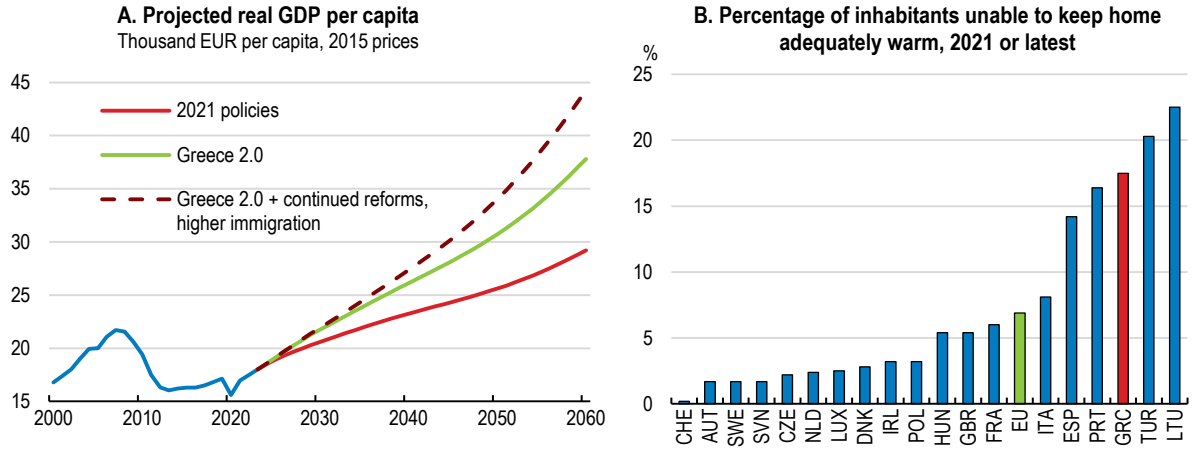
To address many of these challenges, the government is implementing the ambitious 'Greece 2.0' reform and investment plan for 2021-2026. It prioritises improving the business climate, advancing digitalisation, supporting the green economy transition and improving Greece's human capital. If well implemented, this plan will substantially raise growth prospects and incomes (Figure 1.1). Funded through the NextGenerationEU facility, Greece is among the EU countries most advanced in achieving its plan's early goals and accessing its funds. Implementation challenges are likely to grow as the plan advances to its more technically and politically ambitious reforms and complex investment projects. In recent years Greece has implemented only parts of its planned public investments and much of its extensive reform agenda has taken longer to put in place than originally envisaged. Realising the full potential contribution of 'Greece 2.0' to longer-term prospects will require a concerted effort to improve how the public sector operates and

delivers. This Survey sets out recommendations to support the government's longer-term objectives beyond the Greece 2.0 Plan, which would sustain the recovery, raise incomes and achieve the green economy transition.

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

- Restoring the budget to primary surpluses is appropriate, especially given decreasing spare capacity and rising inflation. Effectively implementing the Recovery and Resilience Plan, making the revenue mix broader and more equitable, and improving the public sector's performance would allow public finances to better support investment, incomes and inclusiveness. Limiting the budget's gross financing needs and reducing public debt are essential for Greece's sovereign debt to be upgraded to investment grade, which would expand financing and investment.
- Raising private investment is paramount for a lasting recovery. Fully restoring banks' health, by clearing remaining non-performing loans and rebuilding their capital bases, is necessary for banks to finance sustained growth, and should be complemented by developing alternative sources of finance. Restoring firms' willingness to invest and encouraging them to grow is key into the longer-term.
- Achieving net zero emissions by mid-century and adapting to a warmer climate will require sustained policy efforts for many years. A mix of policies, including investments, regulations and emissions pricing can accelerate cost-efficient emission cuts and raise additional revenues for the green transition. Complementary public investments, predictable and gradually tightening environmental regulations, and financial support measures can leverage more private capital and reduce the costs to lower emissions.

Figure 1.1. Continued investment and reforms would support growth and help Greece to transition to a greener and more inclusive economy



Note: The 'Greece 2.0' and 'continued reforms' policies are described below, in Table 1.6. The 'baseline policies' include the reduction in corporate income tax and personal income tax and social contribution rates, and the effects of the guaranteed minimum income and reform family benefits on inequality. The 'energy transition' entails renewable sources producing 70% of energy needs by 2030 and 100% by 2050.
Source: Simulations based on the OECD's Global Long-Term Model and Eurostat population projection scenarios; and Eurostat.

StatLink https://stat.link/0stza7

Box 1.1. Greece's ongoing reform programme

Through the COVID crisis and recovery, Greece has continued its ambitious agenda of structural reforms. Many of these reforms are intended to address the priorities highlighted in this and previous Economic Surveys of Greece, as reflected in the tables on Past OECD Recommendations and Actions Taken throughout this chapter. Among the extensive completed and ongoing structural reforms, key measures include:

Investment climate and access to finance:

- Ongoing public sector digitalisation and administrative simplification. Support for the development of digital infrastructure and systems in the private sector.
- Development law reforms that reduce some regulatory processes and provide targeted measures to support investment and growth of key sectors, such as in tourism, research and competitiveness and the transition from lignite.
- Reductions in income tax rates and reformed property taxes (discussed below).
- Incentives for the self-employed, micro, small- and medium-sized firms to achieve economies of scale, through mergers, conversions, acquisitions, and new cooperation schemes.
- Finalised insolvency reforms, extension of the Hercules scheme to securitise non-performing loans, and funding of measures to support financing of private investment.

Labour markets, education and vocational training:

- Reformed labour law to support more flexible work arrangements and teleworking.
- Reformed public employment service and introduction of a mutual-obligation framework.
- Expanded access to early childhood and pre-school education.
- Reformed schools' curricula, including to strengthen the role of workplace experience and vocational content.
- Introduced assessment frameworks for schools that will be extended to teachers. Increased schools' and universities' autonomy. Employed on permanent contracts over 11 000 teachers.
- Digitalised the education system, in terms of infrastructure, service delivery, and educational content.
- Introduced a defined contribution supplementary pension system.

Public sector management:

- Reforms to recruiting, evaluating, training, and rewarding staff are underway. The branches and specialisations of public servants, and the classification of their qualifications has been streamlined.
- Registering and simplifying administrative procedures, linked to the digitalisation agenda.
- To support the new human resource management system, completed digital organisation charts for all public entities, and job descriptions for all posts.

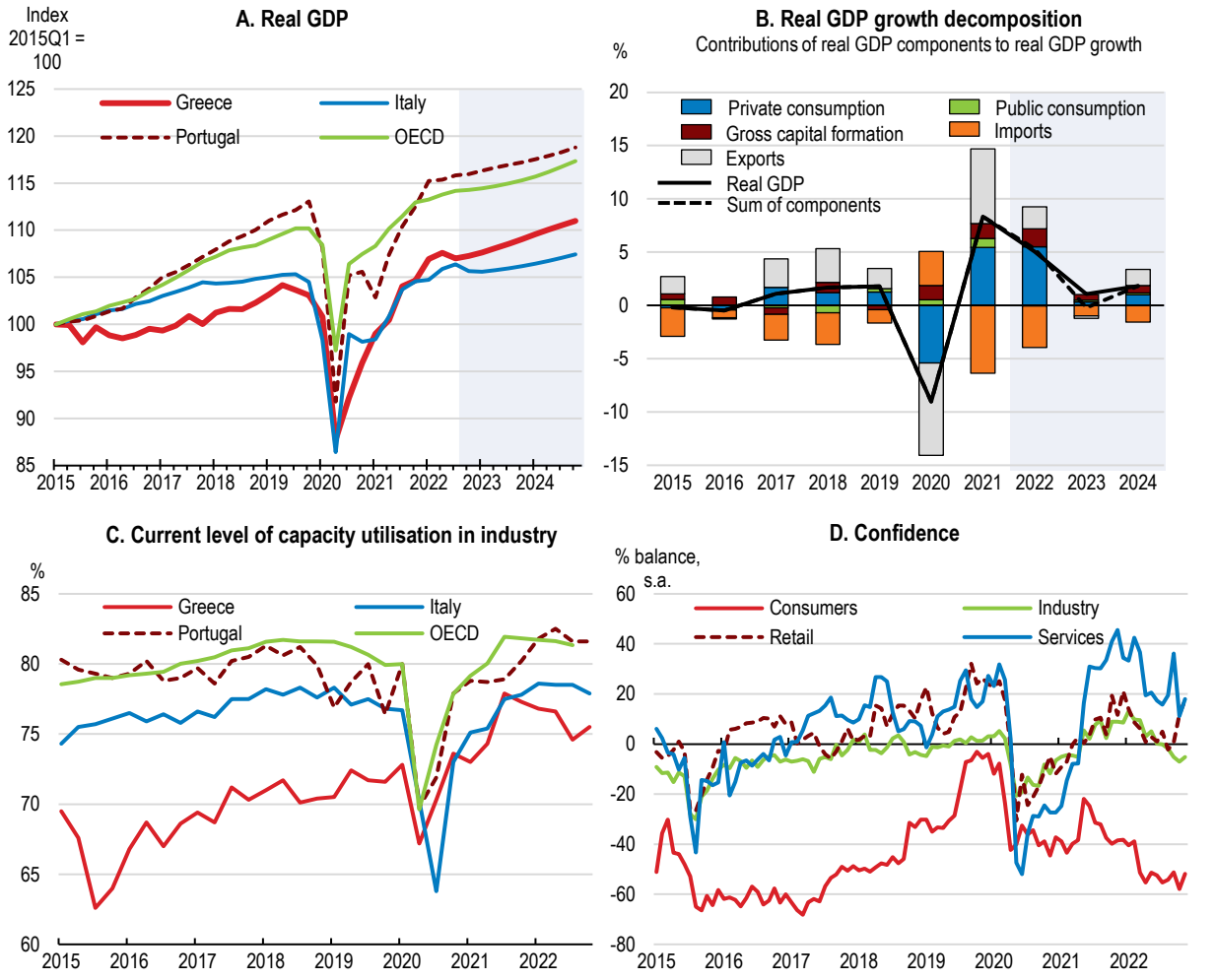
External headwinds are slowing Greece's recovery

After a strong rebound from the COVID crisis, headwinds are mounting

Greece has rebounded from the COVID crisis, and by late 2021 activity had returned to its 2019 level (Figure 1.2, Panel A). Private consumption rebounded (Figure 1.2, Panel B) as COVID-related restrictions were relaxed and vaccinations progressed (Figure 1.3), the government increased transfers and other

support measures and households started to draw down the savings they had built during the shutdowns. This lifted activity in retail and food services, as well as manufacturing. Overall, the recovery in demand has reduced spare capacity and bolstered consumer confidence to the highest level since the economic crises of the late 2000s (Figure 1.2, Panels C and D). Businesses have been adding jobs, lifting the share of the population in work to the levels of the early 2010s.

Figure 1.2. Greece's recovery from the COVID crisis has been strong

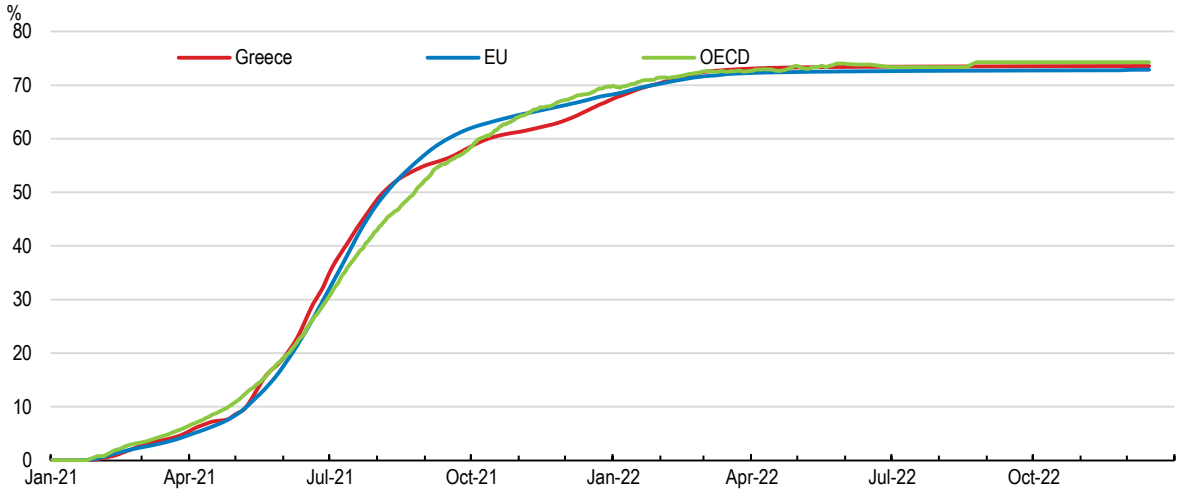


Note: Panel C: Aggregation of businesses' answers to the question "At what capacity is your company currently operating (as a percentage of full capacity)?"; OECD unweighted average excludes Australia, Canada, Chile, Costa Rica, Iceland, Israel, Japan, Korea, Mexico, and Türkiye. Panel D: Answers obtained from the surveys are aggregated in the form of balances, constructed as the difference between the percentages of respondents giving positive and negative replies.
Source: OECD Economic Outlook 112 (database), updated; OECD Main Economic Indicators (database); and Eurostat.

StatLink https://stat.link/0imspl

Figure 1.3. The COVID-19 vaccination rate is similar to other OECD countries

Share of people fully vaccinated against COVID-19, 7-day moving average



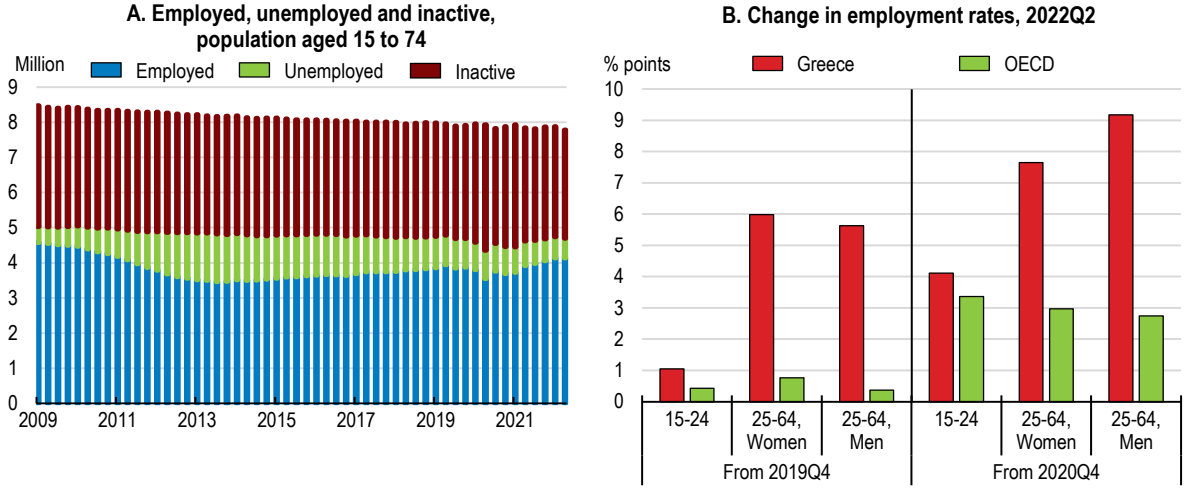
Source: Our World in Data.

StatLink https://stat.link/q8lh7s

Investment accelerated through 2021. New investment has been evident in rising construction activity, which is starting to recover after having fallen to one of the weakest levels of any OECD country over the 2010s. Demand from households upgrading their dwellings, preparing apartments for short-term rental and motivated by accelerating real estate prices, initially drove the rise in construction. The recovery in investment and construction has been broadening as the government started implementing projects in its "Greece 2.0" Recovery and Resilience Plan (discussed in Box 1.2 and through this *Survey*), and through record net foreign direct investment flows into real estate in addition to manufacturing and services. However, the acceleration in the costs of investments means that higher investment spending translates into less additional real investment.

Strong employment growth has accompanied the rebound in activity and lowered the unemployment rate (Figure 1.4). The number of workers rose by 2.5% in the year to October 2022, and by over 6% compared with the end of 2019. Employment growth has been stronger in primary and goods-producing sectors and in the public administration than in service firms. The overall unemployment rate fell to 11.6% in October 2022, its lowest since 2010, following only modest rises during the COVID crisis as workers who lost their jobs temporarily moved out of the labour force (Figure 1.4, Panel A). However, those who had previously worked benefited more from these gains than those new to the workforce (Figure 1.4, Panel B and discussed below).

Figure 1.4. Employment is rising but requires continued efforts to ensure the young benefit



Source: OECD (2022), Short-term Labour Market Statistics (database).

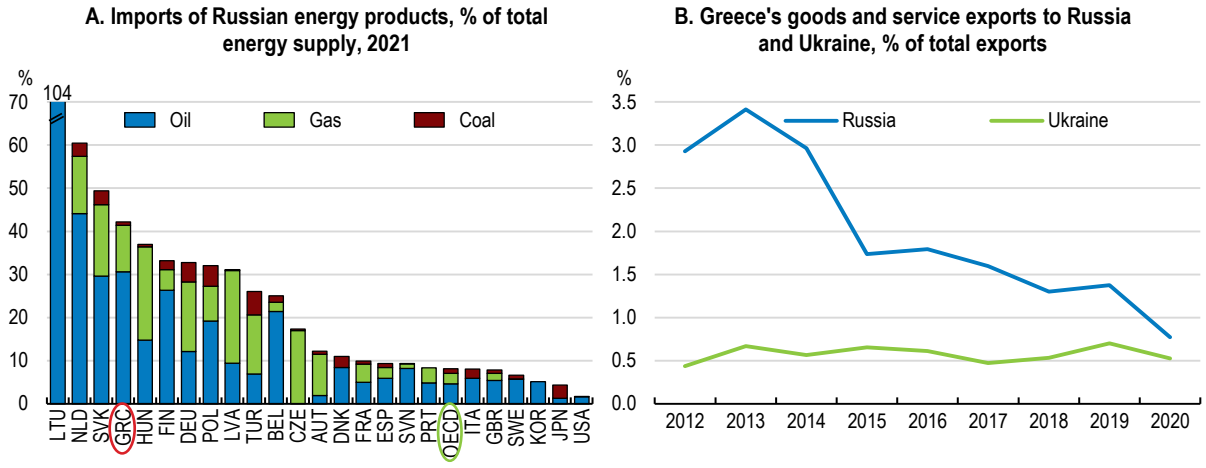
StatLink https://stat.link/rbidnj

The recovery remained remarkably robust into the second quarter of 2022, through strong growth in domestic consumer and investor spending and substantial fiscal support. The effects of the surge in energy and other commodity prices, the war in Ukraine, and falling consumer confidence and spending power slowed demand, contributing to a contraction in economic activity in the third quarter of 2022 (Figure 1.2). Government energy cost interventions, income support (Table 1.1), and approval of substantial increases in the minimum wage in the first half of 2022 are supporting households' real incomes, but add to pressures on public finances.

Greece's energy supply represents the major direct economic impact of Russia's invasion of Ukraine and the associated sanctions. In February 2022, energy made up 85% of Greece's imports from Russia. Russia supplied nearly 40% of Greece's total energy consumption in 2019 (Figure 1.5, Panel A) down from 82% in 2009 (Kovacevic, 2009[1]). Russia supplied 46% of Greece's refined petroleum product imports in 2019. As this supply is largely ship-born, Greece can relatively readily source these fuels from elsewhere. Russia supplied 45% of Greece's gas imports, via pipelines through neighbouring countries. Gas is an increasingly important energy source as Greece ends the use of lignite to generate electricity (discussed in Chapter 2). Diversifying this supply is more challenging. Building new seaborne shipment infrastructure, identifying and developing fields and constructing new pipelines will be required to access other regional suppliers. Supplies from Azerbaijan are expanding and resources in the Mediterranean are being identified, but it will take several years for these to be sufficient to fully substitute for the supply from Russia. The government has started investing in port and storage facilities to receive seaborne LNG, however this gas is significantly more expensive than existing supplies.

Other direct economic links with Russia are limited and have declined since Russia's invasion of the Crimea in 2014 (Figure 1.5, Panel B). Less than 1% of Greece's total value added was exported to Russia in 2019. Foreign direct investment flows and financial sector linkages between the countries are minor. Receipts from Russian tourists had declined from a peak of 11% of total receipts in 2013 to 1.1% in 2021. Tourist industry bodies had expected Ukrainians to make up about 1.4% of arrivals in 2022. Significant shares of Greece's imports of some food and metals were sourced from Russia and Ukraine, including around one-quarter of aluminium and copper, 22% of wheat and 12% of barley imports. At the same time, Greece, like other countries, is being significantly affected by the war's exacerbation of disruptions in global supply chains and rising food, commodity and energy prices.

Figure 1.5. Russia supplies much of Greece's energy but has become a minor export destination



Note: Panel A: Total energy supply includes energy in total final consumption, transformation processes, distribution losses and energy own-use. In the specific case of Oil, crude oil and oil products are computed together. For Finland, Hungary, Netherlands, and Slovak Republic: country imports include transit trade figures. For Czech Republic, Germany and Latvia: figures include amounts that went to stocks. Components for Lithuania are: oil (91.4%), gas (10.5%) and coal (1.8%). Panel B: Exports of goods and services are the sum of USD value of exported commodities according to the Harmonised System classification and the value of total services exports according to the EBOPS 2010 classification.

Source: IEA World Energy Balances database; OECD International Trade by Commodity Statistics; OECD International Trade in Services Statistics; and OECD calculations.

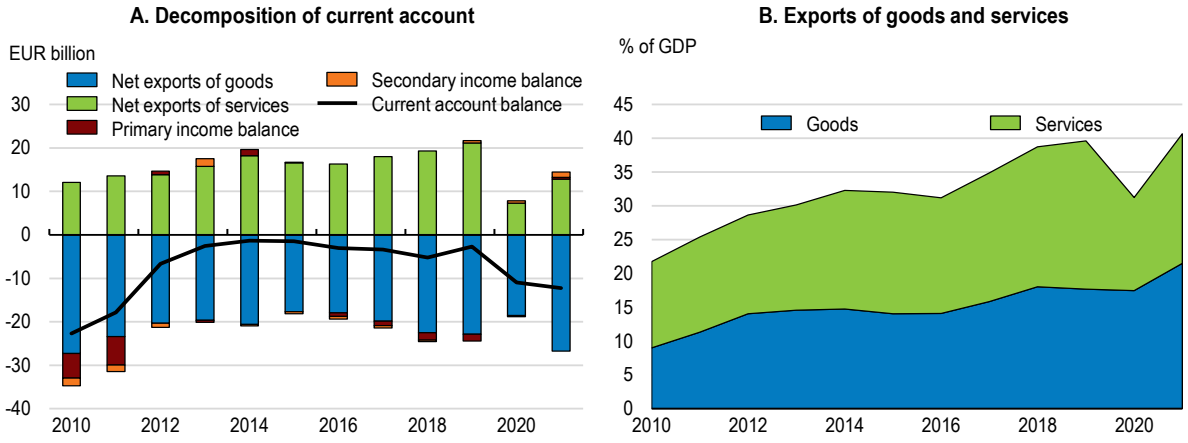
StatLink https://stat.link/1ahirz

Greece is being affected by the humanitarian crisis of the war. By June 2022 around 20 000 refugees from Ukraine had arrived in Greece, mostly women and children. Greece has important historic cultural ties with both Ukraine and Russia, including an ethnic Greek community that has lived for centuries along the Black Sea. Public support, estimated at 0.1% of GDP in 2022 and 2023, included dedicated housing and other social support. The modest number of displaced persons arriving from Ukraine limits their potential burden on the education and health systems, and their potential contribution to the workforce (European Commission, 2022[2]).

Exports are expanding but Greece's current account remains in structural deficit

Firm export growth has contributed to the recovery (Figure 1.6). The normalising health situation and lifting of travel restrictions in major markets enabled summer tourism season to outperform industry expectations. Receipts between January and September 2022 reached 97% of their record over the same months of 2019. Slightly fewer visitors arrived but they stayed longer and spent more per night than prior to the COVID crisis. Greece's large shipping services sector, which generated 20% of export receipts in 2019, has benefited from rising global shipping demand and prices. Receipts from shipping in the second quarter of 2022 exceeded those in the same period in 2019 by 57%. Greek shippers control between 20% and 30% of the global fleet of bulk carriers and LNG and oil tankers, and generated one-fifth of export receipts in 2019. Greece has gained market shares for goods, gradually diversifying its export basket. Exports of chemicals, diverse manufactured goods and transport equipment, such as pharmaceuticals and specialised metal products, and some agricultural goods, mostly to other EU markets and produced by medium-sized firms, have led this growth and now make important contributions to Greece's exports (Figure 1.7).

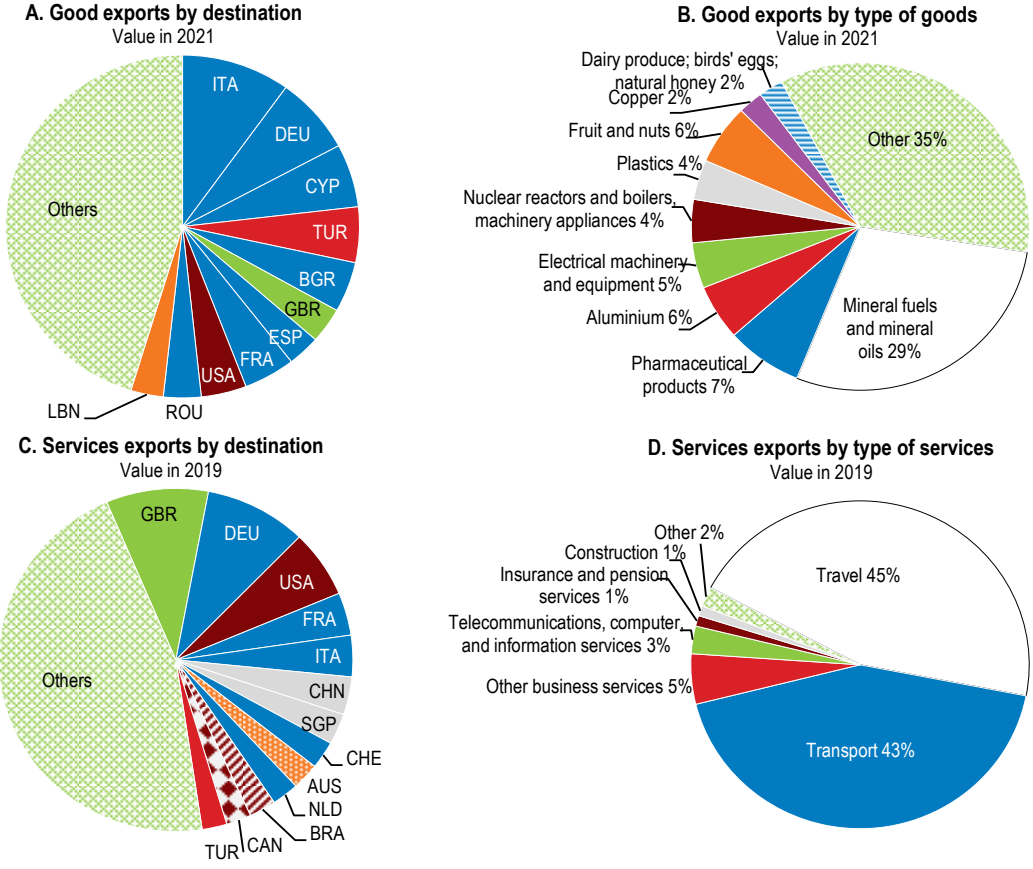
Figure 1.6. Despite growing exports, the trade and current account deficits have widened



Source: OECD Analytical database.

StatLink https://stat.link/6fyl09

Figure 1.7. Greece's goods exports are more diversified than its services exports



Note: Panels A and B: Data coming from ITCS database are collected on the basis of the Harmonised System 2017; Panels C and D: Data coming from ITSS database are collected according to the Balance of Payments methodology. 2019 data are shown given the distortion to trade patterns due to restrictions related to the COVID pandemic.
Source: OECD International Trade of Commodity Statistics (ITCS, database) and OECD International Trade in Services Statistics (ITSS, database).

StatLink https://stat.link/trnjw5

Greece's current account deficit, at 6.7% of GDP in 2021, remains large, despite improving exports. Most of the increase in the current account deficit in 2021 was due to higher energy prices widening the trade deficit to 7.9% of GDP (Figure 1.6). Greece's current account deficit in 2022 is projected to have widened slightly to 7% of GDP, with growth in the value of imports exceeding that of exports against a backdrop of surging global energy prices. The accumulated current account deficits have led to a large negative international investment position. It was supported by the ECB's asset purchases, and by increased foreign direct investment inflows and the initial NextGenerationEU Fund transfers. The FDI and EU grant inflows contribute to the current account deficit by raising import demand, for example for investment goods. Improving the underlying current account balance will require raising productivity to continue recent gains in Greece's competitiveness.

Surging global prices are raising inflation

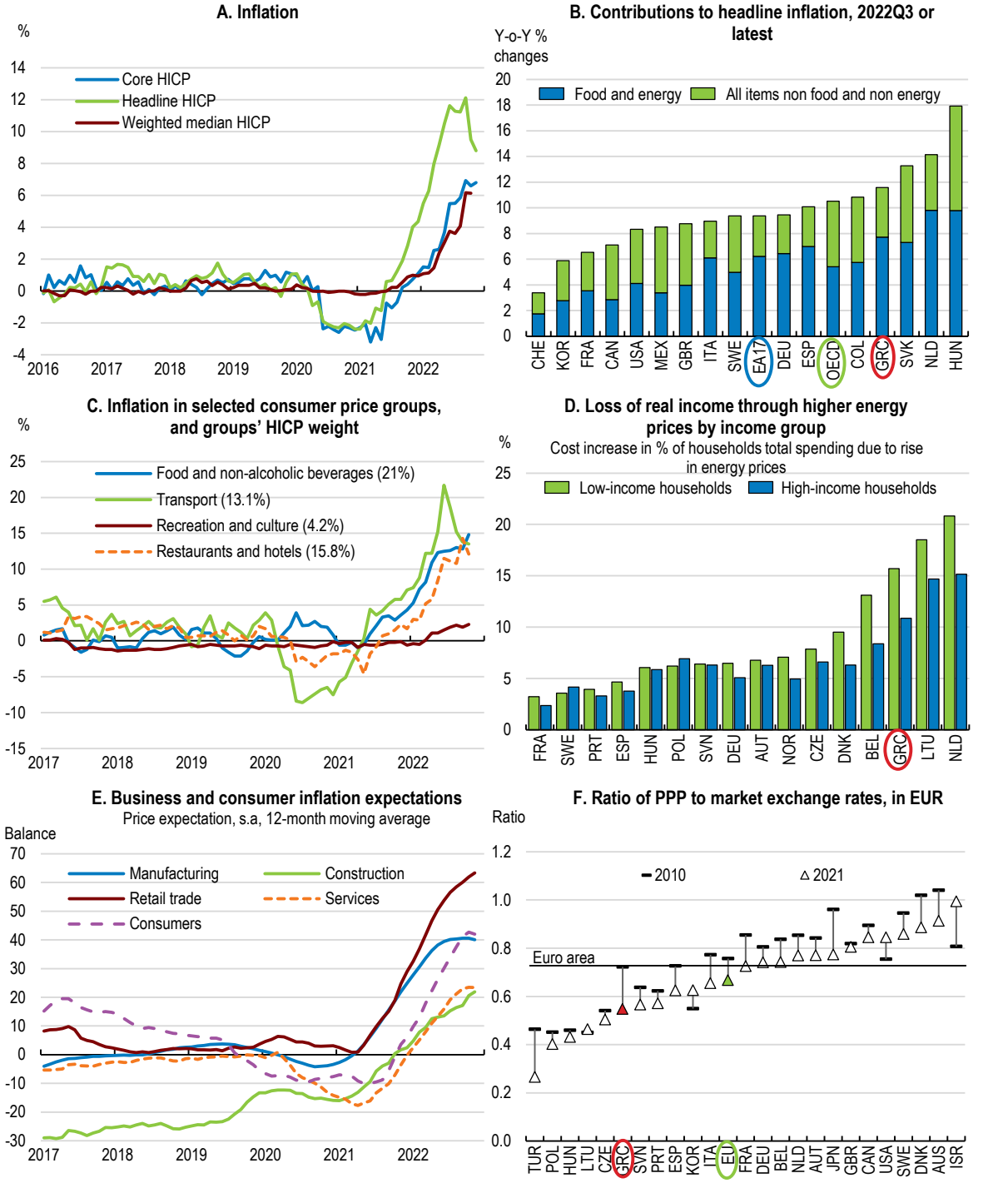
Consumer prices have accelerated. The harmonised consumer price index reached 12.1% in the 12 months to September 2022, before slowing to 8.8% in the 12 months to November 2022 as energy prices eased. This increase was the strongest in 25 years. It contrasted sharply with the 2% fall in consumer prices in the year to March 2021 (Figure 1.8, Panel A), and ended a decade when economy-wide prices in Greece grew by the least of any OECD country apart from Chile (Figure 1.8, Panel F). This period of slower price growth helped improve Greece's competitiveness, contributing to Greece's rising exports and employment, even if equivalent prices remain higher in Greece than in many other euro area countries. Maintaining this gain in competitiveness will require curtailing inflation.

The surge in energy prices accounted for most of the recent increase in inflation (Figure 1.8 , Panel B). For example, retail electricity prices rose in Greece by 70% in the year to June 2022, before easing to 57% in the year to September 2022. Higher home energy prices especially harm the spending of lower-income and rural households, as they spend a higher share of their budgets on heating and fuels than higher-income households, even if the latter are more affected overall due their greater spending on transport fuel (Figure 1.8, Panel D) (Box 2.3 and (Blake, Bulman and Joumard, 2023[3])).

Inflationary pressures are broadening. Recovering demand, decreasing spare capacity and wage rises are contributing to rising core inflation (Figure 1.8). Inflation is rising in sectors experiencing strong recovery in demand and difficulties in recruiting, such as restaurants, hotels and food (Figure 1.8, Panel C). A rising share of businesses report that increasing input costs are reducing their margins and that they are passing higher prices on to their consumers. Inflation expectations remain at historical highs especially in construction, services and retail trade, with the risk of inflation becoming entrenched (Figure 1.8, Panel E).

Increases in wage rates are adding to inflationary pressures. Average wage rates increased in 2021, reversing falls in 2020, and wage growth has accelerated in sectors experiencing stronger activity growth or skills shortages. Greece has reported among the largest increases in labour shortages of EU countries, especially in sectors recovering strongly, such as construction. Wage rates rose by between 4.1% and 4.8% in the first nine months of 2021 compared with a year earlier in construction, professional services and information and communications. The January and May 2022 increases in the minimum wage rate, totalling nearly 10%, are likely to lead to rises in wage rates for workers paid above the minimum wage, raising overall wage growth and contributing to broadening inflation. Over 28% of jobs were paid at the minimum wage in 2021, and historically the average wage rate has increased by almost half of the increase in the minimum wage (Bank of Greece, 2022[4]).

Figure 1.8. Energy prices are leading inflation higher, after many years of little price growth



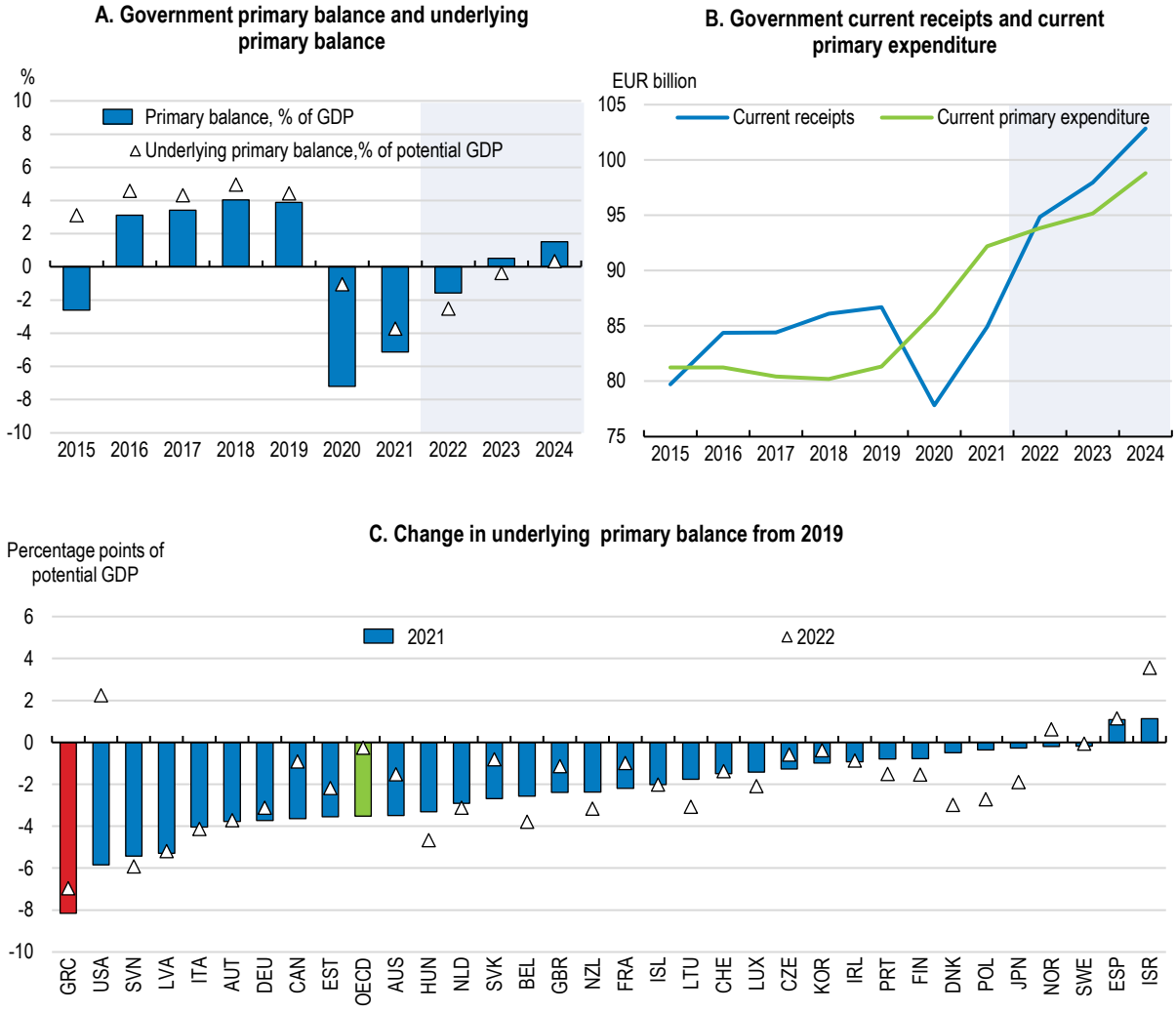
Note: Panel A: Headline and core inflation are based harmonised consumer prices. Core inflation excludes energy and food products. The weighted median inflation is the price change of the item at the middle of the distribution of price changes, accounting for the items' expenditure weights. Panel B: The COICOP weights are used to calculate the contributions of "All items non-food non-energy" and "Food and energy" inflations to headline inflation. For the OECD average an average weight is used. Panel C: For each selected Harmonised CPI item, the 2022 annual weight is shown in bracket. Panel D: High and low-income households are in the top & bottom 20% of the distribution of household income. Panel E: Inflation expectations are obtained from business and consumers opinion surveys, from responses to the question on price expectation for the next 3 months for businesses, and for the next 12 months for consumers. Data are expressed in balance between weighted percentages of positive and negative replies. Service sector excludes retail trade and banking.
Source: OECD Analytical database; OECD Price Statistics database; and Refinitiv.

StatLink https://stat.link/8zslgr

Fiscal support is being gradually withdrawn while monetary conditions tighten

Fiscal support shifted from COVID crisis support for liquidity and incomes, to energy price support and income transfers, and the implementation of the 'Greece 2.0' Recovery and Resilience Plan (Box 1.2). Greece's fiscal response to the COVID crisis was substantial (Figure 1.9). The budget shifted from a primary surplus of 3.9% of GDP in 2019 to a primary deficit of 7.4% of GDP in 2020, the second largest shift across OECD countries (Figure 1.9 Panel C and Table 1.2). Greece's COVID-related support measures between 2020 and 2022 totalled EUR 42 billion or 8% of cumulative GDP over these years. In 2022 it is winding down its remaining COVID response measures. The government plans to return to a modest primary surplus of 0.7% of GDP in 2023, implying a tightening fiscal stance and one of the largest fiscal consolidations among EU countries. Public investment spending of between 1.3% and 1.8% of GDP will be disbursed annually from 2021 to 2026, 95% financed from grants from European funds, notably the NextGenerationEU facility.

Figure 1.9. Substantial fiscal support is being unwound gradually



Note: The primary balance excludes net interest payments. Other definitions, such as that used by the European Commission, excludes only the interest paid. Panel A: The underlying government primary balance is the actual budget balance net of the cyclical component (the 'cyclically adjusted government net lending') and excluding net government transactions having a transitory budgetary effect that do not lead to a sustained change in the budgetary position ('one-off operations').
Source: OECD Economic Outlook 112 (database), updated.

StatLink https://stat.link/e9njyk

A rapidly expanding range of measures supporting energy consumers will amount to as much as 5.5% of GDP in 2022, of which 3.6% of GDP are financed by the Green Transition Fund, mainly stemming from Greece's mechanism of collecting windfall revenues in the wholesale electricity market (Table 1.1). Some payments to individual households or firms are capped, and income or turnover limits apply, but these targets are so wide that in practice all but the highest-income households with high energy consumption will be eligible for the main fuel and electricity rebate measures. These measures can support households and small businesses manage the rapid increase in energy costs but they weaken the incentive to economise fuel use. The package of measures includes increased income transfers to low-income households unconditional on energy consumption, and this is an effective means of limiting the welfare costs among the significant share of Greece's households suffering energy poverty (Figure 1.1, Panel B).

Table 1.1. Greece's energy cost support for households and businesses is substantial

Energy expenditure	Description	Targeting and duration	Period covered	Expected costs (EUR billions)
	A: Permanent measures			
Heating	Allowance for heating fuels (oil, natural gas, LPG, pellets, firewood) from 80 to 650 EUR per year	Low-income households (for example EUR 24 000 annual income for family with two children); allowance varies with climatic area	Annually in December	
Electricity	Social residential tariffs on electricity prices reducing prices by 0.045-0.075 EUR/kWh	Low-income households and limited to maximum quarterly spending (for example EUR 18 000 annual income and up to 1800 kWh for family with two children); recipients of guaranteed minimum income received larger reductions	Permanent	Cost is covered by the utility service charge included in electricity bills issued to all other consumers.
	Reduced VAT rate of 6% from standard VAT rate of 24%	All households and businesses		
Natural gas	Reduced VAT rate of 6% from standard VAT rate of 24%	All households and businesses		
	B: Temporary measures			
Heating	Increase in heating allowance from EUR 84 to EUR 174 covering more fuel types	Low-income households at increased income threshold	December 2021 to end 2022	0.3 (financed by Green Transition Fund and budget)
Electricity	Subsidies on electricity consumption for households and businesses of, on average, 80% of price increase for first 300KWh per month and 95% for vulnerable households; extended for May and June 2022 above 300KWh. For commercial users, price subsidy covers 40% and 30% of price increase in 2022-H1 and 2022-H2 respectively. For very small enterprises receive additional subsidy of 80% of price increase for first 4 months of 2022. Extended in July 2022 to EUR 200/MWh per month for households, EUR 192/MWh per month for shops, EUR 213/MWh per month for farmers, and EUR 148/MWh per month for industries. Extended again in August to subsidise all power consumption of households at EUR 337/MWh and of industrial consumers at EUR 250/MWh, and to EUR 639/MWh for households and SMEs and in September. From October, subsidies have been revised to absorb 70 to 80% of the price	All households (first residence; extended to all properties for May and June 2022) and businesses; households with social tariffs and very small enterprises receive larger subsidy.	September 2021 to December 2022	9.1 (4.4% of GDP in 2022) Partly financed by Green Transition Fund; special levy on electricity generators.

	increase for consumers of 501 to 1001 kWh/month; consumers who cut average daily consumption by 15% compared to last year receive an additional subsidy of EUR 50/kWh. Businesses consuming more than 2000 kWh/month receive a subsidy of EUR 398/kWh, and farmers receive a subsidy of EUR 436/kWh			
	Cost recovery mechanism to reimburse 60% of increased electricity costs for households, net of discounts, up to EUR 600	Households (first residence) with annual income up to EUR 45 000 (2.2 x average wage)	December 2021 to May 2022	0.3 (financed from increased revenues of electricity producers)
	Price discount by state-owned Public Power Corporation to fully cover price rise for up to 600KWh per month	Customers of Public Power Corporation		
	Subsidy up to maximum value of EUR 710, or 30% to 50% of purchase costs, for up to three energy-efficient appliances	All households may apply but subsidy is limited. Beneficiaries determined by a ranking system considering income and other criteria (household size and disability status).	June 2022	0.1 (financed by EU structural funds)
Natural gas	Subsidies on natural gas consumption for households and businesses (20 Kwh per month)	All households and businesses	January to April 2022	0.4 (financed by Green Transition Fund)
Gasoline	Prepaid card for gasoline for EUR 40 per month; increased to EUR 60-100 per month.	Individuals and self-employed with annual household net income below EUR 30 000 (1.5 x gross average wage)	April to September 2022	0.3 (0.1% of GDP)
Diesel	Price subsidy of 0.12 EUR per litre.	All households and businesses	May to June 2022	0.7
	Return of special levy on diesel for farmers for 2022	All businesses in agriculture	November 2022 to February 2023	0.5
General income support	Income transfers of EUR 200-250 for low-income pensioners, non-insured elderly, disability benefits beneficiaries, and taxi drivers; doubling of guaranteed minimum income; additional instalment of child benefits Subsidies to farmers and breeders for energy and inflation pressures	1.4 million vulnerable households, including 677 000 low-income pensioners, taxi drivers, and farmers	December 2021 to April 2022	0.9 (0.4% of GDP in 2022)
Tax cuts:	Reduced VAT on passenger transport Reduced VAT for agricultural fertilisers Refund farmers special level on diesel		Extended to Dec. 2022 April 2022 onwards	0.2 (0.1 % of GDP)
Total: 2021 2022 2023				**3.5% of GDP** 0.5% of GDP 5.5% of GDP 0.3% of GDP

Source: Ministry of Finance, Greece, European Commission, and OECD calculations.

While the government is largely funding these measures through windfall revenues from energy producers and increased revenues from fuel taxes and carbon permits, they do absorb resources that could contribute to more lasting gains in well-being and energy efficiency. Shifting support to improve energy efficiency, such as investing in better insulation, would reduce costs for the government budget and households into the medium-term, and be more economically and environmentally sustainable. For example, the 'Greece 2.0' support for household insulation is a significant step in this direction, and is likely to require expanding and extending given the scale of Greece's building insulation needs (discussed in Chapter 2).

Revenue outperformed budget estimates in 2021, reflecting the economy's strong rebound and accelerating prices. This strength in revenues limited the budget deficit to 7.4% of GDP in 2021, compared

with 10.2% of GDP in 2020, and is carrying over to support further reductions in the deficit in 2022. However, fiscal goals have been revised downwards – between December 2021 and May 2022, the government reduced its 2023 primary surplus target from 2% to 1% of GDP and now aims to achieve a modest surplus of 0.7% of GDP. With its expanding energy cost measures and weakening activity, the government has delayed its ambitions to return the budget primary surplus to at least 2.0% of GDP, its medium-term objective (Figure 1.9, Panel A), to 2024.

Interest rates in Greece have been tightening faster than in most other euro area countries, although by less than may be justified by evolving economic conditions. The increase in government bond yields reflects tighter global monetary policy and Greece's sub-investment grade sovereign rating, while the ECB's continued support and reinvestments of maturing bonds and progress in improving the financial sector's health and structural reforms contribute to spreads remaining narrower than prior to the COVID crisis (Figure 1.10, Box 1.5). Real interest rates – measured as the difference between nominal interest rates and actual or expected inflation rates – have been falling. Average borrowing costs for businesses rose more slowly, however, partly reflecting banks' improving access to loanable funds. Overall, the broadening in inflationary pressures and declining spare capacity in many businesses and the labour market justify some fiscal tightening.

Financing conditions in Greece would be better aligned with elsewhere in the euro area if Greece were to achieve investment grade rating of its government securities. This would expand the investor base for Greek public and private financial assets and support foreign direct investments. It would improve Greece's integration into Euro-zone monetary policy instruments (Box 1.3). Cross-country analysis of sovereign bond spreads and ratings prior to the global financial crisis found that the upgrade to investment grade rating reduced sovereign bond spreads by over one-third on average, controlling for economic fundamentals (Jaramillo and Tejada, 2011[5]). A study of short-term government bond yields for 20 countries between 1998 and 2015 found that the downgrade from investment grade by one ratings agency was associated with bond yields increasing by 138 basis points (Hanusch et al., 2016[6]).

Following upgrades in 2022, two of the four main agencies rate Greece one step below investment grade, and two rate Greece two steps below investment grade. Agencies cite factors including improved fiscal credibility and the ongoing structural reforms as contributing to the upgrades, and continued progress in returning the banking sector to health as being an important factor that would contribute to further upgrades. Agencies indicate that the global economic disruption and uncertainty from the war in Ukraine have likely delayed when Greece will achieve further upgrades. This underscores the importance of ensuring gross financing needs for the public sector remain low, continuing to reduce the public debt ratio, and achieving banks' full financial health (discussed below).

Box 1.2. The ambitious "Greece 2.0" Recovery and Resilience Plan

Greece's Recovery and Resilience Plan provides an ambitious and detailed programme of reforms and investment across many of the areas holding back longer-term prospects for stronger, sustainable and inclusive growth. The plan includes 68 different structural reforms, and 106 investment projects. The government estimates that, fully implemented, the plan will lift annual GDP growth by 1.2 percentage points. By 2026, it estimates the plan will raise output by 6.9%, private investment by 20% and employment by 4%. While capital investments will absorb most of the funds, some of the administrative and policy reforms funded from the Plan may have more enduring benefits for Greece's public services and business environment.

Initial progress has been strong. The Plan was among the first submitted and approved for access to the NextGenerationEU Facility. Progress with the reforms and preparing projects allowed Greece to access a pre-payment and the first payment by April 2022. By November 2022, 440 projects had been approved for a total budget of EUR 13.2 billion (6.4% of GDP in 2022). These mostly relate to the green transition, digitalisation in the public and private sectors and of public healthcare, and financial incentives for private investment.

Table 1.2. Greece 2.0 foresees sustained disbursements from its inception

EUR billion, in 2018 values

	2021 Pre financing disbursed	**2022** Projected (disbursed)	**2023** Projected	**2024** Projected	**2025** Projected	**2026** Projected	**Total**
NextGenerationEU resources	4.0	5.3 (3.6 paid up to May)	5.3	5.3	5.3	5.4	30.5 (14.9% of 2022 GDP)
of which							
Grants	2.3	3.4 (1.7 paid up to May)	3.4	3.4	3.4	1.7	17.8
Loans	1.7	1.9 (9 paid up to May	1.9	1.9	1.9	3.7	12.7

Table 1.3. Greece 2.0 prioritises the green transition, employment and skills, digitalisation and private investment

Pillars	Recovery Fund Budget (EUR billion; 2018 values, % of 2022 GDP)	Total investing resources mobilised (EUR billion; 2018 values, % of 2022 GDP)
1. Green Transition	6.2 (3.0%)	11.6 (5.7%)
2. Digital Transition	2.2 (1.1%)	2.4 (1.2%)
3. Employment, Skills, Social Cohesion (Health, Education, Social Protection)	5.2 (2.5%)	5.3 (2.6%)
4. Private investment and transformation of the economy	4.8 (2.4%)	8.8 (4.3%)
Total investment resources	18.4 (9.0%)	28.1 (13.7%)

Fully implementing the plan will be challenging. Some of the Plan's reforms are highly ambitious and are likely to encounter implementation challenges including administrative hurdles, growing supply and workforce constraints, and challenges from some affected groups. To meet these challenges, in line with other OECD countries' experiences in successfully implementing major projects, the government has created a dedicated secretariat linked to the Prime Minister's office in charge of implementing and monitoring the Plan. It has developed a strategic project pipeline and project preparation facility, and dedicated units to manage, control and audit the Greece 2.0 programme and investments. It has committed to building on these measures to improve its ongoing project implementation capacities.

Source: Ministry of Finance of Hellenic Republic (2022), Stability Programme; Bank of Greece (2022) 2021 Annual Report

Table 1.4. Containing expenditure growth is helping Greece return the primary balance to surplus

Per cent of GDP

	2020	2021	2022[1]	2023[1]	2024[1]
Spending and revenue					
Total revenue	49.8	49.7	49.6	49.7	49.9
Income tax	9.2	9.2	9.2	9.4	9.4
Social contributions	15.4	14.9	14.8	14.6	14.7
Other receipts	25.2	25.5	25.6	25.7	25.8
Total expenditure	59.7	57.1	53.9	52.3	51.6
Of which:					
Government consumption	22.8	21.3	19.5	19.6	19.5
Social transfers	20.8	19.5	18.2	18.2	18.1
Gross fixed capital formation	3.1	3.6	3.5	3.5	3.5
Gross interest payments	3.0	2.5	2.9	3.3	3.4
Budget balance					
Fiscal balance	-9.9	-7.4	-4.3	-2.6	-1.7
Primary fiscal balance[2]	-7.2	-5.1	-1.6	0.5	1.5
Cyclically adjusted fiscal balance[3]	-3.5	-4.7	-3.6	-1.9	-1.3
Underlying primary fiscal balance[3]	-1.1	-3.7	-2.5	-0.4	0.3
Public debt					
Gross debt (Maastricht definition)	206.4	193.3	175.1	170.7	163.6
Gross debt (national accounts definition)[4]	242.3	225.7	207.4	203.1	196.0
Gross financial assets (EUR billion)	100.4	104.7	107.7	106.0	105.8
Net debt	181.5	168.4	154.8	152.8	148.0

1. OECD estimates unless otherwise stated.
2. The primary balance is the net fiscal balance excluding net interest payments. Other definitions exist, such as the primary balance published by the European Commission, which excludes only interest paid.
3. As a percentage of potential GDP.
4. National Accounts definition includes state guarantees, among other items.

Source: OECD Economic Outlook 112 (database), updated.

Box 1.3. Greek government securities and the ECB's purchase programmes

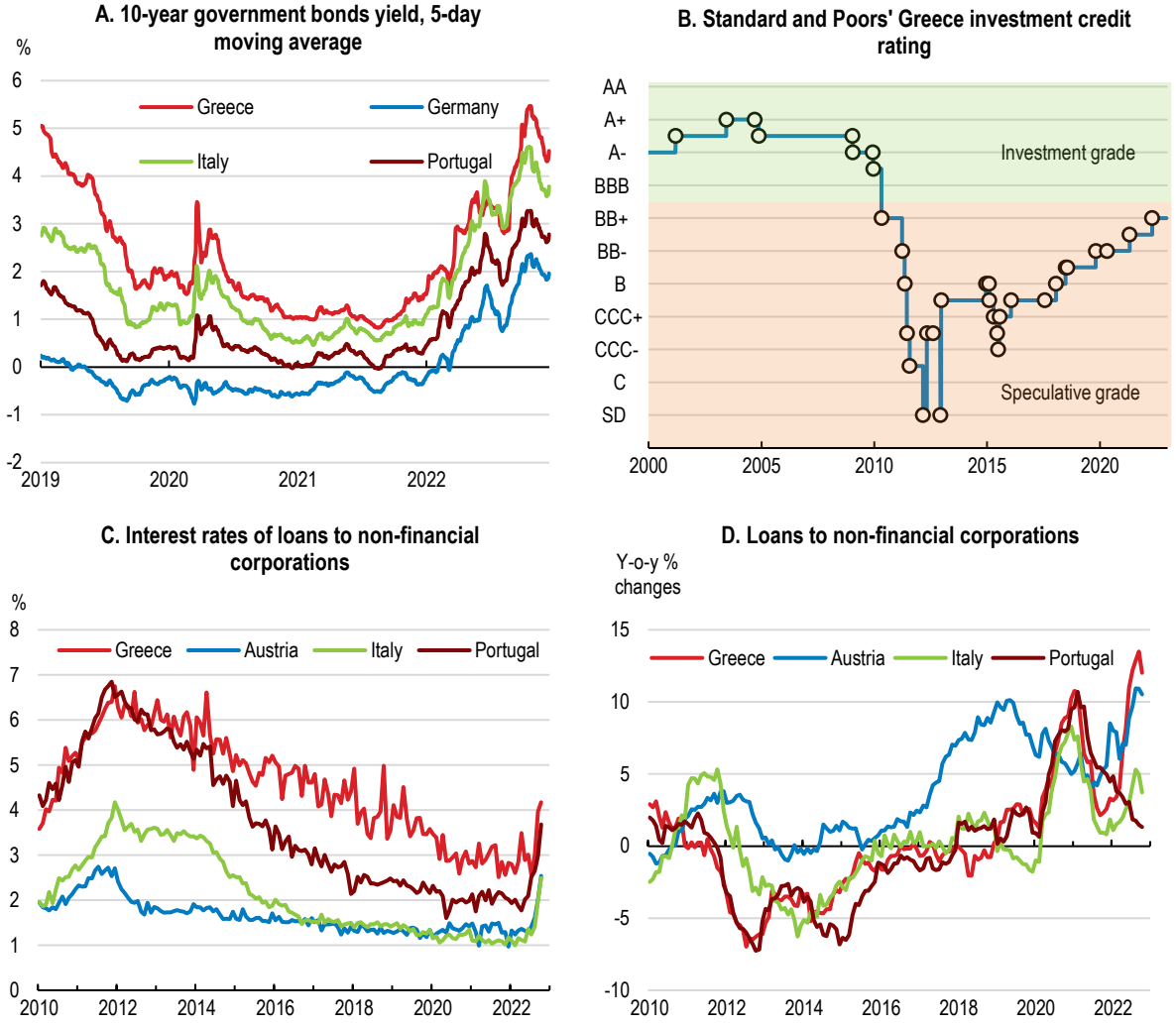
Greece's sub-investment grade sovereign debt rating makes Greek government bonds ineligible as collateral for Euro-system refinancing operations or the ECB's asset purchases in normal circumstances. The ECB exceptionally included Greek government securities in its COVID-response Pandemic Emergency Purchase Programme (PEPP). This was central to Greek government and private securities low yields and narrow spreads over 2020-2021.

Net asset purchases through the PEPP ended in March 2022, although the reinvestment in government securities of maturing securities purchased under the PEPP can continue until at least the end of 2024. The ECB maintained the waiver of the minimum credit quality requirement for Greek government bonds, allowing national central banks to accept them as collateral in line with the continued eligibility for PEPP.

The ECB has decided that it will apply flexibility in reinvesting redemptions coming due in the PEPP portfolio, with a view to preserving the functioning of the monetary policy transmission mechanism in the euro area, including Greece. In the event of renewed market fragmentation, it has undertaken to purchase Greek Government bonds over and above rollovers of redemptions as part of its flexible framework for reinvesting maturing bonds purchased under PEPP over time and across asset classes and jurisdictions. In July 2022 it reaffirmed this commitment with the announcements of the Transmission Protection Instrument, through which the Euro area central banks can make secondary market purchases of securities issued in jurisdictions suffering a deterioration in financing conditions beyond country-specific fundamentals.

Source: (Bank of Greece, 2022[4]); (ECB, 2021[7]); (ECB, 2022[8]).

Figure 1.10. Achieving investment grade could narrow Greek government bond spreads, lower financing costs and support lending



Note: Panel C: New business loans of up to 1 year. For Greece new business loans with an initial rate fixation period of less than one year. Loans other than revolving loans and overdrafts, convenience and extended credit card debt; loans adjusted for credit and securitisation.
Source: Refinitiv; www.worldgovernmentbonds.com; and ECB.

StatLink https://stat.link/1olkbq

Past OECD recommendations on fiscal policies and actions taken

Past recommendations	Actions taken
Maintain the primary surplus agreed with official creditors and facilitate debt restructuring as needed.	2022 budget expects primary deficit of 2% of GDP in 2022, taking into account the General Escape Clause that allows for a temporary departure from the budgetary requirements provided this does not endanger medium-term fiscal sustainability.
Reduce tax evasion by extending the use of risk analysis, targeted tax audits and strengthening incentives for voluntary tax compliance. Extend the obligation of having an electronic cash register to all self-employed and introduce e-invoicing.	Authorities are progressing with the digitalisation of tax audits, codification of tax legislation, and reform of the interconnection of cash registers and points of sale (POS) terminals with the tax authorities (IAPR), in order to enhance transparency.
Continue to fight evasion and broaden the tax base, so as to lower statutory tax rates, and strengthen the tax administration by giving it more autonomy and freeing its resources for audits and enforcement.	Reform of ENFIA property tax, applying new market related property taxes and aiming to widen the tax base and improve fairness and economic efficiency, has been completed. The reform lowers overall property tax receipts. Measures to improve customs operations have been adopted to limit smuggling. These include improved tracking systems, audit processes and redesign of information system of IAPR. Investment measures to digitalise the Tax and Customs Administration have been adopted to strengthen capacity and enhance tax collection.
Extend exceptional fiscal support measures as needed based on epidemiological and economic developments while ensuring they do not hinder the reallocation of resources towards firms and sectors with better growth prospects.	Fiscal measures have been gradually phased out, with most measures having ended in May 2022 and the remaining ones ending in late 2022. The expected fiscal impact declined from 7.2% of GDP in 2021 to 1.8% of GDP in 2022. Main adopted policy measures included reduction of repayment percentage of all refundable advances on basis of the loss of gross revenues of beneficiaries' businesses, reduced VAT for transport, coffee and non-alcoholic beverages, cinema, theatre, concerts and tourism, gyms and dance schools, suspension of cable TV fees, offsetting obligations to tax authorities and e-EFKA, extension of GEFYRA programme to subsidise loan instalments of households affected by pandemic, extension of short-term employment scheme and hiring subsidy programme.
Introduce targeted incentives for the use of electronic payments in industries with high risk of tax evasion, such as professional services.	A legislative act passed by the Greek Parliament aims to address tax evasion in specific sectors by enhancing e-transactions. The new provisions introduce incentives for e-payments in economic sectors with a high risk of tax evasion, by reducing the taxable income of individuals for such expenses.
Ensure pension spending does not crowd out other, better-targeted, social programmes and public investment.	The reform of the Single Pension Fund (EFKA) has been completed with the objective to improve the efficiency of the pension system and further reduce its administrative costs. The reform gradually converting the auxiliary pension system to a Funded Defined Contributions Scheme aims at reducing the exposure of the social security system to demographic risk, increase savings that can be used for investments, provide disincentives for uninsured labour, and provide higher pensions for future generations. The reform will generate transitory fiscal costs.
Boost public investment to support growth and environmental sustainability, including in public transport, innovation and waste management, based on cost-benefit analysis.	Recovery and Resilience Plan "Greece 2.0" dedicates 23.3% and 37.5% of EUR 31 billion (EUR 18 billion grants and EUR 13 billion loans) for investments until 2026 in digital transformation and green transition respectively.
Ensure results of spending reviews are available early enough in the budget cycle.	Relevant action not identified.

Further progress is required to achieve a healthy banking sector

Banks' health has continued to improve but the capital of much of the banking sector remains weak. Banks' liquidity increased over 2020 and 2021, supported by rising deposits from households and businesses, the progressive sale and securitisation of non-performing loans (NPLs), and access to lower-cost financing via the ECB's Targeted Longer Term Refinancing Operations (TLTROs). Deposits rose by 35% to EUR 224 billion (123% of GDP in 2021) between the start of the pandemic and October 2022. Banks have also boosted their liquidity by issuing bonds and new capital.

A properly functioning banking sector will require banks to reduce their non-performing loans to levels similar to other OECD countries. Securitisations, sales and gradual curing have reduced the share of non-performing exposures to single digits for the four systemically important banks and the Bank of Greece estimated NPLs to be near 10% of outstanding loans across the banking sector by June 2022 (Figure 1.11).

Greece took far longer than other Euro-area countries affected by high non-performing loans to develop and implement mechanisms to resolve NPLs, but progress has accelerated for the larger banks since the government implemented its 'Hercules' NPL securitisation scheme (Box 1.4). The scheme, which provided a state guarantee of the senior tranche of securitised NPLs, was extended to October 2022, and its coverage of securitised NPLs doubled to EUR 24 billion (13.2% of GDP in 2021). Several securitisation transactions were expected to be completed before the scheme closed (European Commission, 2022[9]). After it ended, it has become more costly for banks to securitise their remaining or new NPLs. While the COVID crisis led to a smaller wave of new NPLs that slowed over 2021, the surge in energy prices and disruptions in global supply chains risk generating further NPLs. Further extending the Hercules scheme if necessary would help banks clear their remaining and these new NPLs, an essential step to banks again financing investment.

Banks have largely avoided converting deferred tax credits into equity holdings by the State as they book losses on their non-performing loan (NPL) portfolios. They have done this by shifting the deferred tax credits into units separate from those that booked the losses on the NPLs. Future losses incurred by the corporate units that hold the deferred tax credits will trigger the conversion of the credits into equity. A 2021 law extends how long banks can amortise their deferred tax credits from 5 to 20 and 30 years depending on the type of credit (European Central Bank, 2021[10]). This may facilitate further sales of NPLs, but extends how long the deferred tax credits are likely to remain on banks' balance sheets, with the associated implications for public revenues once banks become profitable and for the quality of banks' capital.

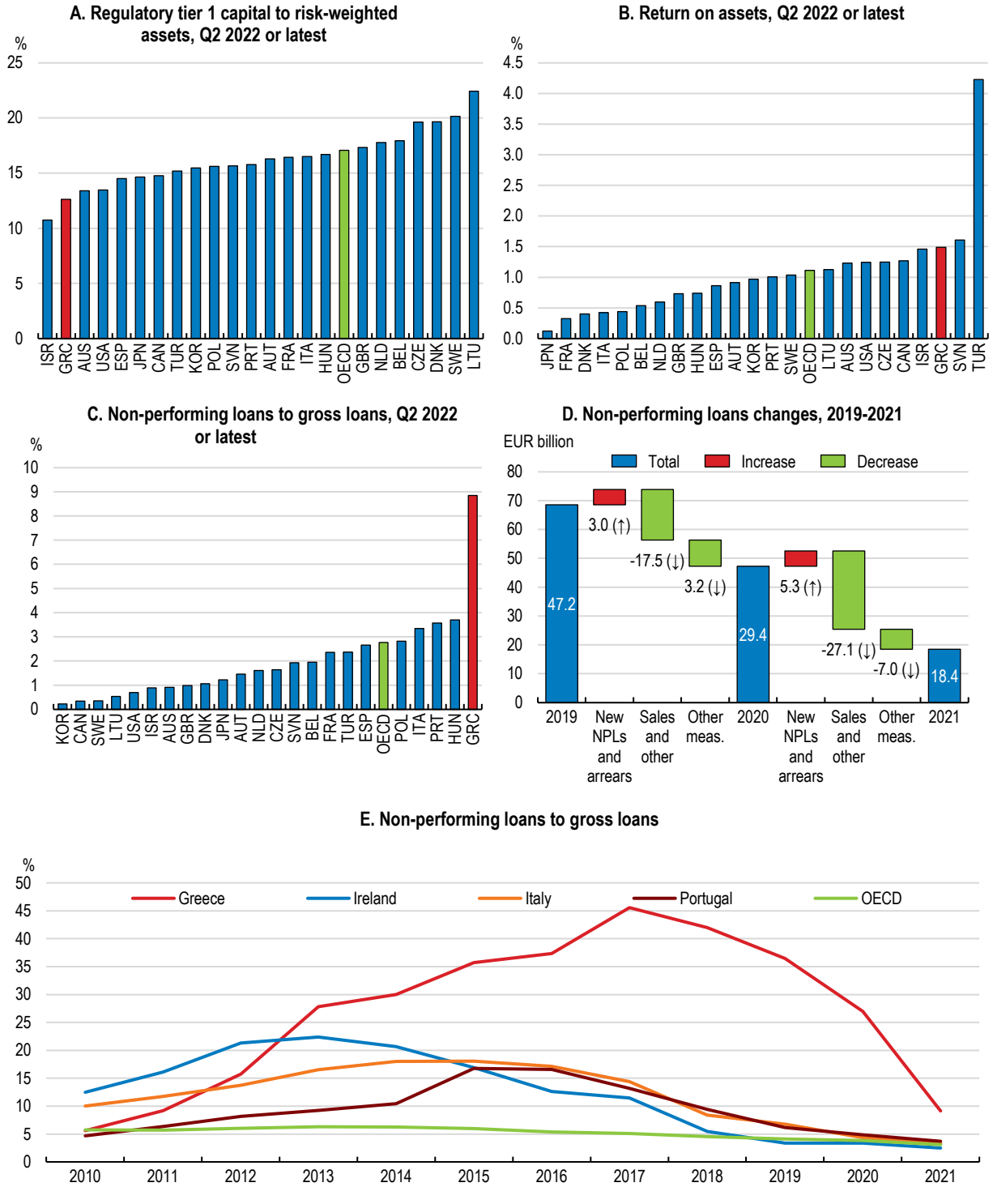
Box 1.4. The Hercules programme has securitised a large share of Greece's non-performing loans

The Hellenic Asset Protection Scheme, 'Hercules', has been central to Greece's recent progress in reducing its banks' non-performing loan (NPL) holdings. The government established Hercules in December 2019, and later extended the programme to October 2022. EUR 49 billion of NPLs have been sold under the scheme. It is similar to the 'GACS' programme Italy introduced in 2016 and has since repeatedly extended.

Hercules is a securitisation framework whereby individually managed, private securitisation vehicles buy banks' NPLs and sell to investors notes securitising the NPL assets. The NPLs are securitised at market value, which can trigger the recognition of losses for the banks if they previously assessed their value above market prices. The securitised NPLs are broken into junior, mezzanine and senior tranches. The banks retain the senior tranche, which Greece's government guarantees. The banks pay the government market-based fees for the guarantee, to ensure that the programme complies with EU state aid rules. The government has increased the value of senior tranches it can guarantee to EUR 24 billion. At the end of 2021, it had provided EUR 18.6 billion of guarantees.

Source: (European Commission, 2022[9]) (Bank of Greece, 2022[11]) (European Commission, 2021[12]).

Figure 1.11. Banks will need to further improve their health if they are to finance the recovery



Note: The EBA defines non-performing loans as including only loans 90 days past due and denounced loans. Note that non-performing exposures also includes "unlikely to pay" loans and are not shown in the cross-country data presented in these charts. Panel A to C and Panel E: Each Panel contains unweighted OECD average of available countries. Due to data unavailability, the OECD average excludes New Zealand for any panels. Panel D: Blue bars show the stock of NPLs at the end of each period, red bars show the inflows of new NPLs as well as arrears capitalisation and green bars show outflows such as sales. Panel E: For Ireland and Portugal, 2021 figure corresponds to the data in 2021Q2.
Source: IMF, Financial Soundness Indicators database; and Bank of Greece.

StatLink https://stat.link/7qiubh

Rebuilding banks' capital bases will become an increasing priority as banks resolve their non-performing loans (NPLs). Losses from the recognition and clearance of NPLs, the costs of ongoing corporate restructuring, efficiency improvements and digitalising operations, and increased provision for credit risks have depleted banks' capital. A number of banks' capital provides limited buffers above regulatory requirements (Figure 1.10, Panel A). Greek banks' Minimum Requirement of Own Funds and Eligible Liabilities (MREL) record the largest shortfalls among the countries supervised by the Single Resolution Board. The ECB and European Banking Authority's regular stress-test and capital needs assessment found that three of Greece's four major banks recorded larger falls in their common equity tier 1 index under the stress test than most other banks undertaking the exercise, although their capital would remain above the supervisory minima and binding intermediate targets (Vagia and Haralabidis, 2021[13]; ECB, 2021[14]). The capital decrease raised the share of deferred tax assets in banks' total regulatory assets to 58% in June 2021. Policy measures are focusing on banks rebuilding their capital organically by supporting efforts for banks to shift to recurring profitability. As such profitability will take some time to be sufficient to rebuild capital buffers, financial institutions can also look to improve their situation through further equity and bond sales, which will be supported by Greece obtaining an investment-grade sovereign rating.

While clearing NPLs from banks' balance sheets is important progress, EUR 100 billion of NPLs remain outstanding, managed by the growing loan servicing industry. These NPLs effectively block their debtors and their remaining assets, restricting them from accessing new credit to rebuild or restart business. The new insolvency framework is gradually accelerating debt and bad loans resolution, including through growing use of its out-of-court workout mechanism, automated and digitalised processing, and simplified procedures for small insolvencies. But a large legacy remains, with the backlog of bad loans to households notably slow to clear. The economy's recovery and rising property prices helped some debtors to restart servicing their loans, and the loan servicing agencies believe that up to 30% of the EUR 50 billion of securitised non-performing loans they manage can perform again. Accelerating the insolvency cases that are stalled in the court system, especially those covered by the previous insolvency law, would help clear the legacy of the past crises.

Past OECD recommendations on financial sustainability policies and actions taken

Past recommendations	Actions taken
Fully implement out-of-court workout procedures and e-auctions and the legislated insolvency reforms.	The functioning of the early warning platform completed the electronic infrastructure of the new insolvency framework and the process of setting up the sale and lease-back mechanism is ongoing. A call for Expression of Interest will be published by June 2022. However, auctions have been subject to ad hoc suspensions.
Swiftly implement the Hercules scheme to dispose of non-performing loans from banks' balance sheets.	The reduction of non-performing loans by the banking sector through the Hercules scheme continued with the non-performing exposure ratio standing at 12.1% in March 2021, down from 30.1% in December 2020. The Hercules scheme has been extended to October 2022 and provided with additional financial resources.
Urgently design and implement a strategy to address the deferred tax credits and the bad loans that will remain on banks' balance sheets.	A 2021 law has extended the amortisation period of deferred tax credits.
Align tax incentives for disposing of non-performing loans with those of previous legislation and make them temporary.	Relevant action not identified.
Create a platform for purchase and sale of NPLs, along the lines of the EU Council Action Plan.	Relevant action not identified.

The recovery is projected to pick up once the external headwinds drop

Headwinds from surging energy prices and supply restrictions, tighter monetary conditions and disruptions in global trade are projected to slow Greece's recovery in the near term (Table 1.5). The loss of households' purchasing power, rising investment costs and renewed uncertainty are projected to drag business confidence and weaken growth in private consumption and investment. The government's response measures and implementation of the Recovery and Resilience Plan will provide some offsetting support

into 2023. Moderate growth is projected to resume once the headwinds decline in 2023. Under the central projection, price pressures are projected to abate as energy prices ease in 2023, limiting the risk of a wage-price spiral. The restoration of a primary budget surplus is projected to limit the scale and length of future stimulus. Into the medium term, maintaining fiscal credibility and banks' improving health would enable agencies to upgrade Greece's sovereign debt rating to investment grade, which will add support to investment.

The outlook is highly uncertain. Higher interest rates and spreads on Greek debt risk leading to a greater tightening of monetary conditions in Greece relative to other euro area countries, which would slow investment. Excessive or poorly-targeted fiscal support would risk accentuating demand pressures and unwind Greece's hard-won gains in competitiveness and fiscal credibility. A protracted or expanded conflict around Ukraine could disrupt further energy supply and raise prices, and could directly affect Greece and its neighbours. The Greece 2.0 Recovery and Resilience Plan is appropriately ambitious but there is a risk that some of its policy reforms and investments are not implemented before the facility closes. COVID continues to affect the health situation in Greece as new COVID variants emerge and spread (Figure 1.3). While Greece had achieved a vaccination rate near the average of OECD countries by early 2022, the new variants may require renewed vaccinations and restrictions to protect health, slowing the recovery.

Table 1.5. Macroeconomic indicators and projections

	2019 Current prices (EUR billion)	2020	2021	2022	2023	2024
		Percentage change, volume (2015 prices)				
Gross domestic product (GDP)	183	-9.0	8.3	5.1	1.1	1.8
Private consumption	127	-7.9	7.8	8.0	0.5	1.4
Government consumption	37	2.6	3.7	-0.2	0.8	0.9
Gross fixed capital formation	19	-0.3	19.6	8.5	2.5	5.0
Of which, housing	2	18.3	27.5	19.0	7.2	3.9
Final domestic demand	183	-5.0	8.3	6.4	0.8	1.8
Stockbuilding[1]	4	1.4	-0.9	0.6	0.2	0.0
Total domestic demand	186	-3.3	7.3	6.6	0.9	1.8
Exports of goods and services	74	-21.5	21.9	5.1	-0.5	2.9
Imports of goods and services	77	-7.6	16.1	8.0	1.6	2.6
Net exports[1]		-5.5	0.7	-1.8	-1.2	-0.1
Other indicators (growth rates, unless specified)						
Potential GDP	. .	1.2	1.3	1.3	1.1	1.1
Output gap (% of potential GDP)	. .	-11.2	-5.1	-1.6	-1.6	-0.9
Employment	. .	-0.9	1.4	6.2	1.1	0.3
Unemployment rate (% of labour force)	. .	16.3	14.7	12.3	11.5	11.5
GDP deflator	. .	-0.8	2.1	6.6	2.0	2.6
Harmonised consumer price index	. .	-1.3	0.6	9.5	3.7	2.3
Harmonised core consumer price index	. .	-1.2	-1.1	4.4	4.0	2.5
Terms of trade	. .	-0.8	-1.4	4.8	0.4	-0.1
Household saving ratio, net (% of disposable income)	. .	-5.1	-3.2	-10.3	-7.9	-7.5
Trade balance (% of GDP)	. .	-7.6	-7.9	-8.7	-9.9	-9.8
Current account balance (% of GDP)	. .	-6.6	-6.7	-7.1	-8.9	-8.8
General government fiscal balance (% of GDP)	. .	-9.9	-7.4	-4.3	-2.6	-1.7
Three-month money market rate, average	. .	-0.4	-0.5	0.5	3.8	3.9
Ten-year government bond yield, average	. .	1.3	0.9	3.6	6.5	6.4

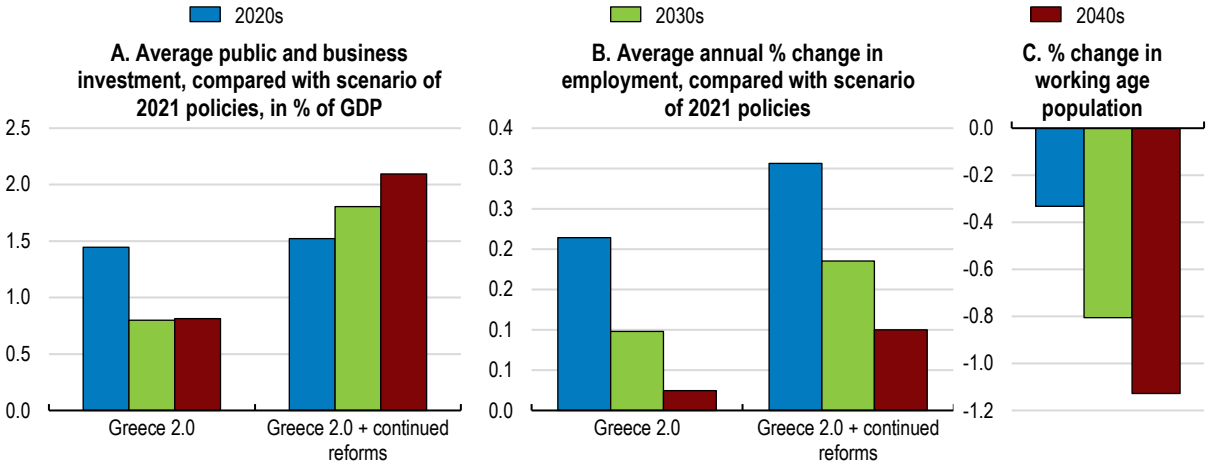
1. Contributions to changes in real GDP.
Source: OECD Economic Outlook 112 (database), updated.

Box 1.5. Greece's national electoral calendar

Greece's current national government was elected in the July 2019 national elections. It is led by the Prime Minister Kyriakos Mitsotakis, whose New Democracy party won 40% of votes cast, making it the largest party in parliament, with 183 of the parliament's 300 seats, including a 50 seat bonus for the party with the largest share of votes. The next national elections are due by August 2023. The 50 seat bonus for the party with the largest number of seats will be replaced by all 300 seats being allocated proportionately among parties obtaining at least 3% of the general vote. If no government is formed, a second election will be immediately called where the party with the largest vote share will receive a bonus of seats reflecting factors including the party's share of the overall vote.

From the late 2020s, growth is likely to slow as the benefits of the Greece 2.0 investment push and reforms fade, while the ageing workforce and the effects of the green economy transition increasingly drag growth. (The implications for growth and investment of the transition to a net zero emission energy system are discussed in Chapter 2, Box 2.4.) Further measures to raise labour force participation and to maintain higher investment would offset much of the drag on growth from the ageing population and the transition to a green economy, enabling stronger growth to be sustained into the longer-term (Figure 1.12).

Figure 1.12. Stronger investment will be central to sustaining growth as the workforce ages



Note: Policy scenarios are described in Table 1.6. Panel C: Under the 'targeted transition', renewable sources generate 70% of energy consumption by 2030, and 100% by 2050; Panel D: Under the 'delayed transition', renewable sources generate 50% of energy consumption by 2030, and 100% by 2050 (scenarios discussed further in Chapter 2, Box 2.10).
Source: Simulations based on the OECD's Global Long-Term Model and Eurostat population projection scenarios, and OECD Economic Outlook 112 (database) updated.

StatLink https://stat.link/4jfput

The proposed ongoing reform measures would continue and build on the reform and investment momentum of the Greece 2.0 programme. Key measures are presented in this chapter below, and Table 1.6 presents simulations of how packages of these measures would bolster GDP growth. Measures to improve the institutional environment, such as those to improve administrative processes and judicial responsiveness and to ease regulatory barriers, would generate ongoing benefits from stronger growth, largely through higher productivity growth and investment (illustrated by Policy Scenarios 3.i. in Table 1.6). Measures to sustain higher investment and R&D would bolster growth sooner but bring more modest enduring support to growth (illustrated by Policy Scenario 3.ii. in Table 1.6). The proposed measures, together with further efforts to raise the quality of spending and to improve tax compliance and collections discussed below, would support the budget balance. These projections are subject to a number of low-probability but significant risks that could dent growth prospects.

Table 1.6. Continuing investment and reforms would support income growth and the green energy transition

Policy scenario		Policy actions	Cumulative effect on real GDP relative to 2021 policies, %:		
			2025	2030	2040
1	Implementing the 'Greece 2.0' Recovery and Resilience Plan	Codification of regulations, digitalisation of government services and judicial processes, and clarity around spatial planning lift perceptions of the rule of law to the 33rd percentile of OECD countries by 2030, then they stabilise. Following Greece 2.0, from 2026, public investment returns to its historical average of 3.2% of GDP. Regulatory reforms lower the overall product market regulation index by 0.107 to 1.63 from 2023. Measures in Greece 2.0 raise spending on active labour market policies by one-third, and spending on in-kind support for families from 0.4% of GDP to 0.9% of GDP, the average of OECD countries. The labour income tax wedge at the average wage for a single and for a single-earner couple with two children declines by 5 percentage points to, respectively, 35.8%, and 32.8% between 2019 and 2023, and then remains at this level, reflecting rate changes announced by the government. Improvements in education quality and adult skill training raise the average years of schooling across the workforce by 1.7 years by 2060, compared with the baseline, to 14.5 years.	1.0	5.6	12.3
2	Continuing the reform and investment momentum beyond Greece 2.0	In addition to the measures in Scenario 1, improved judicial processes, anti-corruption measures and regulatory simplification allow perceptions of the rule of law to progressively rise to the OECD average by 2050; following Greece 2.0, public investment declines to the OECD average of 3.8% of GDP; product market regulation further improves to reach the OECD average from 2025; and R&D investment continues to rise to reach 2.0% of GDP from 2030.	1.1	6.4	17.7
3	Continuing the reform and investment momentum beyond Greece 2.0 and maximising the contribution from net migration	In addition to the measures in Scenario 2, measures to encourage emigrants to return, and to make greater use of foreign-born workers' skills lead to higher effective immigration in line with Eurostat's 'high migration' scenario, leading to the working age population in 2050 1.3% (85 000) higher than in the other scenarios.	1.1	6.6	18.4
Of which:					
3.i.	Continuing the momentum beyond Greece 2.0, focusing on improving the institutional climate, and maximising the contribution from net migration	Institutional reforms to improve judicial processes, anti-corruption measures and regulatory simplification allow perceptions of the rule of law to progressively rise to the OECD average by 2050; product market regulation further improves to reach the OECD average from 2025	1.0	5.8	15.8
3.ii.	Continuing the momentum beyond Greece 2.0, focusing on public and R&D investments, and maximising the contribution from net migration	Following Greece 2.0, public investment declines to the OECD average of 3.8% of GDP; and R&D investment continues to rise to reach 2.0% of GDP from 2030.	1.1	6.6	15.4

Note: The baseline projections take into account the reduction of the corporate income tax rate to 22%. The projections assume that the pension reforms implemented up to 2021 lead the average effective retirement age to rise to 65 by 2030 and to rise with life expectancy thereafter.
Source: Simulations based on the OECD's Global Long-Term Model and Eurostat population projection scenarios, and OECD Economic Outlook 111 (database) updated.

Table 1.7. Events that could lead to major changes in the outlook

Vulnerability	Possible impact
Disruptions to energy supply, especially gas, and key commodities worsen and become more prolonged, and global trading linkages splinter.	Higher operating costs undermine the recovery in Greece's industry. Higher energy prices setback gains in households' living standards. Compensation measures weaken public finances. Greece's transition away from lignite is delayed, contributing to weakening in international efforts to mitigate climate change, which would bring higher long-term costs from a hotter climate. Weaker international trade slows global growth, weakening demand for Greece's exports.
Spiralling wage and price inflation	Sustained higher inflation leads to stronger wage growth, exceeding productivity growth, reversing the gains in Greece's competitiveness achieved over the past decade and aggravating the structural trade deficit, while reducing vulnerable households' real income.
Disruption on global financial markets raises the cost of borrowing disproportionately in Greece and delays Greece's government debt re-rating to investment grade	The spread premium on Greek government and private debt increases, delaying the recovery in access to financing for investment and business operations.
COVID-19 and vaccines: emergence of new virus variants and a potentially limited efficacy of vaccines	Return to reduced mobility and lower consumer confidence would weigh on demand, with greater risk of longer-term scaring as businesses close, leading to renewed growth in non-performing loans and delaying banks return to health.
Climate-related risks	Responding to more frequent adverse climate events, such as heat waves and forest fires or floods, would absorb a higher share of public and private investment and weaken the tourism and agricultural sectors.
Extended, heightened geopolitical tensions	Lower confidence and lower global trade, combined with higher international prices would reduce potential growth through weaker exports and foreign direct investment.

Box 1.6. The proposed reform and investment programme would improve the budget balance

Table 1.8 presents estimates of the fiscal effects of the recommended reform package, allowing for limited behavioural responses. The recommended reforms with minor fiscal impacts are not presented. Reforms assessed for fiscal impact reflect those simulated for long-term GDP effects in Table 1.6. The overall balanced fiscal impact is consistent with Greece maintaining a primary budget surplus averaging near 2% of GDP.

Table 1.8. Recommended reform measures with significant fiscal effects

Fiscal savings (+) and outlays (-), % current year GDP:[1]	2025	2030
Introduce an emission tax price floor or EUR 120/tCO2[2]	+1.0	+0.8
Invest in transport infrastructure for net-zero emissions[2]	-0.1	-0.1
Double planned renovation rate to 120 000 dwellings / year[2]	-0.1	-0.1
Investment in renewable energies[2]	-1.5	-0.6
Raise active labour market and training spending to OECD average	-0.3	-0.3
Revenue gain from more consistent rates, improved compliance and broader coverage[3]	1.0	1.0
Overall budget impact of specific measures of recommended reform package	**0.0**	**0.7**
Memo: GDP difference from baseline (%)	*1.1*	*6.6*

1) Only measures with significant ongoing fiscal implications included.
2) Costs of measures supporting the green transition are developed in Chapter 2.
3) Potential revenue gains from reducing tax evasion and improving collections are based on OECD estimates of the gap between realised and potential VAT revenues, adjusted for projected nominal GDP growth, and given revenue gains from past compliance measures. 3) Additional expenditure to increase education quality and access to lifelong education and skill training gradually brings Greece's spending up to the OECD average.

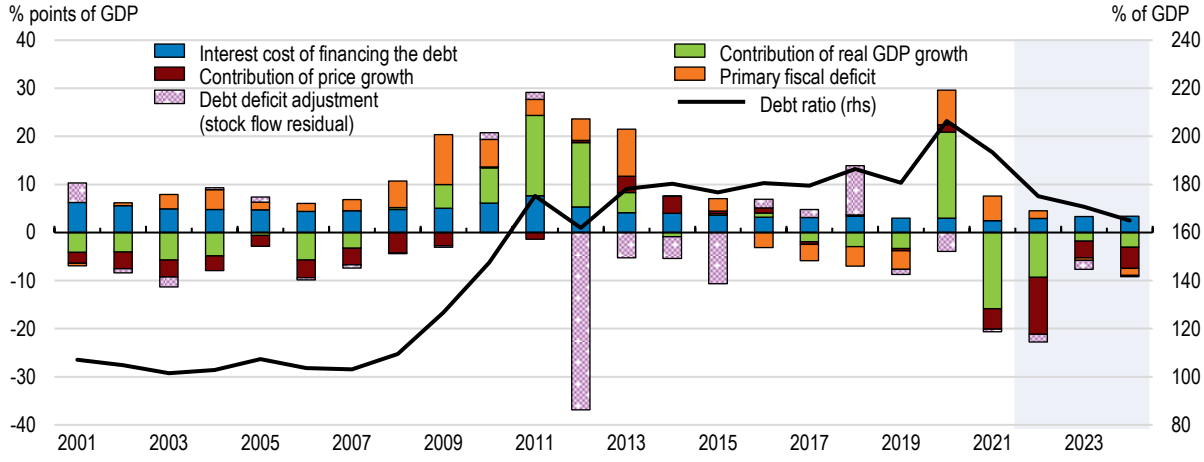
Fiscal sustainability through more effective public investment, spending and revenue policy

Since the COVID crisis, Greece is expected to have returned its public debt to GDP ratio to near 175% of GDP by the end of 2022 (Maastricht definition), the lowest ratio in a decade, and built substantial cash reserves. The economy's rebound, accelerating price growth and the reduced budget deficit contributed to reversing the COVID-period spike in public debt ratios (Figure 1.13). Public debt remains dominated by loans from official institutions. Its weighted average maturity is 18 years. Nearly all these loans are at fixed interest rates and denominated in euros, limiting the exposure of Greece's public debt to rising interest rates or euro depreciation. The government has repaid more expensive credits, including all of its borrowings from the IMF, and is seeking to build a yield curve that will help deepen market liquidity and reduce the cost of future debt issues. As protection against potential interest rate rises or market disruption, it has increased its cash reserves to EUR 39 billion (20% of GDP), sufficient to cover over three years' gross financing needs.

In the medium term, the government plans to achieve primary budget surpluses of at least 1.5% to 2% of GDP, in line with the Stability and Growth Pact objectives (Bank of Greece, 2021[15]). Reaching this target from 2023 would help Greece to manage its rising capacity utilisation and price pressures, to maintain fiscal credibility and to achieve an investment-grade sovereign debt rating despite tightening global monetary conditions. The additional fiscal support provided over 2021 to 2026 by grants averaging EUR 3.1 billion (1.6% of 2022 GDP) annually from the NextGenerationEU Facility mitigates the impact of fiscal consolidation on the economy.

Figure 1.13. The economy's rebound and rising prices have put public debt on a downwards path

Gross public debt (Maastricht definition) and contributions to change, % of GDP



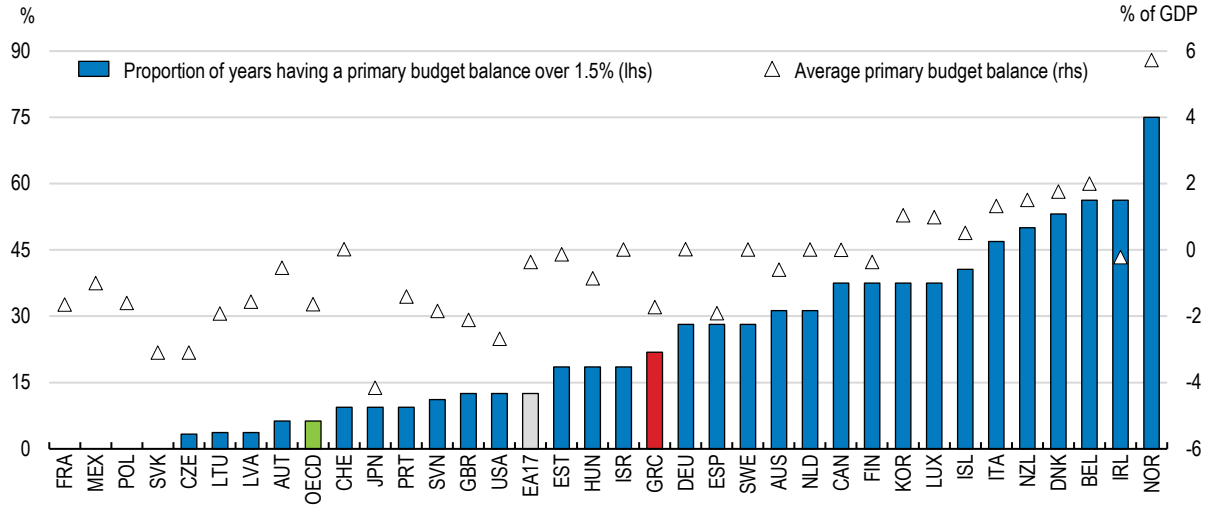
Note: Values for 2022 and 2023 are projected. Negative 'primary fiscal deficit' indicates a surplus.
Source: Ministry of Finance, Greece, and OECD Economic Outlook 112 (database), updated.

StatLink https://stat.link/wdbcsf

A small number of other OECD countries have maintained primary budget surpluses above 1.5% of GDP for half or more of the past three decades, including several countries addressing high public debt such as Belgium and Italy (Figure 1.14). Achieving this objective would reduce Greece's financing costs and improve public debt sustainability, so ensuring fiscal space is available for targeted responses to future shocks. Sustaining such primary surpluses will require raising the quality and effectiveness of spending and improving the structure of tax rates and continuing to raise tax compliance (discussed through the remainder of this section).

Figure 1.14. Some countries sustain a primary budget surplus above 1.5% of GDP for many years

Primary budget balance, % of GDP, and proportion of years with a primary budget surplus over 1.5%, 1990-2021



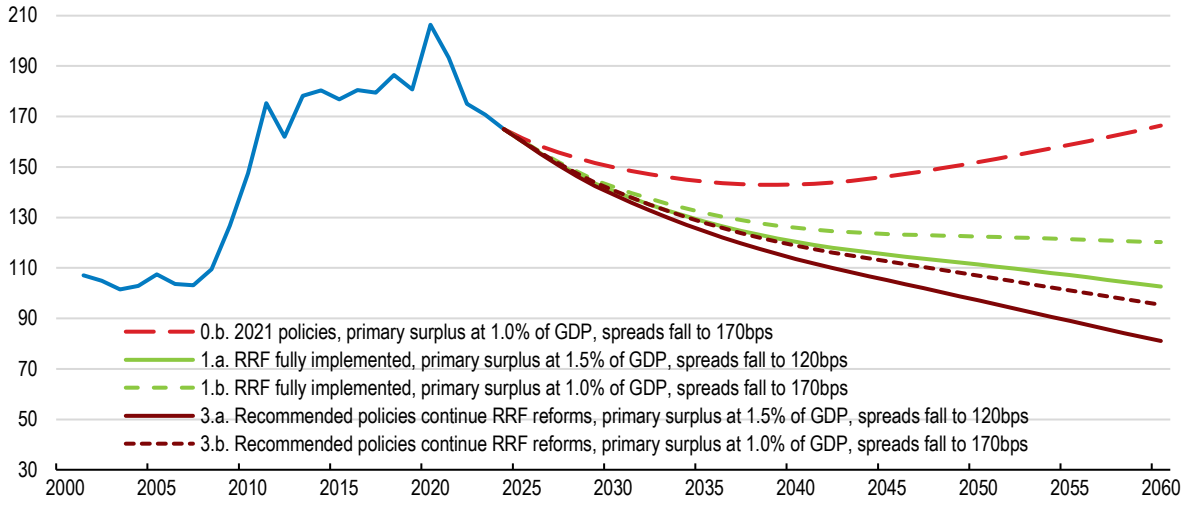
Source: OECD Economic Outlook 112 (database), updated.

StatLink https://stat.link/b30le2

Both sustained, strong growth, supported by greater investment and continued reforms, and sustained primary surpluses are needed to continue to reduce the debt to GDP ratio. Sustainably raising growth by implementing this Survey's recommendations to continue reforms and investments beyond the Greece 2.0 programme would hasten the improvement in public financial health (Scenario 3.a.). The public debt to GDP ratio could continue to fall, albeit more slowly, with sustained reforms and investments for stronger growth but a smaller primary budget surplus and higher interest costs (Scenario 3.b.). These scenarios contrast with those without sustained reforms and primary budget surpluses. For example, fully implementing the Greece 2.0 reforms, maintaining a primary surplus of at least 1.5% of GDP, and achieving investment grade rating to reduce interest costs will bring the debt-to-GDP ratio to 100% by 2060 (Figure 1.15, Scenario 1.a.). If the primary budget surplus is only maintained at 1.0% and spreads on government debt decline by less, public debt would fall more slowly, reaching around 120% of GDP by 2060 (Scenario 1.b.). Conversely, without implementing the Greece 2.0 programme, public debt would start rising relative to GDP from the mid-2030s, even while maintaining a primary budget surplus of 1.0% of GDP (Scenario 0.b.). Accounting for the modestly slower growth due to the investments for the green economy in the 2020s and 2030, followed by slightly stronger growth in the following years has minimal effect on the public debt ratio. The scenarios all account for the projected broadly stable overall fiscal cost of pensions, health and long-term care up to 2050 and their declining cost thereafter (Box 1.7).

Figure 1.15. Sustained reforms and investments are needed to lower the public debt ratio

Projected gross government debt (Maastricht definition) as % of GDP



Note: Policy scenarios are described in Table 1.6 and scenario numbers 0, 1 and 3 refer to the numbering in that table. In the 'primary surplus at 1.6% of GDP, spreads fall to 130bps' scenarios, the 'a' scenarios illustrated with solid lines, from 2024 the budget primary surplus is projected to be 1.6% of GDP, and market interest rates to be 4.3%. In the 'primary surplus at 1.0% of GDP, spreads fall to 180bps' scenarios, the 'b' scenarios illustrated with dashed lines, from 2024 the budget primary surplus is projected to be 1.0% of GDP and market interest rates to be 4.8%. In both groups of scenarios, long-term risk-free interest rates are projected to decline from current levels to 3.5% from 2026; interest rates on official debt are expected to remain at 1.4%, based on (Bank of Greece, 2021[15]), and the GDP deflator is projected to rise by 2.0% annually from 2025.

Source: Simulations based on the OECD's Global Long-Term Model and Eurostat population projection scenarios, and OECD Economic Outlook 112 (database), updated.

StatLink https://stat.link/3nb7aq

Raising the effectiveness of public spending

Greece has reduced its public spending as a share of GDP over the past decade from among the highest in the OECD to the OECD average (Figure 1.18, Panel A). This performance has in part been achieved by Greece consistently underspending its budget plans, most notably its investment budget (Figure 1.18, Panel A). Spending on public pensions, payroll and debt servicing is relatively high and crowds out spending in areas that best support long-term gains in productivity, employment and living standards, such as education, infrastructure and targeted social protection (Figure 1.18, Panels B and C). Difficult reforms over the past decade have allowed Greece to stabilise pension spending relative to GDP, reducing fiscal pressures and inter-generational inequalities. Debt restructuring has reduced interest expenses by 3% of GDP over the past decade, allowing for higher spending in areas that can support more inclusive growth such as general social protection.

Better disbursing public investment

The government increased the public investment budget to over 5% of GDP in 2022, and 4% of GDP in 2023, compared with a low of 2.5% of GDP in 2019. This increase in public investment, plus higher capital transfers, are being funded through the Greece 2.0 Recovery and Resilience Plan projects financed by the NextGenerationEU grants, adding to additional nationally financed public investment spending (see Box 1.2). Greece is already receiving the initial disbursements as it implements the first policy reforms and investment projects. The government is spreading this increased investment across well-recognised priorities, including expanding access to digital infrastructure and digitalising the public sector, improving transport infrastructure, and supporting the green economy transition (discussed in Chapter 2).

Box 1.7. Greece's recent pension reforms contribute to containing the long-term costs of ageing

Greece's public pension spending remains high relative to other OECD countries but is projected to decline in the 2020s, then to broadly stabilise, and then to further decline after around 2050. Declining pension spending is projected to more than offset rising health care costs, such that the overall cost of ageing is broadly stable up to around 2050 and then declines.

The recent introduction of a defined contribution supplementary pension is likely to improve the pension system's long-term sustainability and encourage employment, even if the transition will entail modest additional fiscal costs. Those starting work from 2022 will make defined contributions of 6% of their total gross employment costs to an individual account to cover old age, disability and spousal pensions. Younger workers already in the workforce may shift to the new scheme. When these workers reach the retirement age of 67 they will be eligible to receive an annuity based on their contributions and the returns on their chosen investment strategy, and those with short contribution histories will receive a lump-sum repayment. The scheme will provide a minimum disability or spousal loss pension, which can help address the higher risk of poverty among these groups, discussed in the 2020 Economic Survey of Greece (OECD, 2020[16]). The transition from the existing notional defined contribution scheme to the new scheme will bring a modest fiscal cost that is expected to rise gradually to peak mid-century, and the government is estimating this as an update to the EU Ageing Report projections.

From 2021, the self-employed will be required to pay only flat-rate pension contributions, which they can voluntarily top-up, while auxiliary pensions remain voluntary. Previously, contributions were based on declared profits from the self-employed activity. This measure may address the risk of self-employed under-declaring their earnings, but low contributions among the self-employed will widen the gap in retirement income to less than half of equivalent employees' contributions. This may lead to low incomes in old age for many current self-employed. In other reforms Greece increased the share of a pension that can be received while working from 40% to 70%, which may support longer careers but may create a risk that some workers start drawing their pensions early.

Sources: (OECD, 2021[17]); (European Commission, 2021[18]).

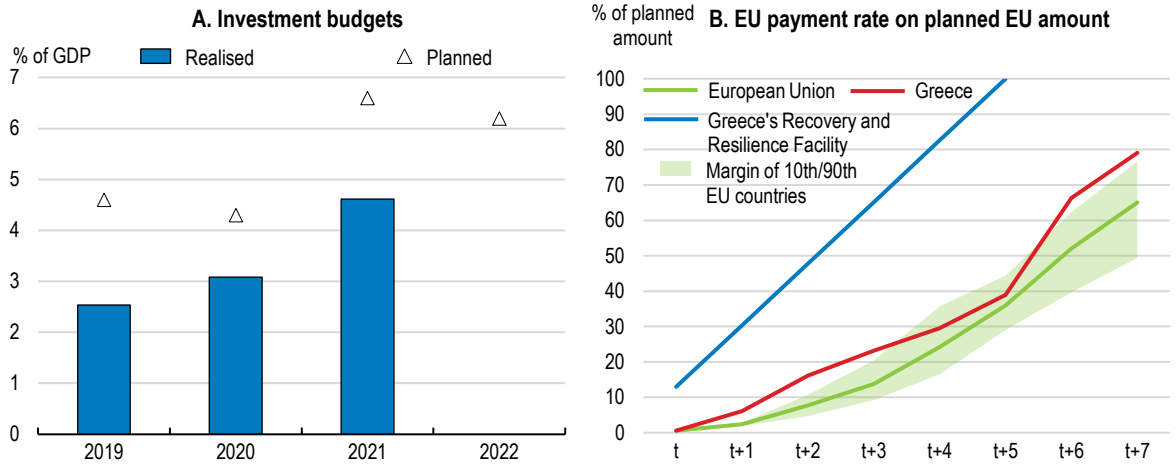
Preparing Greece's infrastructure for a sustained recovery and the green economy transition will require more and better-quality public investment. Quality infrastructure investment in Greece, especially in areas where Greece's public capital stock is low, is likely to bring strong returns, strengthening both activity in the short term and employment into the longer term (Mourougane et al., 2016[19]; Pain et al., 2018[20]). One additional euro of EU investment funds over 2009-2017 is estimated to have raised Greece's GDP by EUR 0.64 in the short-run, rising to EUR 1.55 in the long run through the hysteresis effects of investments in areas such as education and training, and research and development (OECD, 2020[21]).

European funds' large share of total spending makes improving Greece's administrative capacity to disburse these funds a priority. Over 2019-2021, realised investment spending was EUR 10 billion or nearly 35% less than planned (Figure 1.16, Panel A). Disbursement improved in 2020 and 2021 as about 40% of the total public investment budget was allocated to fast-disbursing emergency programmes providing support to the COVID-19 crisis and natural disasters. All European countries have found disbursing European funds challenging, and Greece has consistently been among the best performers (OECD, 2021[22]). Yet, 20% of its 2014-2020 allocation remained undisbursed in 2021 (Figure 1.16 Panel B). Delays disbursing these funds risk exerting a drag on overall investment spending in the coming years, given that about 84% of Greece's public investment budget was co-financed from European Union funds in 2022 (Figure 1.17), slightly more than the average of the last decade.

The government is implementing reforms to its public investment project management and monitoring capacity, and to improve public procurement processes. Greece's central government implements about 80% of public investment spending, one of the higher shares across OECD countries. Fully implemented,

these reforms can help improve disbursement rates and the quality of spending. The central government is making efforts to improve coordination and communications in how the public investment budget is managed and monitored, and how projects are implemented. To support implementing Greece 2.0, the government has created dedicated project delivery units with specialised project design and management capacity, and monitoring and auditing processes. Drawing lessons from the effectiveness of these units and other measures to develop capacity and streamline processes can help Greece improve its public investment spending beyond Greece 2.0.

Figure 1.16. Better spending of EU funds would lift public investment



Notes: Panel A: Planned public fixed capital formation are the amounts proposed in the draft budgets presented to Parliament for the following year. 'Realised' investment budgets are the amount of capital expenditure recorded in the national accounts after the end of the fiscal year. The ratios are calculated with respect to realised nominal GDP. Panel B: Funds disbursed for EU structural funds. Panel B: The lines indicate the amount of programmed funds disbursed each year after the start of the programmes. The red and green lights indicate the share disbursed by Greece (red line) and on average across the European Union (green line, with shaded area indicating the 10th to 90th percentile of EU countries) from the first year (2014) to seventh year 2021) of the 2014-2020 European fund programming period. The blue line indicates Greece's planned disbursement share of its NextGenerationEU grants and loans, from its start in 2021 to its fifth year in 2026.
Source: OECD (2022), Economic Outlook (database); Ministry of Finance of Hellenic Republic (2018 to 2021), *Draft Budgetary Plans* 2019-2022); and European Commission.

StatLink https://stat.link/wj519u

After 2026, maintaining high rates of public investment is likely to require greater national resources. Greece is among the OECD countries most reliant on EU funds for its public investment. Preparing for greater national financing of public investment would avoid future shortfalls in public investment (Figure 1.17). The NextGenerationEU facility will sustain high levels of public investment until 2026, while the current EU structural fund cycle runs to 2027. The NextGenerationEU facility is an exceptional European response to the COVID-19 crisis. Greece's annual receipts of European structural funds peaked in 2013, and future allocations may not be expected to keep pace with Greece's projected GDP growth. Identifying additional national financing will be challenging given Greece's limited fiscal space. Improving project design and spending efficiency, and raising the roles of subnational administrations and of the private sector in public investment projects can expand resources available.

Strengthening the budget process to support higher-impact spending

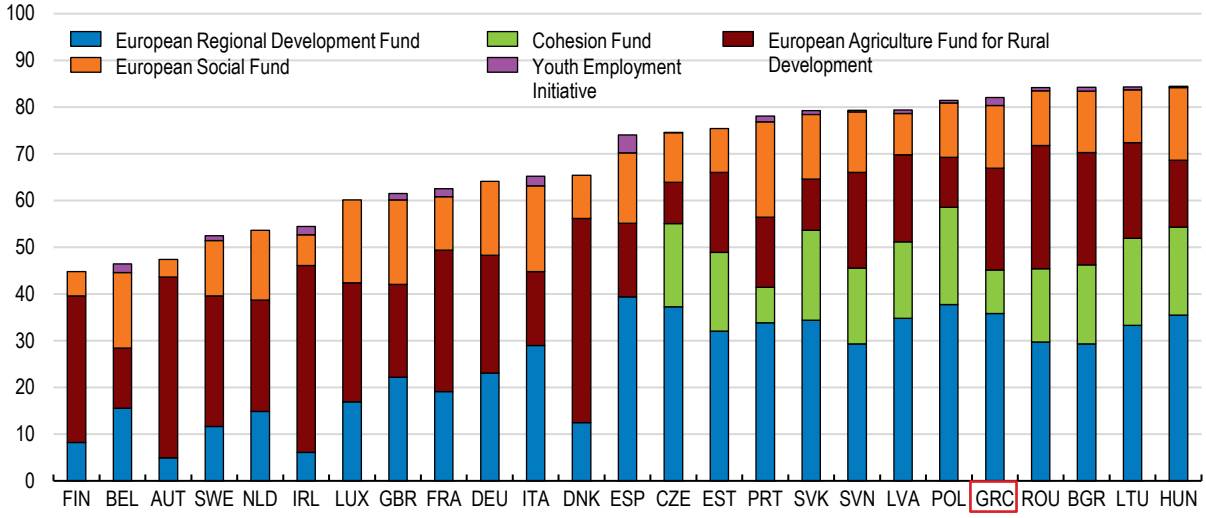
The cost-effectiveness of Greece's spending varies, and surveys find satisfaction with public services to be improving from relatively low levels (OECD, 2021[23]). In some areas, Greece outperforms, such as its relatively solid health outcomes compared with its relatively low spending (OECD, 2021[24]). In others, such as education, both spending and outcomes fall short of other OECD countries (for example, regarding overall skill levels of adults, (OECD, 2019[25])), and the government is undertaking extensive reforms

intended to improve outcomes (discussed in more detail in the (2020[16]) Economic Survey of Greece). Targeted social protection spending for families remains low, and reforms to social protection, along with the recent rises in employment, are making inroads into the relatively high material deprivation rates among families and children.

Greece can raise the quality of its public spending by continuing efforts to improve its budget process, through incorporating into spending decisions the effects of spending. Its annual budget process now incorporates spending reviews, of both horizontal spending issues and focusing on priority sectors. The revised Chart of Accounts provides Greece with a more powerful tool to assess spending allocations. Through improved tracking of spending, Greece can respond faster in cases of over- or under-spending. These tools provide better information about public spending allocations by the public sector with respect to public goals. Integrating these improvements into the medium-term expenditure framework, for example by developing reliable and sufficiently detailed multi-year costings of policies, would allow policy decisions to better account for their longer-term fiscal implications (Moretti, Keller and Chevauche, 2019[26]). As staff capacity and data collection deepen, linking spending allocations with analyses of the effects of spending can help in reallocating funds to measures that better support growth.

Figure 1.17. Greece's public investment is highly reliant on European funds

Financing by EU funds, as % of total public investment, 2014-2020

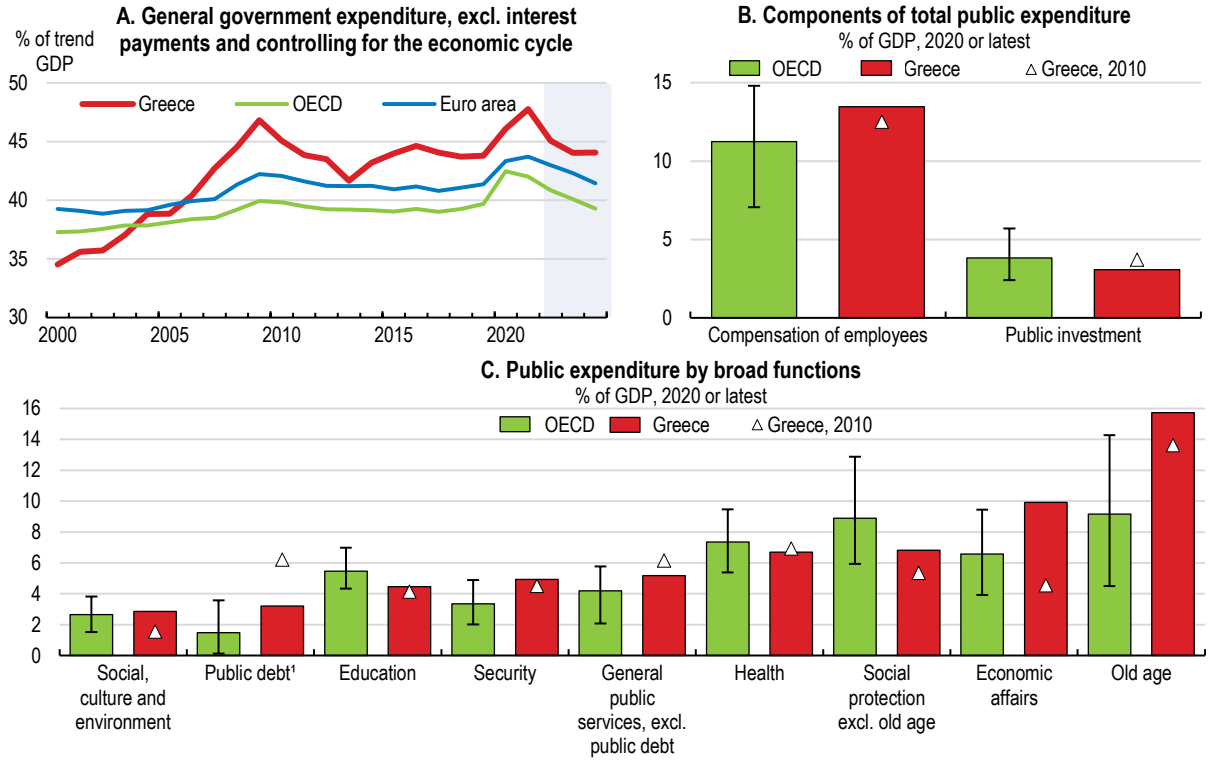


Source: European Commission, European Structural and Investment Funds.

StatLink https://stat.link/ds872b

Greece is increasing the role of performance information in its budgeting. Many OECD countries have found implementing full performance-based budgeting to be challenging. Box 1.8 presents some lessons from their experiences. Greece's 2022 budget for the first time included performance data for all central government bodies. Further progress in incorporating performance information into Greece's spending reviews and in formalising the reviews' role early in the annual budget cycle can ensure that performance information helps prioritize spending. Centralising the core performance budget work while developing capacity in line ministries to access, adapt and analyse performance information, may be the most effective strategy in Greece's context. For example, the Fiscal Council is demonstrating its effectiveness in monitoring the budget's macroeconomic assumptions. It could strengthen its role in reviewing the government's expenditure plans and medium-term projections by also reviewing budget management processes or the performance of spending in priority areas, following the example of Italy's Parliamentary Budget Office.

Figure 1.18. Despite a decade of spending control and reallocation, Greece's overall public spending provides limited resources to growth-enhancing areas



1. Public debt expenditure includes interest payments and outlays for underwriting and floating government loans.
Note: Panels B and C: The figure shows public expenditure by broad function. The OECD averages are not weighted and do not include Canada, Mexico, New Zealand and Türkiye, while the whiskers show the range between the first and last (unweighted) decile of the OECD countries.
Source: OECD (2022), OECD Economic Outlook 112 (database), updated; OECD (2022), National Accounts Statistics (database).

StatLink https://stat.link/wab02l

Box 1.8. Improving the budget's focus on performance

Experience across OECD countries shows that performance budgeting can help to improve resource allocation and to develop a performance culture across the public sector. Performance budgeting is most useful when there is a limited number of meaningful performance indicators and a strong political or managerial ownership over the results achieved.

Collecting, analysing and taking decisions based on performance information is demanding. It requires strong information systems and staff in the central finance agencies and line ministries who have the skills and authority to analyse and use the information collected.

Presentational performance budgeting shows outputs, outcomes and performance indicators separately from the main budget document, improving transparency about the government's policy priorities but has limited influence on spending.

Performance-Informed budgeting is more ambitious, as it includes performance metrics within the budget document, and structures the budget on the basis of programmes. It can help achieve more ambitious re-prioritisation of expenditure linked to performance and to devolve more budget control to programme managers. A plurality of OECD countries has adopted this approach, including Austria, France, Japan, the Netherlands, New Zealand and Sweden.

Source: (Keller, 2018[27]) (OECD, 2019[28]); (Schick, 2014[29]).

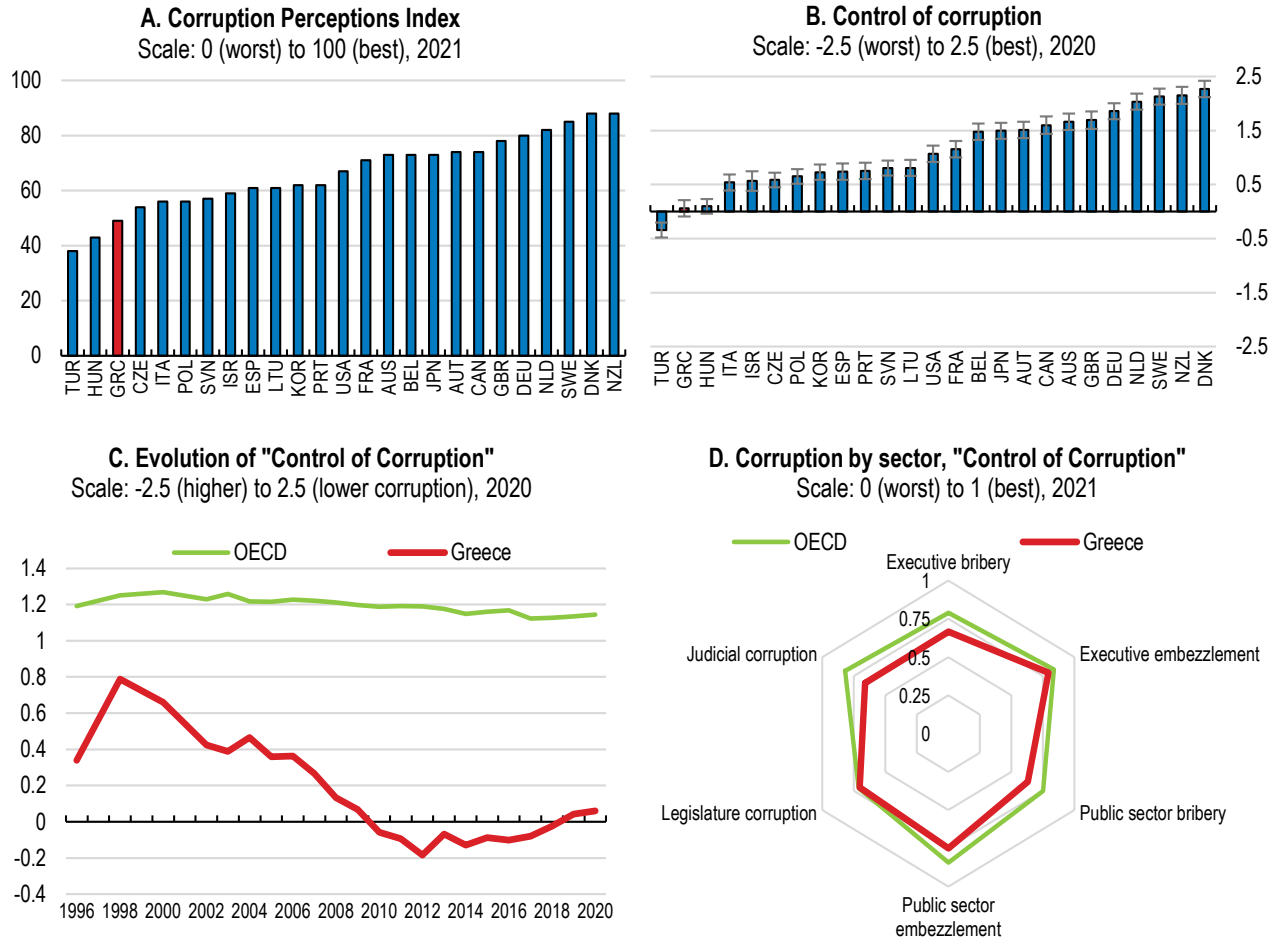
Raising the integrity of public spending and services

A high level of integrity in public spending improves value for money, and contributes to greater confidence in public institutions, which brings broader benefits. Greece is making progress in strengthening its public sector integrity. Over recent years, expert and business observers perceive the incidence of corruption in public spending to have gradually declined, improving Greece's ranking among OECD countries, even if corruption is still perceived to be a greater issue than in most (Transparency International, 2021[30]) (Figure 1.19). The European Commission's 2021 Rule of Law Report notes gradually improving administrative capacity, but that shortcomings remain regarding the effectiveness of action against high-profile corruption, largely due to insufficient staffing or systems, adding to the disruption from frequent reforms to laws and regulations (European Commission, 2021[31]). Further steps to continue to improve integrity could include the launch of the Transparency Register envisaged by the revised law on lobbying, and adopting draft legislation to encourage and protect whistle-blowers The ongoing reforms to administrative and regulatory processes create opportunities to further improve integrity, for example by raising the accountability of regulatory agencies, and limiting specific agencies' exceptions to these reforms.

Even if Greece's overall spending mix passes a lower share of spending through the public procurement system than in most other OECD countries, raising the performance of public procurement can improve integrity, value for money and timeliness of spending. Greece has undertaken many reforms to its public procurement systems over recent years. A 2021 law simplifies bureaucratic steps and seeks to focus procurement processes more on price and quality aspects than on formal diligence processes. The Greece 2.0 Recovery and Resilience Plan includes reforms to overcome procurement bottlenecks by simplifying arrangements, for example by raising the threshold below which procurements can follow simplified procedures. Simplified processes may accelerate spending. At the same time, regularly assessing procurement quality, strengthening procurement processes and the role of central, dedicated agencies with specialised competencies can help balance integrity, responsiveness and value-for-money.

Greece's procurement system is fragmented across the public sector. It could be streamlined by strengthening the Hellenic Single Procurement Authority's role, and the regulatory and operational oversight of the Authority (MAPS, 2022[32]; Pronto, 2019[33]). A stronger Authority would bring together the professional staff with the needed skills and experience from across different public agencies. It can lead in the planned streamlining of e-procurement and information systems, collect and analyse data on procurement performance, and provide a centre to support other contracting authorities. The authority could develop framework agreements and require government agencies to use these; Greece is one of only several OECD countries that do not follow the 2015 OECD Council Recommendation on mandating the use of framework agreements (OECD, 2019[34]). In time, a stronger Hellenic Single Procurement Authority would enable more contract awards to be based on most economically advantageous criteria rather than lowest cost criteria, and allow procurement to support broader policy goals, such as sustainability and business development.

Figure 1.19. Improving integrity and reducing perceived corruption will require further efforts



Note: Panel B shows the point estimate and the margin of error. Panel D shows sector-based subcomponents of the "Control of Corruption" indicator by the Varieties of Democracy Project.
Source: Panel A: Transparency International; Panels B & C: World Bank, Worldwide Governance Indicators; Panel D: Varieties of Democracy Project, V-Dem Dataset v12.

StatLink https://stat.link/jl80r5

Better staffing the public service

Ensuring adequate resources and well-trained, professional staff are in place is key to timely and quality delivery of public services and public investment. Even after a decade of public service austerity, the public wage bill is relatively high, and the difference between public and private sector pay rates for professionals is comparable with other OECD countries (World Bank, 2021[35]). The public service is well-staffed overall in terms of staff numbers, especially among public administration workers, and the share with tertiary education compares favourably with the overall population and the private sector. However many public servants lack the needed technical or operational skills, including in key areas such as procurement, or in implementing and using the public sector's increasing digitalisation (Pronto, 2019[33]; Spinellis et al., 2022[36]).

While avoiding growth in overall public service staff numbers, Greece can attract needed skills and raise its public service's performance through reforming how it recruits new public servants. Hiring freezes have led the share of younger employees in the public service to fall to among the lowest across the OECD (OECD, 2021[23]). Meanwhile the number of public workers employed on rolling short-term contacts has become significant and rose further to meet urgent staffing needs during the COVID crisis.

Improving the reactiveness of the recruitment process, alongside reforming public servants' ongoing contractual arrangements and performance assessment and rewards, would help rejuvenate Greece's public service. Greece's central public service recruitment body, ASEP, is introducing reforms to digitalise recruitment. It could strengthen its role in attracting strong candidates by developing a central employment portal for government jobs. ASEP could more actively identify current and projected skill needs, for example collaborating with the Ministry of Digital Governance, so as to target graduates and diaspora with needed skills. The ongoing development of complementary wage grids in independent authorities, which link part of staff remuneration with job descriptions and grading without undermining the unified wage grid, can also improve the attractiveness of public service positions and avoid gaps widening with private wages for specialised and technical skills.

Greece plans to strengthen the role of a common public service exam that all candidates must sit, followed by skill-specific examinations. This goes in the opposite direction of the reforms in a number of other OECD countries, including those with similar institutional traditions, such as Italy (OECD, 2021[37]). Even so, these countries' experience highlights which assessment techniques are fruitful and Greece can seek to incorporate these. At the same time, ASEP can focus its recruitment process to respond to the evolving needs of the agencies responsible for delivering public services, targeting both job-specific and transversal skills through a process that attracts the highest-calibre candidates.

Focusing staff allocation and work practices on outcomes would improve policy implementation and service delivery. The trial of bonuses in the Greece 2.0 programme is an opportunity to assess whether these help raise performance, and if they benefit and attract higher-performing and more specialised staff. A recurring challenge in public sector management in Greece is that key areas and functions suffer from under-staffing or that staff time is not allocated to core service delivery functions. For example, staff cuts in the Ministry of Environment and Energy's inspectorate division led to a sharp decline in the number of inspections, and only a small share are allocated to the most risky activities (OECD, 2020[38]). Linking the performance information being developed to improve the budget process with decisions about staff allocation and activities could help to redress such challenges.

Past OECD recommendations on public sector efficiency policies and actions taken

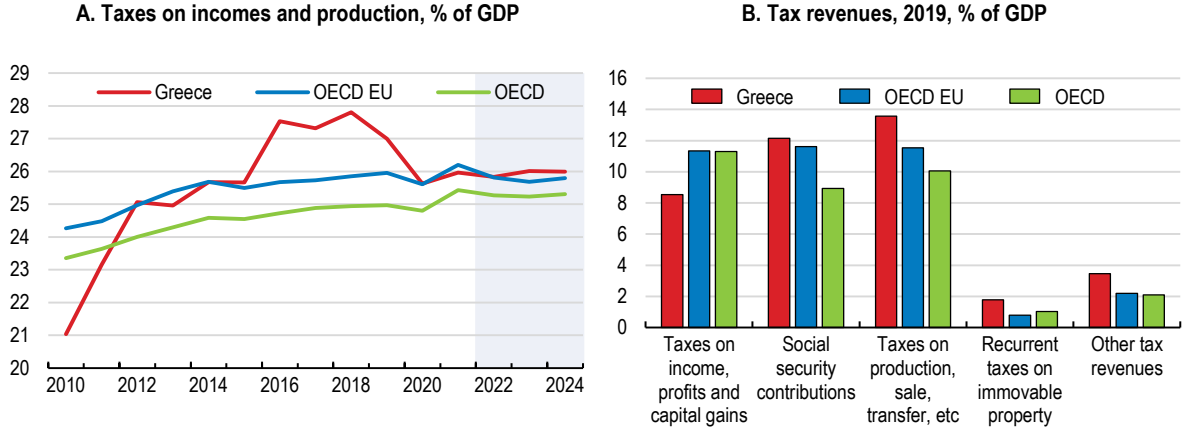
Past recommendations	Actions taken
Adopt key structural reforms to boost growth and enhance administrative capacity to improve overall reform implementation.	Authorities have adopted a performance budgeting framework under the 2022 Budget. Authorities are implementing a reform for the enhancement of state aid institutional digital capacity, with the aim to improve state aid and facilitate the implementation of public investments.
Speed up the modernisation of the public employment service.	The new legislative Framework for the Public Employment service to modernise the service and introduce new digital tools has been voted and is being implemented.
Build capacity to assess the impact of reforms and reinforce coordination across line ministries.	The General Secretariat for Coordination has been given responsibility to coordinate line Ministries during drafting and implementation of policies.
Pursue plans to accelerate the digitalisation of the public administration.	The single digital portal (gov.gr) has been set up, backed by relevant initiatives to ensure system interoperability and robustness, in line with the guidelines and priorities set out in the National Digital Transformation Strategy and the urgent needs arising from the evolution of the pandemic. The implementation of a new version of the Open Data Portal (data.gov.gr) is in progress to improve the technical features and functions of the data repository and to raise the quality of the information provided.
Train staff in payment processes including at the local level.	Relevant action not identified.
Stagger the appointment of members of boards of independent authorities.	Relevant action not identified.
Improve judicial efficiency through more training of staff and judges and using courts' performance indicators. Better communicate the availability and benefits of alternative dispute resolution mechanisms. Consider introducing permanent mechanisms for out-of-court debt settlements in conjunction with ongoing efforts to strengthen mediation processes in the justice system.	In January 2022 a legislative committee was established by the Minister of Justice to prepare provisions for a new school to train judicial clerks, with the intent to pass the relevant legislation through parliament within the year. Training and examinations at the Training Institute of the National Centre for Public Administration & Local Government and the Supreme Council for Civil Personnel Selection have been made mandatory for a judicial clerk to be promoted to head of department, directorates or general directorate. Continuing training programs have been made mandatory for all judges from the rank of appeal court judge and below. In addition, ad hoc training programmes are provided for judges of all branches and levels who are called upon to implement new regulations. Law introduced to widen training of judges to encompass judicial management, communication, code of conduct, and economic issues including competition, energy, capital markets and consumer protection. The reformed insolvency code provides for a permanent out-of-court restructuring mechanism, and for a pre-insolvency procedure.

A broader, more efficient and more equitable tax system

Tax reforms require careful balancing between reducing disincentives to invest and employ, while supporting revenues and equity and limiting distortions. Greece is reducing a number of its tax and contribution rates (Table 1.9). Labour and capital income taxes generate a low and declining share of public revenues relative to other OECD countries, while value added taxes and social security contributions generate relatively larger shares of revenues (Figure 1.20). Greece's direct tax receipts have declined since the late 2010s as a share of GDP to be below the average of the OECD EU countries and only slightly higher than the average of all OECD countries. In contrast, receipts from social security contributions are high (Figure 1.20 Panel B), raising the overall burden to above most other OECD countries, largely reflecting the financing needs of the legacy public pension systems.

These trends, looming investment needs, and the ongoing need to support fiscal health suggest tax and contribution reforms will need to maintain current levels of overall revenue. Instead, focusing future reforms on broadening the tax base and ensuring adjustments to rates reduce distortions would support growth and improve equity across current and future generations. Future reforms can broaden Greece's relatively narrow base of taxpayers, especially by improving payments from the self-employed, reducing distortions and ensuring taxes and contribution rates balance progressivity with efficiency.

Figure 1.20. Consumption taxes and social contributions outweigh income taxes in Greece's public revenues



Note: OECD EU is the unweighted average of OECD countries also currently European Union members. Panel A: Figure does not include social security contributions. Taxes on incomes and production include direct taxes on income, wealth and other recurrent taxes, and indirect taxes on production and imports. OECD unweighted average excludes Chile and Türkiye.
Source: OECD (2022), OECD Economic Outlook 112 (database), updated; OECD (2022), OECD Global Revenue Statistics (database).
StatLink https://stat.link/lfuey9

Table 1.9. Greece is cutting labour income tax and contribution rates and indirect taxes paid by households

	Date introduced	2022 budgeted value
Reduction of VAT rates for transport, gyms, swimming pools and dance schools, soft drinks, cinema tickets, tourism package, imports of art and antiques. Suspension of cable TV fee.	2020	-0.1%
Private sector employees social security contributions cut by:		-0.4%
0.9 percentage points (permanent)	2020	
3.0 percentage points (temporary, to end of 2022)	2021	
0.5 percentage points (permanent, relating to supplementary pensions	2022	
Suspensions of the social solidarity income tax surcharge for private sector employees, to be extended to public sector workers from 2023 (the government intends to make the suspension permanent should fiscal space permit)	2022	-0.4%
Tax on parental benefits/donations up to EUR 800 000 suspended for first degree relatives	2021	-0.0%
Reforms, rate adjustments and property revaluations of ENFIA property tax	2022	-0.2%

Source: Ministry of Finance, Greece, 2022 Budget, 2022 Stability Programme and 2022 National Reform Programme.

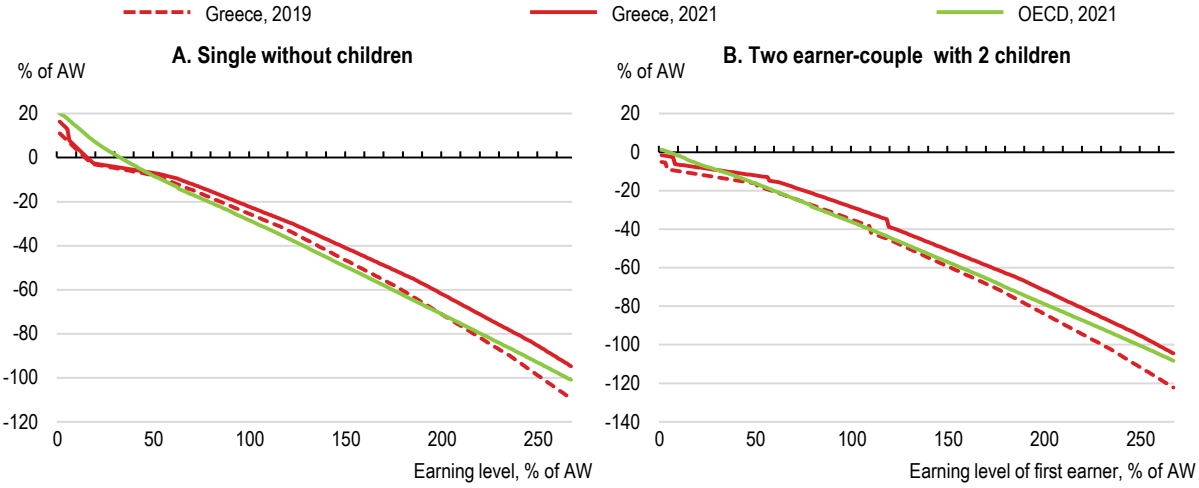
Greece is lowering the overall labour income tax and contribution wedge. It is approaching European and OECD averages (Figure 1.21). Greece will supress the special solidarity contribution income tax surcharge for all employment and pension income from 2023. The surcharge was introduced as a temporary measure during Greece's fiscal crisis to raise additional revenues. This cut follows temporary and permanent reductions in the social contribution rates over recent years (Table 1.9). Focusing future income tax reforms on expanding the share of lower wage workers who pay income tax, even at low rates, while reducing the tax burden at moderate incomes, would broaden the tax base and maintain revenues. Such adjustments along with ongoing improvements in enforcement could help raise tax declarations from Greece's large numbers of self-employed workers, who are more likely to under-declare their taxable income (discussed in the (2020[16]) Economic Survey of Greece).

Greece has reduced taxes on capital. The combined rate on corporate income and distributed profits is among the lowest in the OECD (Figure 1.22), and other taxes on capital income are relatively low. In addition, the government is exempting gifts and inheritances worth less than EUR 800 000 from gift and inheritance taxes. These reforms, along with the reforms to improve other aspects of the business environment (discussed elsewhere in this chapter), contribute to addressing some of the barriers to private investment. Focusing future reforms on boosting compliance, especially among the self-employed (discussed in the 2020 Economic Survey of Greece (OECD[16])), rather than further lowering rates would better balance revenues and activity.

Higher collections and compliance are financing some of these cuts in tax rates. The growth of e-transactions, accelerated by the COVID pandemic, digitalisation of the tax administration, and simplification of VAT obligations are raising compliance rates and reducing costs for businesses. However, collections and compliance remain challenges. This is most readily observable in consumption tax collections. Consumption taxes' share in total revenues is high, reflecting Greece's high consumption tax rates. However, the gap between VAT revenues that Greece could theoretically collect and those actually collected remains among the widest of OECD EU countries, despite important progress over recent years (Figure 1.23). In recent years, the loss of revenues from reduced rates and exceptions more than offset the improvements in compliance. Further cuts in the VAT rates for some consumer services introduced during the COVID crisis, and extended to the end of 2023, are likely to have further weakened collections.

Figure 1.21. Recent reforms have reduced the labour income tax wedge

Difference between gross earnings and net income, in percent of average wage (AW), by gross wage levels

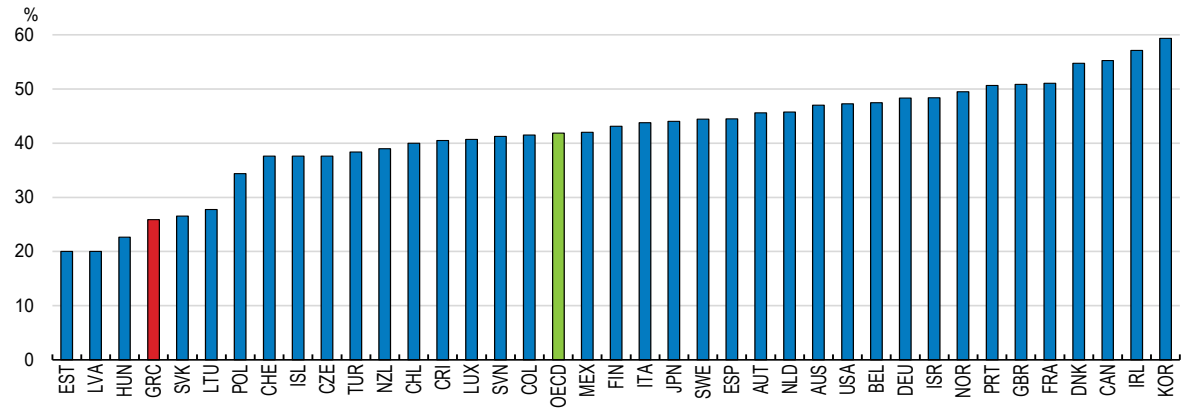


Note: Positive values indicate net income is greater than gross earnings (e.g., benefits, tax credits or other support raises net income above gross earnings), while negative values indicate tax net income is below gross earnings, due to taxes and contribution payments. The values are presented in percent of the average wage to be comparable over time and across OECD countries. OECD averages are unweighted averages of net income as a per cent of the average wage across OECD countries excluding Australia, Canada, Chile, Israel, Korea and New Zealand. The average of OECD-EU countries is not shown as it is similar to the OECD average. Policies are on 1 January of the indicated year. In both panels, the household claims social assistance and housing benefits with an annual housing cost of 20% of the AW. Panel B: Children are aged 4 and 6; the second earner works full-time and earns 67% of the AW. The drop in net income at earnings between 110% and 120% of the average wage is due to the withdrawal of means-tested family benefit.
Source: OECD Tax and Benefit Model TaxBEN 2.4.0, http://oe.cd/TaxBEN.

StatLink https://stat.link/paiqf6

Figure 1.22. Taxes on distributed profits are low

Overall statutory (corporate plus personal) tax rate on dividend income, 2022

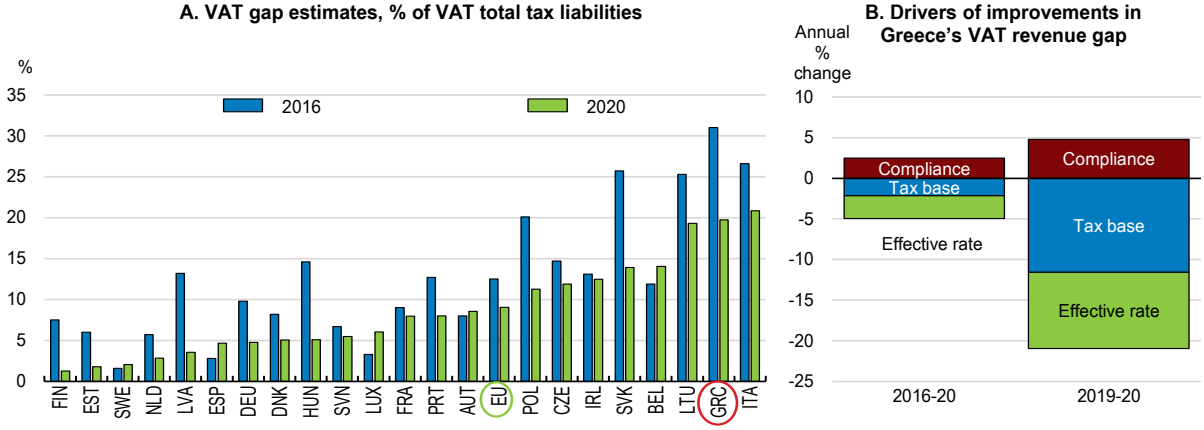


Note: OECD unweighted average.
Source: OECD (2022), Tax Database.

StatLink https://stat.link/zums6l

Limiting the number of reduced rates and exceptions can support revenues and limit distortions and inefficiencies. Greece can ensure that temporarily reduced rates end as scheduled, for example by introducing default sunset clauses on tax expenditures. Ensuring that tax expenditures are retained no longer than required to achieve their objective balances the integrity and efficiency of the tax system with their temporary policy goals. For example, measures to rebuild demand for sectors buffeted by the COVID crisis, such as reduced VAT rates for accommodation, may in some cases be justified temporarily by the sector-specific shock, but are likely to be less fiscally effective than targeted spending such as support for better quality services, infrastructure or promotional campaigns. In Greece, regularly publishing lists and estimated costs of its exemptions and other tax expenditure should be a priority, following EU requirements and the practice of countries such as Belgium. To evaluate comprehensively whether these revenue losses or other distortions are good investments, the objectives or estimated benefits of these exemptions can be presented alongside their costs.

Figure 1.23. Despite improving compliance, the VAT gap remains high



Note: The VAT Gap is the overall difference between expected VAT total tax liabilities estimated from VAT legislation and ancillary regulations and actual consumption expenditure, and the amount collected.
Source: EC (2021), Directorate-General for Taxation and Customs Union, VAT gap in the EU: report 2022, https://data.europa.eu/doi/10.2778/109823, report 2021, https://data.europa.eu/doi/10.2778/447556, report 2020, https://data.europa.eu/doi/10.2778/2517 and report 2019, https://data.europa.eu/doi/10.2778/04272.

StatLink https://stat.link/7niq41

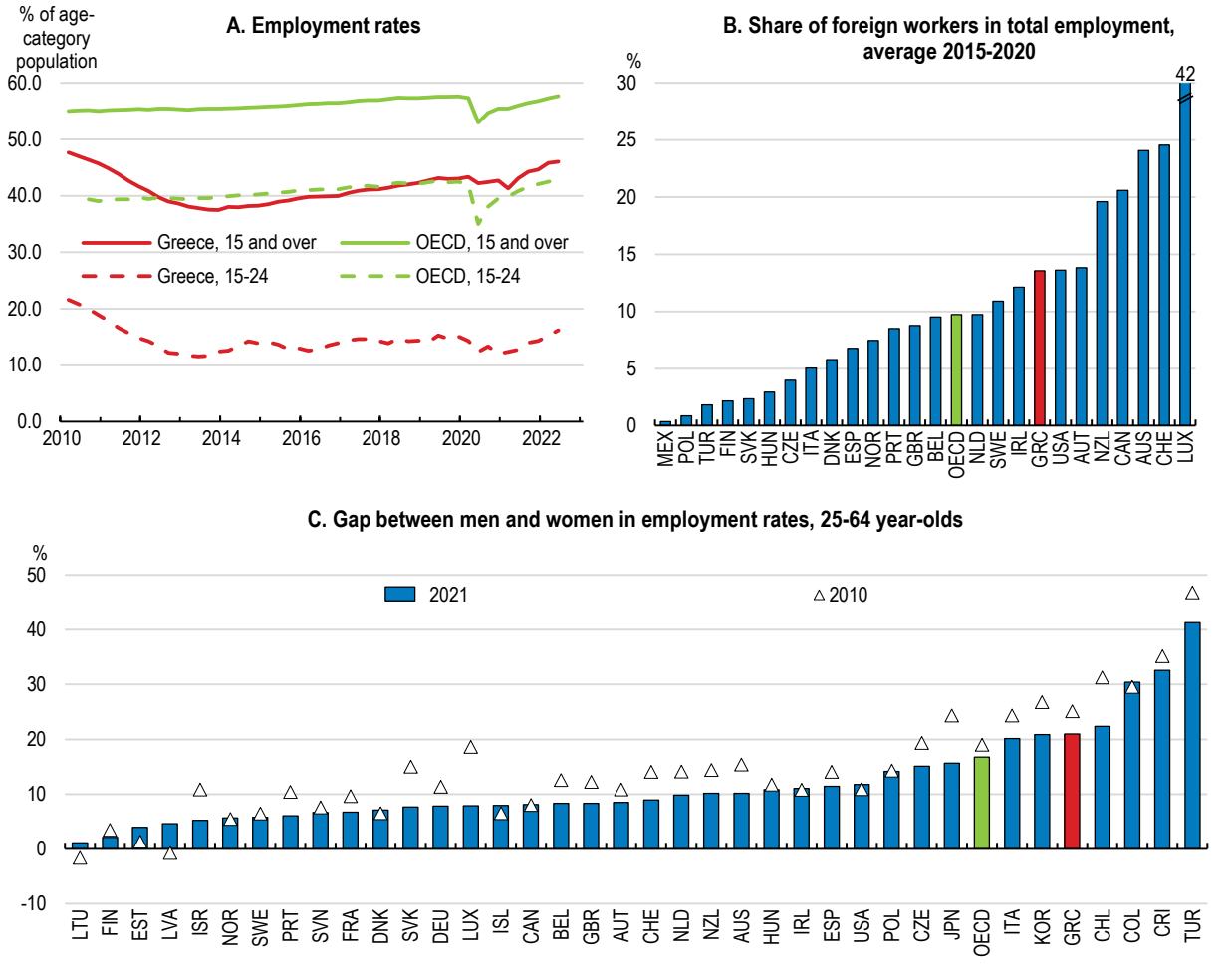
The government's efforts to make tax compliance easier can boost collection and improve the business environment. Greece is implementing incentives for electronic transactions, which are more readily monitored. The ongoing codification of taxation laws and simplifying procedures and interactions with the tax authorities can improve compliance, and raise the quality of the business environment. These measures complement the Independent Public Revenue Authority's improving capacity and growing functions, although recruitment and other operational challenges have slowed progress in some important areas, such as setting-up IT systems. Greece's revenue collections and compliance costs for businesses would benefit from following some other OECD countries in developing a 'compliance support' rather than 'compliance enforcement' approach in their revenue authorities, prioritising support for smaller taxpayers with fewer resources to comply.

A better operating labour market to boost employment and incomes

Employers report growing difficulties in recruiting employees, especially for occupations and regions already suffering from labour shortages or experiencing strong growth in activity, such as in information technology and construction. This is a growing, although still relatively modest, factor limiting production and wage costs are accelerating. Even prior to the COVID recovery, Greece has had one of the highest mismatches between workers' skills and employers' needs, as discussed in previous OECD Economic Surveys (2018[39]; 2020[16]). The recent growth in employment is likely to have amplified skills shortages. Employment rates have risen most strongly for more educated workers and for prime working-age men. Employment growth has lagged for younger workers, new to the workforce, and women, even after accounting for the strong employment growth in 2021 with the post-COVID economic rebound (Figure 1.4, Panel B and Figure 1.24, Panel A).

Raising Greece's low employment rates among these groups would help offset the declining working-age population and support income growth, as discussed above. Ageing will see the working-age population fall by 0.3% a year on average this decade, accelerating to 0.8% a year next decade. Fully implementing and building on the measures laid out in the Greece 2.0 Recovery and Resilience programme can improve matching of workers with employers, develop and reward skills, attract groups that currently have low participation rates into the labour force, and maximise foreign-born workers' contribution.

Figure 1.24. Employment rates remain low, especially among the young and women



Source: OECD Labour Force Statistics (database); and OECD Database on Immigrants in OECD and non-OECD Countries (OECD DIOC).

StatLink https://stat.link/f9mig5

Boosting the contributions of youth, women and foreign-born workers

Employment among youth is low in Greece, despite recent progress as the economy recovers. Structural reforms to the labour market are being implemented. Raising youth employment can offset the effects of the ageing workforce, support the productivity and earnings of today's youth over their lifetime, and improve the attractiveness of remaining in Greece rather than emigrating. By the end of 2021, the share of youth not in employment or education had improved to 17%, almost 10 percentage points lower than a decade earlier and only modestly higher than the OECD average. Since the removal in 2019 of the subminimum wage for workers younger than 25 effectively raised their wage rate by 27% employment rates for younger workers have risen by less than other groups (Figure 1.4, Panel B).

The government is introducing some policies that cross-country experience suggests can raise youth employment (Kluve et al., 2016[40]). It introduced and, in 2022, extended an employment subsidy programme to encourage employers to hire youth with little work experience, and is reducing employers' social security contribution rates (OECD, 2021[41]). It is expanding both the number and quality of apprenticeships, and is reshaping all levels of education to focus more on the skills and experience needed in the workplace. Cross-country experience suggests that youth employment support based on profiles of individuals needs and that integrates multiple interventions – such as temporary employment subsidies, focused training and work experience – is most beneficial. Building on Greece's reduced social

contributions for employers hiring young workers and reforms to improve the flexibility of work hours, Greece could waive employers' social contributions when employing part-time young workers with minimal past work experience, so reducing their employment costs and giving those workers an entry into work experience.

The share of women in formal employment continues to lag other OECD countries, despite recent years' progress. Towards improving gender equality, Greece has been reforming laws and other formal arrangements, and was recognised as one of twelve countries out of 190 assessed to provide legally equivalent status to men and women (World Bank, 2022[42]). However, outcomes fall short, as demonstrated for example in Greece's low ranking in the European Commission's Gender Equality Index (Kingma and Vandeplas, 2022[43]).

The COVID crisis demonstrated that remote and flexible work, with adequate protection for workers, can support both workers' productivity and their well-being (OECD, 2020[44]; Criscuolo et al., 2021[45]). More flexible work arrangements enable workers who are older or with family or study commitments to remain engaged in the workforce (OECD, 2020[46]). It is part of the policy mix to reduce urban pollution and congestion (discussed in Chapter 2) (IEA, 2021[47]; ITF, 2021[48]). Greece is among the OECD countries with the least flexible working time regulations, even after accounting for some flexibility introduced by reforms in mid-2021. In Greece teleworking was used among the least of any European country prior to the COVID crisis. Telework became an important and valued practice for many workers during the COVID crisis and legal reforms have made it more accessible (Ioannou, Sidiropoulos and Agnantopoulos, 2020[49]). Still, many workplaces returned to pre-pandemic arrangements once the COVID restrictions were lifted. Supporting social partners to negotiate worktime, telework and other aspects of flexible working arrangements alongside wages can improve the quality of the work agreements, participation and productivity (OECD, 2019[50]).

Seeking to promote more flexible and equitable work arrangements, in 2021 Greece increased minimum employer-paid paternity leave for private sector workers from 2 to 14 days. This is an important step to more equitable childcare and household management arrangements and greater involvement of fathers in their children's upbringing. Experience across countries shows that it can help bring more women into higher skilled, more productive and better-paid employment (Huerta et al., 2013[51]). Reducing the gender gap in parental leave would help address one of the constraints to women entering work, while raising Greece's job market dynamism (Causa et al., 2022[52]) and contributing to raising fertility rates. A challenge in many countries has been to ensure that men make use of this leave. Other OECD countries have found that this requires a mix of compulsion and incentives (Box 1.9). Greece is shifting to an electronic platform to complete the administrative arrangements for this leave. It may wish to monitor take-up and, if take-up falls short of expectations, introduce such incentives and requirements. As a next step, it may join other countries such as Spain in aligning both parents' leave entitlements.

Box 1.9. Encouraging fathers to take up paid paternity leave

Many OECD countries that have introduced paternity leave have found that often fathers do not take it up, and traditional gender roles continue. For example, Japan has introduced over 52 weeks of relatively well-paid paternity leave, but take-up is low. To improve take-up, countries have introduced a mix of incentives and compulsion. Portugal requires fathers to take five days' leave, and then provides paid paternity leave only if the father takes it after the mother has used her maternity leave. Italy, Finland and Germany among other countries provide bonuses if fathers use all of their allocated leave. Iceland's policy is most extensive, with three months' well-paid leave provided to the mother and father separately and three months available for both to take jointly.

Source: (Huerta et al., 2013[51]); (Adema, Clarke and Thévenon, 2016[53]); (OECD, 2021[54]).

Greece's workforce includes a significant share of foreign-born workers but their many skills are often underused (Figure 1.24 Panel B). COVID-period disruptions to these workers' arrivals are likely to have temporarily contributed to the recent labour shortages. International worker flows have resumed as restrictions are lifted. Refugees from the war in Ukraine have made a minor contribution to Greece's workforce. Greece can better integrate the talents of immigrant workers. Most immigrant workers, even many who are well-educated, work in low-skilled jobs in Greece (OECD, 2020[55]). Large shares of immigrants, especially youth and the Greece-born children of immigrants, are unemployed or fully out of the workforce.

Joining European and other international initiatives to recognise foreign qualifications and experience would help employers better benefit from foreign-born workers' skills. Because of the need for constitutional change, it will be some years before Greece can join the Lisbon convention on the Recognition of Qualifications. In the meantime, it can take other actions, such as reducing its higher fees or translation requirements for the recognition of foreign qualifications to align with other European countries (OECD, 2017[56]). For those unable to document their qualifications, Greece can develop fair and transparent alternative assessment methods. Finally, the large share of foreign-born workers in Greece from countries with very weak professional and vocational education highlights the potential benefits from ensuring these workers can access Greece's reforming vocational education.

Past OECD recommendations on educational policies and actions taken

Past recommendations	Actions taken
Progressively move the teacher workforce onto longer-term contracts that support and reward performance and avoid the rigidity of the existing permanent contracts.	After more than a decade of frozen hiring, the Ministry of Education has hired 24,700 teachers to replace retired teachers and reduce the dependency on substitute teachers on temporary contracts. Law (4692/2020) for internal and external assessment at the school level has been introduced. Over 98% of public schools participated in the first stage of internal assessment in the 2021-22 school year. In addition, law 4823/2021 has been passed to increase autonomy for school units and strengthen the role of teachers and school leadership. Individual teacher assessments are being rolled out during the 2022-23 school year for the first time.
Roll-out compulsory pre-school for 4 year olds and expand access for younger children.	Minimum age of attendance in pre-primary education has been reduced from five to four years of age and has been made compulsory. Since the 2021-22 school year, the two-year pre-school education is implemented in all 332 municipalities of the country with over 177 000 enrolled students.
Provide broader management autonomy to tertiary education institutions.	Law 4957/2022 on higher education law foresees the establishment of a university council for each institution, increased autonomy and forms of internal control, and internal assessment and review. As of December 2022, six universities have completed the electoral process for internal members. All other universities are on track to undertake the electoral process in 2023 onwards.
Encourage tertiary education institutions to develop courses adapted to mature-age students' professional needs and practical circumstances. Improve quality assessment and certification of adult learning courses.	Law 4957/2022 on higher education foresees strengthening universities' ties with society among others through the establishment of Lifelong Learning Centres for mature students and provision of services to society. The law also includes provisions for implementation of industrial PhDs, bachelor degree programmes of applied sciences and technologies, and short duration study programmes . The Ministry of Education and the Ministry of Development have introduced legislation providing a framework for university spin-offs and university start-up incubators.

Ensuring wages reward skills and support competitiveness

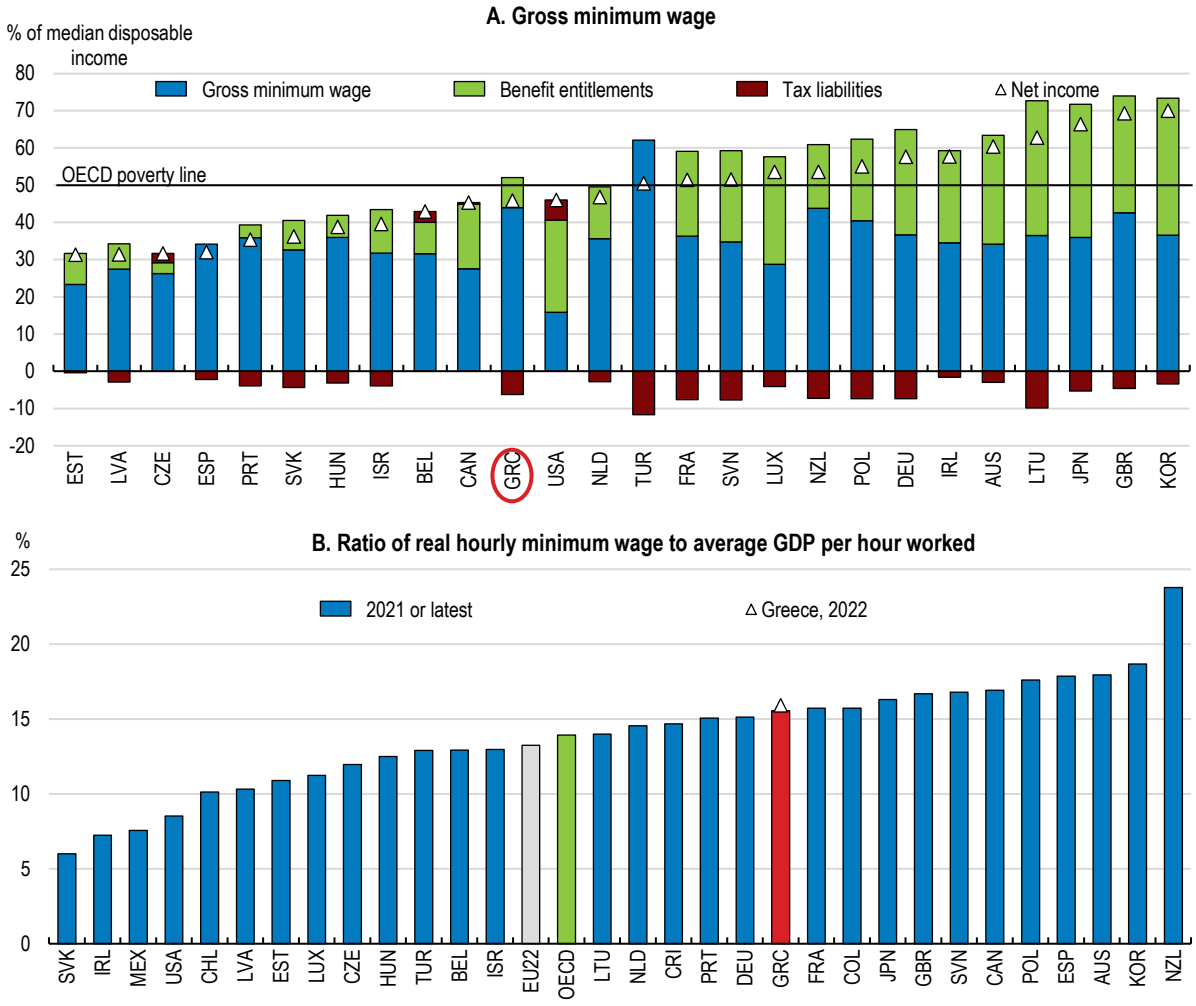
The government's nearly 10% increase in the minimum wage in the first 5 months of 2022 are leading broader increases in wages in Greece. These were the first increases since January 2019, and compare with consumer prices' 6.1% increase over this period. Historical experience, the large share of workers paid the minimum wage and the narrow range of wages in Greece suggests that these increases will also raise wages at higher wage rates. Greece's minimum wage is high relative to the average and median

private sector wage rate, and to output per hour worked (Figure 1.25). The OECD TaxBenefit calculator shows that Greece's minimum wage is the second closest to the poverty line across OECD countries. Other countries lift very low-income households above the poverty line through direct, targeted income support (Figure 1.25, Panel A). The lack of this support from Greece's social protection system makes a high minimum wage central to limiting poverty, despite this measure not supporting households without employment income, and at the cost of reduced competitiveness and reduced formal employment of lower-skill or lower-productivity workers (OECD, 2018[57]).

Protecting the independence of the minimum wage experts committee, and requiring the government to explain differences between its determinations and the committee's recommendations would strengthen the minimum wage setting process, as recommended in previous Economic Surveys of Greece. Sustaining job and income growth into the longer term requires ensuring the minimum wage provides a safety floor for workers with weak bargaining power. A more integrated approach to social policy would better protect low-income households' welfare through economic shocks and better balance well-being with opportunities to earn an income through employment. This would include well-targeted and temporary income support or in-work benefits, rather than relying on increases in the minimum wage

Wages have started to rise, after over a decade when they fell or were stagnant, led by wage rates of workers with skills in high demand, such as ICT or construction. Wage adjustments have been rarer for other workers. The limited nominal wage growth of recent years has contributed to improving Greece's competitiveness during a period when labour productivity has not grown. Effective wage setting processes can support productivity growth, which in turn enables workers' incomes to rise sustainably. For civil servants, the government has undertaken to not make any adjustment to wage rates in 2023, despite these rates having changed little since the cuts of the early 2010s, and rising consumer prices and private sector wages. Instead it is introducing performance-related bonuses and suspending the social solidarity income tax surcharge for civil servants. For private sector employees, it has made some legal reforms to support firm-level agreements and is increasing the resources of the workplace mediator. But new agreements remain rare. Given the large number of very small workplaces, a framework of sectoral collective agreements coordinated across sectors and with flexibility for firms to adjust conditions, could improve wage setting processes in Greece, as discussed in the 2020 Economic Survey of Greece (OECD, 2020[16]; OECD, 2019[50]). Strengthening the activities of the mediator, nurturing constructive worker and employer representation, and developing forums for social partners to collaboratively negotiate working conditions, would help workplaces adopt these agreements.

Figure 1.25. Greece's minimum wage is high relative to the median wage and productivity



Note: Panel B: OECD and EU22 averages are unweighted averages. The EU22 average excludes Austria, Denmark, Finland, Italy, Sweden. The OECD average also excludes Iceland, Norway and Switzerland.

Source: Calculation based on data from OECD (2022), OECD Employment and Labour Market Statistics (database), OECD Productivity (database) and OECD Analytical (database).

StatLink https://stat.link/u1v8rw

Past OECD recommendations on labour market policies and actions taken

Past recommendations	Actions taken
Reduce social insurance contribution rates, especially at low incomes, while aligning taxation across employment types.	Social contribution rates have been progressively cut.
Increase Guaranteed Minimum Income transfers, taper them more gradually as beneficiaries' earn more and introduce in-work benefits for low-wage workers.	Guaranteed minimum income allocation temporarily raised as part of response to surging energy prices.
Employ more specialised counsellors and profiling tools in public employment services to significantly improve job-search and training support, linking them better with private job-search agencies.	Digitalisation enabled proactive responses to the COVID crisis and to meet demand for services in areas with insufficient counsellors. Positions for 540 counsellors have been advertised. Relevant action not identified to develop link between the public employment service and private agencies.
Develop a voucher system that allows jobseekers to select their preferred intermediary for active labour market policies, including private-sector employment services.	A voucher system was established in 2022.
Strengthen the capacity of wage negotiation mediators to support workplaces in adopting sectoral collective agreements. Strengthen the integrity and access to detailed labour force data, to inform wage negotiations and sectoral collective agreement extensions. Ensure firms in financial distress can apply the opt-out clauses from sectoral collective agreement in a timely manner.	OMED hired 9 new mediators/arbitrators in early 2022, bringing the total to 28 (16 mediators and 12 arbitrators). Legal reforms established "MEKY" as a unit of experts at the Ministry of Labour and Social Affairs, to improve quality, reliability and relevance of data to strengthen and inform wage negotiations and sectoral collective bargaining, and to allow firms in financial distress to adjust work agreements.
Appoint the minimum wage experts committee members through an apolitical process for fixed, staggered terms, and require the government to explain differences between its decisions and the committee's recommendations. Consider introducing a sub-minimum wage linked to experience rather than to age.	Relevant action not identified. Relevant action not identified. A cut in employers' social security contributions and subsidies for hiring younger workers were introduced.

Reforming the public employment service to better activate and match jobseekers

Restructuring the public employment services and adult skill training are important steps to raising participation and improving employers' access to needed skills. Many of those who are actively seeking work do not, or are not eligible to, register with the public employment service, DYPA, while many of those registered with DYPA appear to be not immediately available or seeking work. Over 1 million Greeks were registered at DYPA in early 2022, little changed from a decade earlier, while the number of unemployed identified in the labour force survey fell by more than half to 600 000 (Figure 1.4, Panel A) (OECD, 2018[58]). The higher number registered with DYPA than who are assessed to be unemployed reflects large numbers who are not actively seeking and available to work. Few of those who are registered are young, despite the many youth who are neither in work nor full-time education.

The large numbers registered with DYPA stretch counsellors' ability to match jobseekers with openings or relevant training, despite counsellors' solid skills and the recent boost to DYPA's capabilities through digitalisation and new recruits (OECD, Forthcoming[59]). Incentives to register with DYPA are raised by unemployment benefits that are relatively close to the net minimum wage and not linked to prior earnings, substantial non-monetary benefits such as generous utility bill and public transport discounts, and the availability of seasonal or informal income to supplement the benefits. Meanwhile, the costs of remaining registered, such as obligations to actively search for jobs or undergo training, or the progressive loss of benefits over time, are limited (Figure 1.26). The recently introduced guaranteed minimum income's requirement that recipients register with DYPA adds to these pressures.

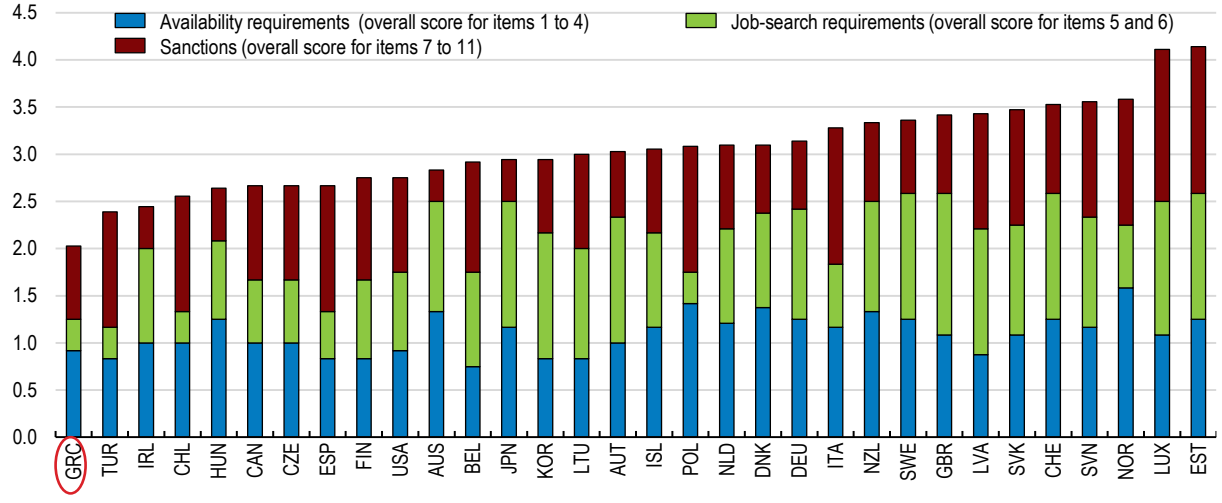
The government is taking steps to strengthen DYPA. It is improving the service's performance, by investing in DYPA's staffing and digitalisation. These investments demonstrated their effectiveness during the COVID crisis, when DYPA was able to provide support remotely and service regions where needs grew above staff capacity. In mid-2022, it passed legislation that provides the general guidelines of a new mutual obligations framework, requiring the registered unemployed to work with counsellors to create individual

career action plans, disqualifies for 2 years job seekers who have rejected more than three job offers, targets some social benefits, and provides additional incentives for the long-term unemployed to search for work. To improve incentives, those who take up work will be able to maintain 50% of their unemployment benefits. These welcome reforms are building block for Greece shifting from unemployment support dominated by passive income or employment subsidies to active programmes.

Fully implementing DYPA's improved legislative framework will require substantial shifts in resources and practices. For example, the new individualised action programmes and following up and enforcing sanctions in a proactive and proportionate way will require substantially boosting counsellors' capacity. Systematically following up with mandatory meetings with councillors or requiring meaningful job search would be central to implementing a mutual obligation framework (Figure 1.26) (OECD, Forthcoming[59]). The capacity of targeted training programmes will also require expanding, given many jobseekers' skill needs. For young jobseekers, cross-country experience suggests such a tailored approach integrating multiple interventions is more likely to support youth employment than, for example, wage or employment subsidies alone (Kluve et al., 2016[40]).

Figure 1.26. Greece can require jobseekers to be more active in their search

Strictness of activation requirements for first-tier unemployment benefits, scores from 1 (least strict) to 5 (most strict), 2022



Note: Index components are as follows: Availability requirements includes 4 items (availability during ALMP participation, demands on occupational mobility, demands on geographical mobility, other valid reasons for refusing job offers). Job-search requirements includes 2 items (frequency of monitoring, documentation of job-search activities). Sanctions includes 5 items (sanctions for voluntary unemployment, for refusing job offers, for repeated refusals of job offers, for failures to participate in counselling or ALMPs, and for repeated failures to participate in counselling or ALMPs). Values reflect the situation on 23 June 2022.
Source: OECD database on activation requirements, https://www.oecd.org/social/strictness-benefit-eligibility.htm.

StatLink https://stat.link/k36d9g

Making access to unemployment or other social benefits conditional on following the action plan would help strengthen Greece's future mutual obligation framework. This would complement the long-delayed implementation of the guaranteed minimum income's activation, training and social support pillars. Shifting non-monetary unemployment benefits, such as energy bill subsidies, into means-tested income support, rather than being provided to those registered as unemployed regardless of their resources, would better target those benefits while improving the motivation of those who register with DYPA.

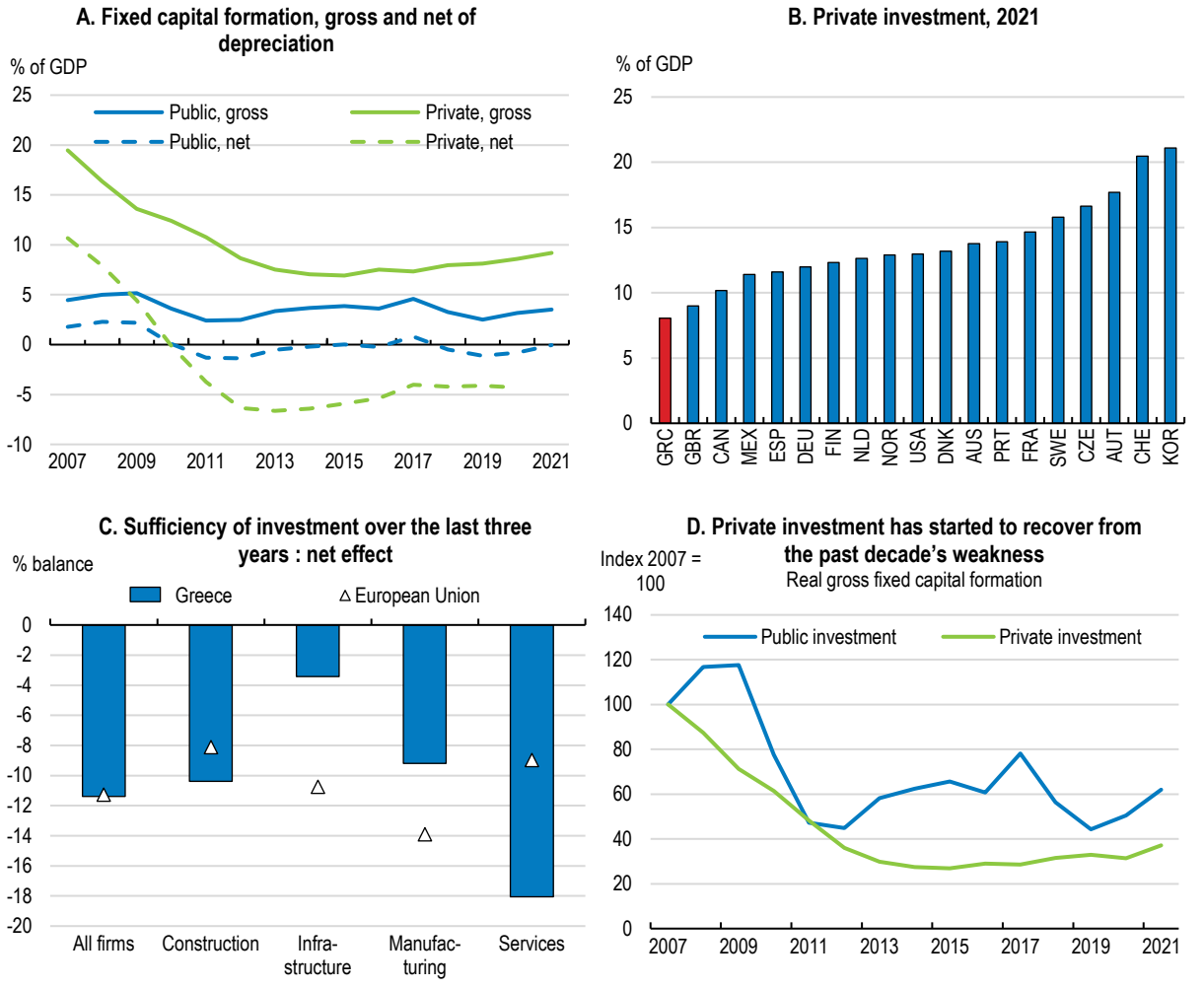
Past OECD recommendations on social protection policies and actions taken

Past recommendations	Actions taken
Boost policies to support families, prioritising expanded access to quality care for children and the elderly. Develop in-home support for elderly care. Reallocate the EUR 2 000 birth grant to ongoing family and care support policies.	Access to child and elderly care is being expanded. The programme "Reconciliation of Family and Professional Life" with a budget of EUR 280 million provided care and accommodation to children of more than 150 000 beneficiaries over 2021-2022. Complementary funding of EUR 10 million is provided to Municipal Centres of Creative Occupation of Children to facilitate participation in the programme. The "Help at Home" programme with an annual budget of EUR 60 million provides assistance to elderly and persons with disabilities with low income or living alone and was made permanent in 2020. A study has been conducted for the development of a strategy for the reform of social care services for the elderly, aiming to enhance accessibility, quality, and effectiveness of long-term care, under the technical assistance of the European Commission's D.G. Reform. The study identified basic elements that need to be considered by the Ministry Labour and Social Affairs to reform long-term care services for the elderly in Greece.
Depending on epidemiological developments, extend the new short-time work scheme to provide temporary support for incomes and employment in sectors suffering drops in demand.	Short-time work scheme extended through additional confinement periods.
Align equivalence scales across social transfer programmes by raising the Guaranteed Minimum Income equivalence factor applied to children. Ensure that Guaranteed Minimum Income programme participants are required to actively engage in active labour market programmes and to accept jobs.	Equivalence scales have not been aligned. For example, GMI and Housing benefit have different equivalence scales. A project for professional opportunity programmes has been approved by EC and will be implemented for approx. 7% of the unemployed beneficiaries registered for the GMI. Scheduled proposal targets an extra 10% of the GMI beneficiaries. Initiatives will be accompanied by an in-depth monitoring process regarding the responsiveness of the beneficiaries and a penalty system in case of non-compliance with the 3rd pillar obligations.

Boosting private investment to seize emerging opportunities

Raising private investment will be essential to raise productive capacity and seize emerging opportunities. Private investment in Greece has been weaker than in other OECD countries (Figure 1.27, Panel B), and is particularly weak among small firms and service sector enterprises, the backbone of Greece's economy (discussed in previous Economic Surveys of Greece (OECD, 2020[16]; 2018[39])). Investment has been insufficient to maintain the existing stock of machinery, equipment and buildings (Figure 1.27, Panel A). If sustained reforms and investment are to follow the Greece 2.0 Recovery and Resilience Plan, annual investment in the 2020s and 2030s would be almost double the amounts of the 2010s, lifting investment in Greece to the level of other OECD countries relative to GDP (Figure 1.12, Panel A). The green economy transition will require modest but sustained additional investments. Simulations prepared for this Survey suggest the shift to renewable energy would require investing between 0.8% and 1% of GDP each year, while the shift to a net zero emission transport system would require investing 0.1% of GDP more annually than currently planned (discussed in Chapter 2). Delaying these green economy investments would make little difference to the total investment needs, but would shift investments from the 2020s into the 2030s and 2040s. Greece's digitalisation goals will also require private firms to invest substantially in equipment, software, training and their organisations.

Figure 1.27. Raising private investment is crucial for a sustained recovery



Note: Panel A: Net fixed capital formation corresponds to gross fixed capital formation after deducting consumption of fixed capital. Panel B: Private investment is obtained here by imputed housing investment to the total private investment. Panel C: Percentage % balance between the share of enterprises that answered their investment over the previous three years was "too much" and less those that answered that it was "too little" to the question "Looking back at your investment over the last three years, was it too much, too little, or about the right amount to ensure the success of your business going forward?". Panel D: Volumes are computed from value data deflated by the total gross fixed capital formation deflator.

Source: Calculations based on data from OECD Economic Outlook (database); European Investment Bank (2022), EIB Investment Survey.

StatLink https://stat.link/sfnl9j

Yet, firms' willingness to invest is low. Larger shares of firms in Greece than elsewhere in Europe believe they have invested excessively or adequately in recent years and fewer expect to increase investment (Figure 1.27, Panel C). This reflects the scale of Greece's economic crisis in the early 2000s, with fewer firms than in many other OECD countries reporting that they are operating at maximum capacity, even if many expect future demand to increase (European Investment Bank, 2021[60]). An incipient recovery in private investment, temporarily slowed by the COVID crisis, may be emerging. Investment has risen in recent years in several areas that can support productivity, such as software and research and development, although these areas make up small shares of the overall capital stock.

Reviving the supply of finance for investment

Access to finance is a far greater barrier to private firms' investment plans in Greece than in other OECD countries, due primarily to limited finance from banks, especially for SMEs, and few alternative sources of finance. The government's loan guarantees, introduced as part of the COVID response package, led to a temporary increase in lending to SMEs (OECD, 2022[61]) (Figure 1.28). Almost two-thirds of firms in Greece report access to finance is a problem of medium or high importance, compared with about half of firms across the euro area, although the share improved in the first months of 2022. High interest and other borrowing costs, together with limited supply of finance, have discouraged many smaller firms from seeking finance. This is despite higher levels of profitability and lower levels of vulnerability to shocks than in many other countries (European Investment Bank, 2021[60]). Greece's larger firms can access finance through their established relationships with banks and financial markets, albeit at higher financing costs than in other markets in the European Union.

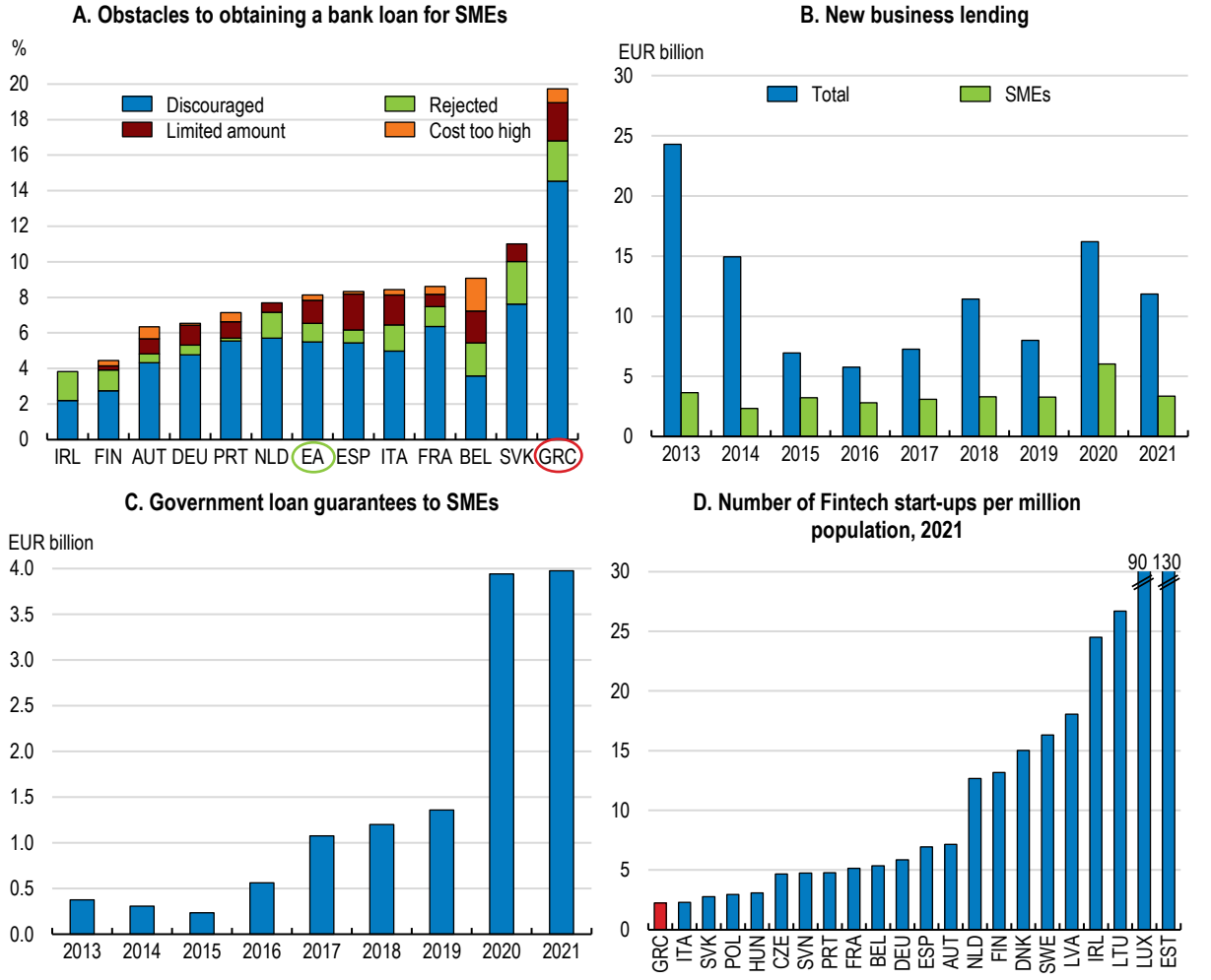
On-lending NextGenerationEU loans to private investors

To support financing for private investment, the government is on-lending to private investors the EUR 12.7 billion of credits (in 2018 values) it is eligible to receive from the EU Recovery and Resilience Facility. The on-lending strategy seeks to provide timely financing at below-market costs to address Greece's large private investment gap, without requiring direct contributions from public finances. The ambitious scheme requires loans be for new investments that are flagged as green, digital, or that support either exports, research and innovation, or mergers and acquisitions. The investments are funded by one of three channels:

1. The main domestic private banks, for investments by firms of all sizes. The Recovery Funds can cover up to half of the investment costs, the private investor at least 20% and the bank the remainder. The banks assess the viability of each loan application, an auditor assesses whether the project is eligible for Recovery and Resilience Fund (RRF) support, with the amount of support depending on the extent the investment project supports the RRF green economy or digitalisation objectives.
2. The European financial institutions, mainly for significant investments by medium and larger corporations. The government has entered a EUR 5 billion (2.6% of 2022 GDP) agreement with the European Investment Bank and EUR 0.5 billion with the European Bank for Reconstruction and Development (EBRD). The Recovery and Resilience Funds can cover up to half the investment costs, and include an additional contribution of up to EUR 0.5 billion from the EBRD.
3. A fund to finance up to 70% of equity investments in potentially high-growth or digitally innovative smaller and medium sized enterprises, overseen by the state-owned Hellenic Development and Investment Bank.

There are challenges to achieving these goals and ensuring that the funds are disbursed in a timely manner, add to rather than substitute for other sources of financing, and are for projects with commercially prudent risks. The increase to financing for private investment is substantial. Fully disbursing the RRF loans will provide at least EUR 6.4 billion (3.4% of 2022 GDP) per year between 2022 and 2026, targeting only new private investment projects that are in the RRF priority areas. This is over 50% of total average annual private investment between 2017 and 2019. Meanwhile the national budget will bear the risk of non-payment by private investors for up to 50% of the financing provided from the RRF as the risk is shared according to the financers' contributions. To minimise implementation, fiscal and financial sector risks, it will be important to carefully monitor the programme, to ensure its safeguards are fully implemented, and to proactively adjust the strategy should weaknesses emerge, even if such adjustments mean that not all of the credits available are disbursed.

Figure 1.28. Larger firms can access credit at a premium, while smaller firms have little access and few alternatives to banks



Note: Panel A: Survey conducted over October 2021 to March 2022. Financing obstacles are defined as the total of the percentages of enterprises reporting (i) loan applications that were rejected, (ii) loan applications for which only a limited amount was granted, (iii) loan applications that resulted in an offer that was declined by the enterprise because the borrowing costs were too high, and (iv) a decision not to apply for a loan for fear of rejection (discouraged borrowers). Panel B: As of June 2014, new loans no longer include restructured loans. Panel C: Outstanding balance guaranteed at the end of each year as referred in the Ministry of Finance - Public Debt's periodical editions (as regards Hellenic Development Bank HDB, ex ETEAN, only). Panel D: Based on search "FinTech" in the field "description keywords" in the Crunchbase.
Source: ECB Survey on the Access to Financing for SMEs; OECD (2023 forthcoming), Financing SMEs and Entrepreneurs: An OECD Scoreboard, 2023 Highlights; and Crunchbase (database), https://www.crunchbase.com, accessed on 17 March 2022.

StatLink https://stat.link/cdbymr

Evaluating the financial sustainability, additivity and economic effects of the on-lending programme, drawing on the approach outlined in (OECD, 2017[62]), would help improve its design and effectiveness and provide a precedent for other public policy programmes. Greece has not evaluated its public credit guarantee schemes in the last decade. Going forward, the ambitions of the RRF on-lending could be strengthened by following the principles developed by the OECD and G20 for the management of government guaranteed lending to private enterprises. Legally, the credits funded through the on-lending by the government of RRF loans have an equal priority in repayment to other creditors' contributions. Close, reactive monitoring of the programme and forthright pursuit of the government's repayment, as the safeguards to the Recovery and Resilience Fund loans require, can provide some protection for public finances and the programme's goals.

Developing alternative sources of finance

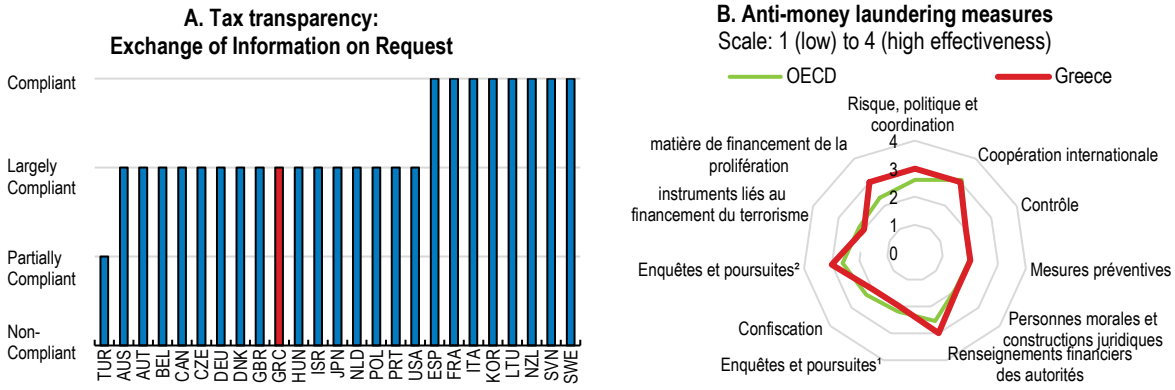
Alternative sources of finance, including FinTech, play limited roles in Greece, and their development can support greater entrepreneurship and reduce Greek investors' high reliance on traditional banks (Figure 1.27, Panel D). Developing marketplace lending, that is, online lending intermediated by FinTech platforms, can improve efficiency and increase competition and diversification in lending, by providing small and medium-sized companies (SMEs) an alternative to conventional bank lending. It can particularly contribute when the traditional banking sector is impaired (Kaousar Nassr and Wehinger, 2015[63]). Traditional banks are not well suited to financing new and riskier digital start-ups with innovative business models but little collateral (OECD, 2015[64]). While developing an ecosystem of alternative sources may take some years, it is also likely to be some time before Greece's banks are able to support new or fast-growing investors, as they continue restoring their financial health and reorganising their operations. The relative transparency and integrity of Greece's financial system support its potential as a hub for such financial innovation (Figure 1.28).

The Bank of Greece has developed a regulatory sandbox where FinTech firms can test innovative approaches. A number of OECD countries have found these to be fruitful stimulators of innovation and more business-friendly innovation. The Bank of Greece's plan to review the first stages of the sandbox and adapt and extend the programme merits pursuing. To date, interest from firms has focused on payment services, rather than developing alternative sources of lending or other financial services that are under-serviced in Greece such as property insurance (discussed in Chapter 2). Adapting the regulatory sandbox to attract a wider range of FinTech operators would support the sector's development in Greece.

Venture capital can be especially supportive to entrepreneurs without established relationships with banks, such as researchers looking to commercialise their innovations, an area which has been especially challenging in Greece. The government is expanding its support for venture capital funds, notably through on-lending of its Recovery and Resilience Facility credits. This injection of funds can deepen and develop the market in Greece. Strong, independent monitoring and accountability can support their performance and the efficiency of their governance and operations.

Regulators can help develop FinTech and alternative sources of finance in Greece by being proactive and by aligning their strategies. The Baltic countries have been especially successful in developing this sector, increasing their number of new FinTech start-ups by 70%. This was supported by comprehensive strategies, and cooperation with neighbouring jurisdictions to deepen their market size (Laidroo et al., 2022[65]; Swedbank, 2021[66]). Supportive domestic regulations can help Greece to both attract the wholesale funds for marketplace lending platforms, and to protect and give confidence to borrowers, especially in the early development of the platforms. Establishing transparency across FinTech platforms about SME borrowers and the platforms' performance improves FinTech markets' performance (OECD, 2022[67]). Policy makers can support this, for example by developing common Open Data platforms, as the Bank of England is developing (Bank of England, 2020[68]). Collaborating with regulators elsewhere in the European Union would help align Greece's markets with others, and can help Greece's regulators in this quickly evolving area.

Figure 1.29. The integrity of Greece's financial system supports financial innovation



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. "Investigation and prosecution¹" refers to money laundering. "Investigation and prosecution²" refers to terrorist financing. "Financial sanctions against proliferation" refers to proliferation of weapons of mass destruction.
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).

StatLink https://stat.link/431k0a

Bolstering the private sector's willingness to invest

Reviving firms' willingness to invest, innovate and grow is essential for Greece to seize the looming opportunities of digitalisation and the green economy transition. Greece's increased competitiveness, and the ongoing reform efforts to improve the business environment and access to finance are addressing long-standing barriers to private investment. Some indicators suggest Greece's private sector may be starting to become more dynamic. The share of fast-growth firms has risen in recent years, medium-sized firms are leading the growth in goods exports, and businesses' research spending is rising.

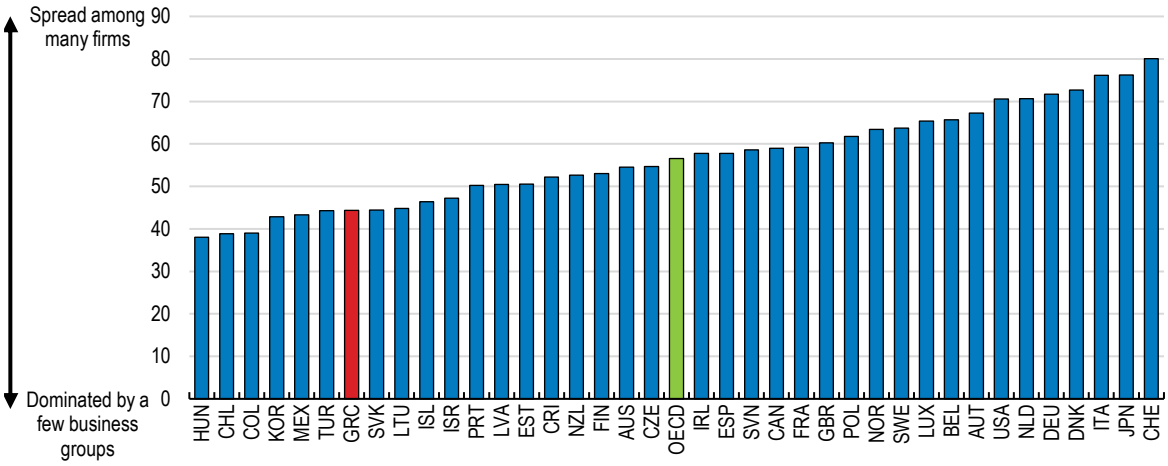
Nurturing such positive trends is essential for raising private investment. Much of the workforce and capital stock are trapped in low-productivity-low-growth firms. Weak business dynamism, with few new challengers entering markets, low productivity firms remaining in the market, and few workers who move to more productive firms, stifle willingness to invest and productivity growth (Figure 1.31). The productivity and adoption of digital technologies of small firms lag further behind larger firms than in other OECD countries (Kontolaimou, Korra and Skintzi, 2021[69]). A number of these firms have a legacy of defaulted loans, and restructuring these loans so as that they are again serviced will be key for these firms to again be able to access new finance (discussed above).

Improving the contestability of markets in Greece would foster greater firm dynamism and support productivity growth. Some markets are dominated by few suppliers (Figure 1.30), while in others there are many very small businesses but their investment is low and productivity stagnant. The Hellenic Competition Commission has recently made welcome inroads into its backlog of cases, has improved its staffing and organisational design and is making greater use of digital tools such as artificial intelligence to detect potential cases of collusion. Maintaining strong, independent and responsive competition authorities, such as by implementing the OECD Council Recommendations Council on Transparency and Procedural Fairness in Competition Law Enforcement (OECD, 2022[70]), can contribute to ensuring contestable markets and improving price competition.

Meanwhile, many consumer-focused sectors are dominated by very large numbers of small, low-growth firms, which lack the access to finance and management depth to invest and improve their competitiveness. The government, notably through its 'Greece 2.0' Recovery and Resilience Plan, is encouraging Greece's large number of very small firms to invest and grow, including through tax changes and other incentives for smaller firms to merge. In addition, reducing regulatory barriers in sectors where they remain high, notably in many professional services such as legal services, would reduce costs across the economy, as discussed in previous Economic Surveys of Greece (2018[39]; 2020[16]). Such reforms can complement other efforts underway to improve the judicial system, and merit being accompanied by monitoring safeguards so as to avoid and to respond to any unintended consequences of deregulation.

Figure 1.30. Few firms dominate many markets in Greece

Extent of market dominance, 0-100 (best), 2019

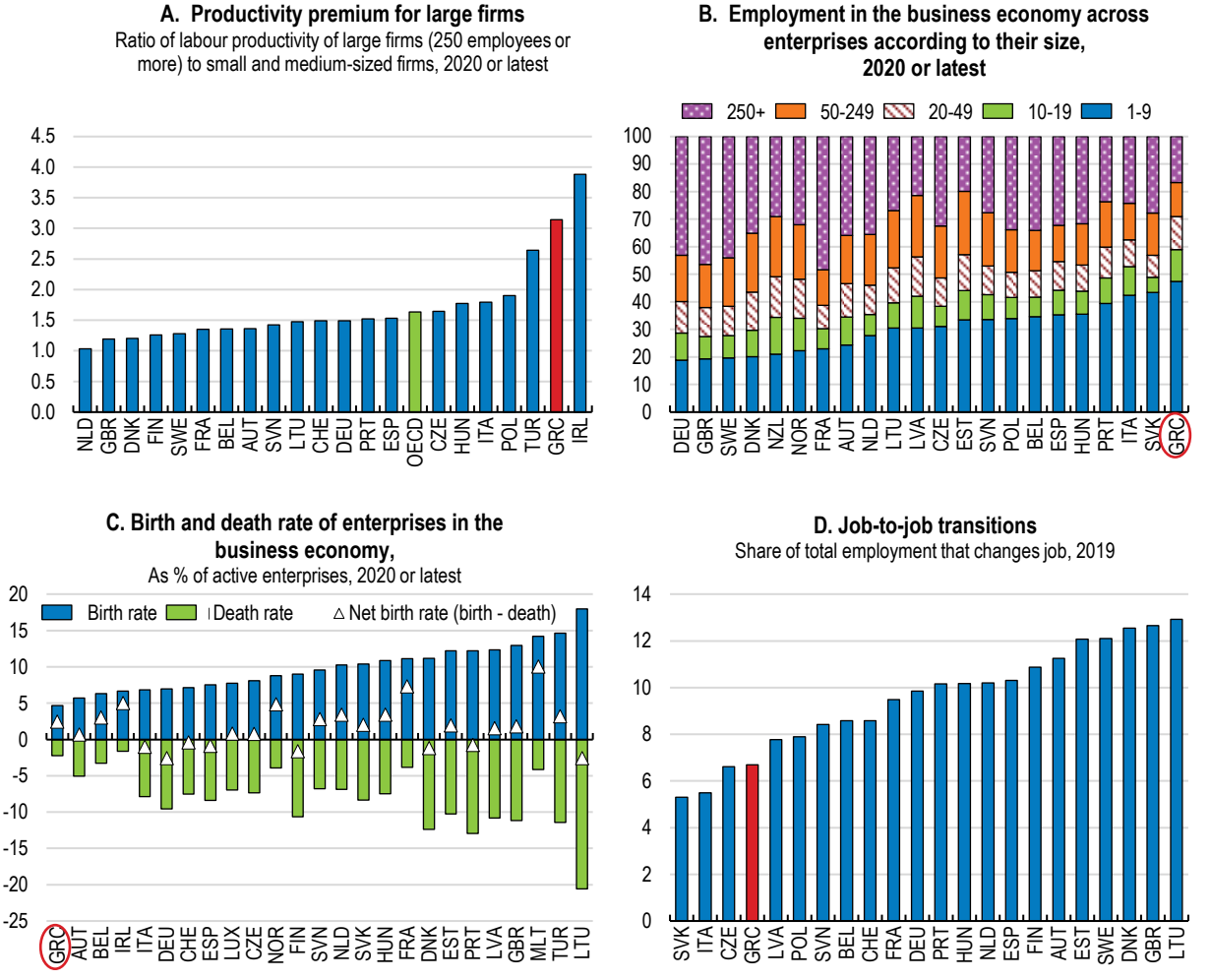


Source: World Economic Forum, The Global Competitiveness Index 4.0 2019 dataset, available at https://www.weforum.org/reports/how-to-end-a-decade-of-lost-productivity-growth.

StatLink https://stat.link/wurg9l

Reform efforts to reduce regulatory burdens and to improve the judicial system can help achieve large improvements in Greece's business and investment environment (Figure 1.32). Greece has significantly upgraded its regulatory environment over the past decade, and in some areas regulatory burdens compare favourably with most other OECD countries, as discussed in the (2020[16]) Economic Survey of Greece. Insolvency has undergone major reforms that can improve the speed of resolving non-performing loans, raise the value of these assets for banks and loan servicing firms, and free the debtors from their bad debts faster. These reforms can also improve debt enforcement practices in Greece. Pivotal to their success are efforts to improve the legal system's responsiveness. The time to resolve disputes is long and has lengthened for some subjects (European Commission, 2021[71]). Take-up of alternative dispute resolution is gradual, despite its lower costs and greater reactivity than the court system (OECD, 2020[16]). Some reforms to improve the justice system's operations have been completed. Others have been delayed but are features of the Greece 2.0 Recovery and Resilience Plan and merit this prioritisation. These measures include simplifying and digitalising processes, providing greater certainty on the outcome of cases through developing pilot trials in civil courts and filtering the admissibility of legal remedies, and extending efforts to encourage the use of alternative dispute resolution. Measures also support better supervision and monitoring of the performance of the judicial system through better data collection and presentation.

Figure 1.31. Boosting business dynamism would raise investment demand and productivity



Note: Panel A: OECD unweighted average excludes Canada, Chile, Colombia, Costa Rica, Japan, Mexico, New Zealand, and the United States. Panel B: Categories are in number of employed persons.

Source: OECD Structural and Demographic Business Statistics (database); Eurostat; and OECD (2021), Labour market transitions across OECD countries: stylised facts, Annex A1.

StatLink https://stat.link/09cw4v

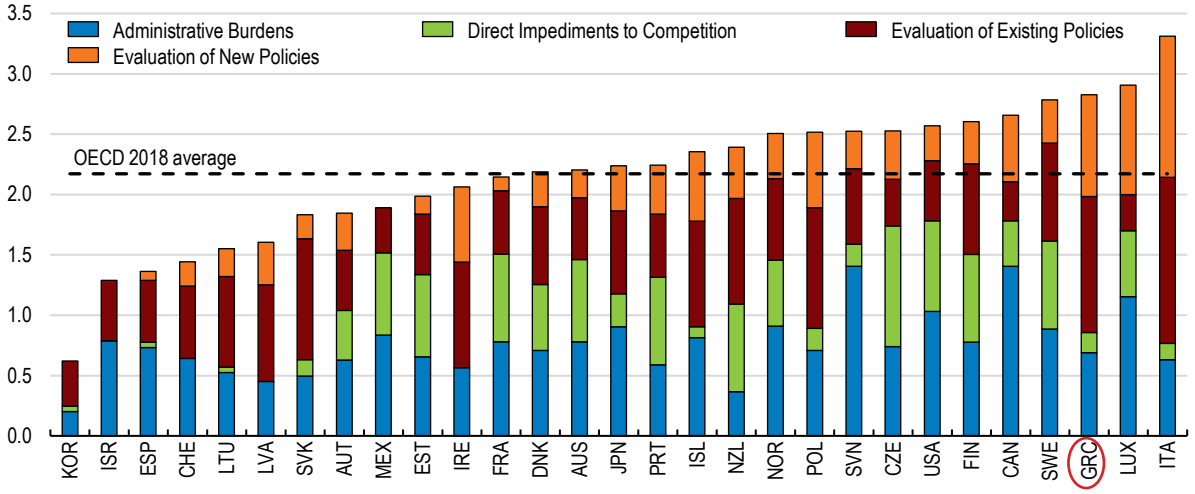
Well-designed regulations can pursue both well-being and environmental policy goals while cultivating a business environment that encourages productive private investments (Berestycki et al., 2022[72]). Making greater use of regulatory impact assessments, including during the ongoing codification of existing regulations, would improve regulatory quality. Greece 2.0 includes an ambitious programme to measure digitally administrative burdens and incorporate this information in a regulatory impact assessment framework. As part of these assessments, comparing alternative approaches to achieving policy objectives would help develop the focus on outcomes and performance. Once these reviews and codifications are complete, increasing Greece's regulatory certainty would support investment in the longer term. For example, environmental regulations that are certain, designed to achieve policy goals and support operators in a sector, are associated with higher levels of environment-related investment (Figure 1.32) (Berestycki and Dechezleprêtre, 2020[73]).

Past OECD recommendations on product market policies and actions taken

Past recommendations	Actions taken
Complete the land registry.	Cadastral mapping and the transition to the full establishment of the Hellenic Cadastre continued to progress. The collection of property rights has reached 84% of the total property rights of the country. It is expected that 60% of total property rights will be in operation or uploaded by end-April 2022. The ratification of the last 50% of forest maps will start in May 2022 and will be completed by July 2022. 9 cadastral offices (out of 17) and 38 branches (out of 75) have opened and the corresponding mortgage offices have been closed.
Swiftly implement the planned creation and privatisation of new competitors in the electricity market. Further promote competition in the gas supply sector.	Competition in the retail market electricity improved with 26 suppliers in 2020. The target model for the wholesale electricity market has applied since 1 November 2020.
Strengthen the Hellenic Competition Commission's advocacy work by allocating more resources to its work outside the area of law enforcement.	2022 legislation aims to support the competition authority's enforcement capacity, and to act against anti-competitive practices, taking into account the challenges of the digital economy and support parties' procedural rights.
Ease the remaining barriers to trade and investment that prevent Greece from expanding its exports, such as limitation on foreign equity participation in maritime services or airport regulations.	Relevant action not identified.
Promote a venture capital system with important direct links to university research and innovation to boost entrepreneurship.	Relevant action not identified.
Accelerate the codification of existing laws and regulations.	Work on the codification of labour legislation continues in close collaboration with the Central Codification Committee, with a view to finalise by October 2022. A first draft of the legislation for the modernisation of the institutional framework for state-owned enterprises, aiming also at the codification of the framework, has been prepared.

Figure 1.32. Reducing environmental regulations' administrative burdens and better evaluating new regulations would encourage greater investment

Design and Evaluation of Environmental Policies values, 0 (best) to 6 (worst), 2018



Source: (Berestycki and Dechezleprêtre, 2020[73]).

StatLink https://stat.link/i98olf

Past OECD recommendations on environmental policies and actions taken

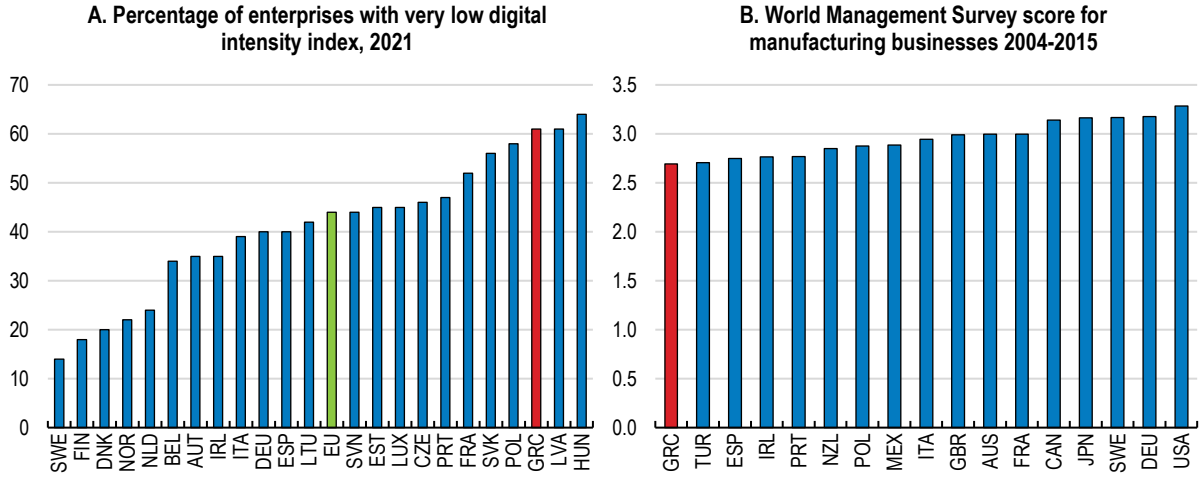
Past recommendations	Actions taken
Adopt and implement a national air pollution control programme and improve the air quality monitoring system.	Relevant action not identified.
Review tax variation across fuels and uses to provide a consistent carbon price signal.	The Tax Policy Directorate of the Ministry of Finance is expected to receive technical assistance from the EU DG REFORM within the second semester of 2022 on tax policy for the green transition and for socio-economic cohesion.
Extend separate collection of waste, and expand the use of "pay as you throw" systems. Enforce the landfill tax.	A new waste management law was enacted in 2021 to achieve higher recycling rates, enforce separate collection of metal, paper, glass and plastic and bio-waste by the end of 2022, extend the "Producer's responsibility" scheme, upgrade the operation of recycling sorting facilities and simplify the legislation around green points. Legislation is being drafted to establish a waste management regulator law.

Helping the private sector to seize the opportunities of digitalisation

Seizing the opportunities of digitalisation for firms to raise productivity, access new markets and develop new products requires investing in a mix of hard infrastructure, in software and in reformed organisational structures and skills. So far, firms in Greece have lagged other countries in digitalising their operations (Figure 1.33, Panel A) (Kontolaimou, Korra and Skintzi, 2021[69]). Infrastructure investments are providing part of the needed support to catch up. Nearly one-quarter of the 'Greece 2.0' Recovery and Resilience Plan is devoted to promoting digitalisation, for example by supporting the rollout of broadband connections. Besides these physical investments, having the right human capital in place is key (Criscuolo et al., 2021[74]; OECD, 2019[75]; Bender et al., 2018[76]). Investments in intangible capital, such as branding, product design, or management quality, are essential for using digital technologies. Generally in-house employees develop these intangible investments, highlighting the importance of having supportive management in place (Haskel and Westlake, 2018[77]).

Digitalising the private sector will require raising firms' managerial and digital skills (Corrado et al., 2021[78]). Due to the central role of managers within the firm, ranging from selecting and incentivising workers to organising the firm's operations, thin managerial skills can throttle digitalisation (Gal et al., 2019[79]; Syverson, 2011[80]; Calvino et al., 2022[81]). Cross-country studies suggest that management quality, for example in using advanced management practices, and digital skills are relatively scarce in Greece (Figure 1.33).The 2020 Economic Survey of Greece discusses how improving the educational system and supporting training and lifelong learning can increase digital skills (OECD, 2020[16]). Providing financial support and information campaigns would increase firms' willingness to invest in their managerial skills. Lack of awareness about the benefits of good management practices is one reason why this is not a priority in many firms (Bloom and Van Reenen, 2010[82]). Public subsidies of quality management training can be justified by the large productivity spillovers. Past management training programmes in Italy raised the productivity of participating firms by 30-50% over the following decade (Bianchi and Giorcelli, 2021[83]; Giorcelli, 2019[84]).

Figure 1.33. Better management and digital skills would support digitalisation



Source: Eurostat; and World Management Survey https://worldmanagementsurvey.org/.

StatLink https://stat.link/iscgrq

Past OECD recommendations on innovation policies and actions taken

Past recommendations	Actions taken
Enhance access to ICT networks and enable SMEs to engage in e-commerce to allow small firms to participate in global trade.	Measures in Greece 2.0 such as "Elevate Greece" initiative support the international exposure of the Greek startup innovation ecosystem. EU Structural Fund support for digital upgrade of SMEs such as "Digital Step", "Digital Leap", "e-Retail". Similar calls will follow in the new Programming Period 2021-2027.
Consolidate agencies responsible for research and innovation policies. Simplify access to R&D grants and tax incentives.	A new R&I governance system was adopted in view of the design and implementation of the Smart Specialization Strategy 2021-27 (S3, Law 4712/29-7-2020, Article 36) to ensure close cooperation of the General Secretariat for Research and Innovation, the General Secretariat for Industry, and the General Secretariat for Public Investments and NSRF. The Entrepreneurial Discovery Mechanism (EDM) has been adopted for the implementation of the Entrepreneurial Discovery Process at the national level. Goals include updating priorities and identifying focal points of competitive advantages. The Innovation Agency has been established as an auxiliary arm of the EDM to further improve the research and innovation capacity of the Greek companies, adaptation to the digital and green transition, and access to appropriate skills. Super-deduction of tax incentives for R&D expenses have increased from 130% to 200% and simplified procedures, such as use of external financial auditors, are in place. Tax incentives for Angel Investors in start-ups and tax exemptions for stock options have been introduced.
Strengthen the advisory and steering role of the General Secretariat for Research and Technology and the National Council of Research and Innovation.	The National Council for Research, Technology and Innovation (NCRTI) now advises the State on its national strategy for Research, Technological Development and Innovation. The composition of NCRTI was renewed in 2019 to balance representatives from academia and the business sector. The council meets twice a month.
Establish technology transfer offices in universities to strengthen university-industry collaboration.	Actions to establish Technology Transfer Offices in Universities and Public Research Centers is currently underway. In the year two April 2022, two calls for proposals worth EUR 8.5 million were launched to support developing technology transfer procedures and policy, and the operation of the existing Technology Transfer Offices.

Spatial planning to unblock investment in land

The incomplete land registry and uncertainty about planning rights, especially in forest and coastal zones, and regulatory barriers to merging and redeveloping land in developed areas weaken property rights, generate conflicts and stifle investments. Authority for spatial planning is fragmented across different levels of government and government agencies, resulting in instances of multiple and contradicting plans and responsibilities. This has slowed Greece adopting modern development models and attracting investors,

for example for industrial parks or tourism developments (Marinakos and Pistikou, 2019[85]; Gourgiotis, Kyvelou and Lainas, 2021[86]). Weaknesses in spatial planning contribute to ongoing challenges in improving waste management, reducing urban air pollution, and controlling the development of built-up areas. Enforcement of land use plans is weak, especially with regard to past illegal construction, with many cases of retrospective authorisation of unplanned, illegal developments (OECD, 2020[87]).

Continuing progress with completing the cadastre, including ratifying forest maps, will facilitate future investments (European Commission, 2022[88]). Reforms included in the 'Greece 2.0' Recovery and Resilience Plan will create new spatial planning for marine and coastal areas and for renewable energy sources, tourism and aquaculture. This may provide for maritime spatial planning, support the green economy transition and protect areas from development (OECD, 2020[87]).

Differences in sequencing and long approval times delay completing and updating spatial plans. Several government levels, ranging from the central government to several sub-national administrations, are involved in actions ranging from setting up national strategic frameworks to defining land use plans at the local level. Clarifying and simplifying planning processes would speed up implementation of spatial plans and facilitate investments. To identify how to improve planning processes, Switzerland, for example, conducted a study on how reforming spatial planning regulations can reduce administrative costs for tourism businesses and support investment. Better integrating economic considerations into spatial planning would make land use plans more investment-friendly. Through responsive and transparent planning arrangements, Greece can improve how it uses developed land to reduce rapidly growing urban sprawl, accelerate the revitalisation of vacant properties, and improve the quality of life of its large cities such as Athens (OECD, 2020[87]).

Main policy findings and recommendations

MAIN POLICY FINDINGS	RECOMMENDATIONS (Key recommendations in bold)
Supporting a fiscally sustainable recovery	
Fiscal support helped the economy rebound. It is buffering surging energy prices for households and firms. Capacity use and supply constraints are rising. The rebound in activity and prices are buoying government revenues and reducing the deficit, although more slowly than earlier planned. The public debt ratio is declining, but Greece's sovereign rating remains sub-investment grade, widening spreads.	**Return the primary budget balance to surplus from 2023 and maintain thereafter a primary budget surplus of at least 1.5% to 2% of GDP.** Focus fiscal responses to high energy prices on well-targeted, temporary support for vulnerable households. Use any unplanned fiscal space to build fiscal reserves to cover contingent liabilities.
The Greece 2.0 reform and investment plan addresses many of the barriers to a growing, higher productivity, more digitalised and greener economy. Implementation is progressing well but challenges will grow. Substantial reforms and investments have been implemented in recent years but implementation has often lagged ambitions. Public investment, overwhelmingly financed by EU funds, has been highly centralised with limited roles for subnational authorities.	Swiftly implement public investment management reforms, prioritising staff training and developing centres of skills. Prepare to expand domestic funding of public investment once the current EU funding programmes complete.
Greece has improved its budget process, introduced spending reviews, and is developing performance budgeting. However, the share of growth-supporting spending is relatively low, crowded-out by pensions and public sector wages. Maintaining primary budget surpluses while supporting inclusiveness, investment and activity will require more effective public spending.	Develop line ministries' capacity to access, adapt and analyse performance information. Develop and present a medium-term perspective of spending trends and implications of policy measures.
Investment spending has regularly fallen well short of budget allocations. Despite the size of the public workforce and payroll being comparable to other OECD countries, skill gaps in key areas impede service delivery. Recent public investment management and public procurement reforms may help raise disbursement speed and investment quality, and further recent improvements in perceptions of corruption.	**Avoid growth in overall public servant numbers by promoting reallocation of staff to areas short of resources.** Strengthen public service recruitment, ensuring the process is responsive to different agencies' skill needs and the growing competition for skills. **Consolidate fragmented activities, such as public procurement, into dedicated agencies with deeper capacity.** Develop and require the use of framework agreements for common public procurements.
The public sector's digitalisation accelerated during the COVID period and is bringing tangible benefits to service delivery and public sector operations.	**Pursue digitalisation and administrative simplification across the public sector, prioritising work process reforms and raising skills.**
Public revenues are weighted to consumption taxes and social contributions rather than income taxes. Targeted cuts are reducing Greece's large labour income tax and contribution wedge. Taxes on capital and profits are among the lowest in the OECD. The shift to electronic transactions is raising tax compliance, but exemptions and discounts weaken the system's efficiency.	**Focus future income tax rate changes on maintaining revenues, while expanding the base of taxpayers.** Raise the effective tax rate on distributed capital profits while reducing the tax burden on middle-income earners. **Publish regular and comprehensive reviews of the costs and benefits of all tax expenditures and subsidies, highlighting those that apply to fossil fuels.** Introduce a default sunset clause on existing and future tax expenditures. Use enhanced digital capacities to improve tax compliance, prioritising the self-employed.
Raising employment and incomes	
Employment rates remain low, particularly for women and the young, despite strong job creation with the post-COVID recovery. Skill gaps are growing, while accelerating population ageing is reducing the working age population. Few activation requirements and substantial benefits contribute to large numbers registered with the public employment service, many of whom are little engaged in the job market, dragging the service's effectiveness. Foreign-born workers make a significant contribution to Greece's workforce, but their skills are under-used.	**Promote women's participation in paid employment including by encouraging workplaces to adopt more flexible work arrangements.** **Strengthen incentives for employers to hire young workers with limited experience, such as waiving employers' social security contributions for new hires.** Introduce incentives to ensure the new paid paternal leave is taken up. Encourage higher participation in the expanding facilities for quality, low-cost care for young children and elderly relatives. Implement ongoing reforms to the public employment service, developing mutual obligation requirements centred on tailored personal action plans. **Consider replacing non-monetary unemployment benefits provided to the registered unemployed with targeted income support.** Reduce the procedural barriers to recognising education and skills gained outside of Greece.

MAIN POLICY FINDINGS	RECOMMENDATIONS (Key recommendations in bold)
Investing in an enduring recovery	
Despite recent progress, private investment remains very low, reflecting scarce financing and low demand from investors. Banks have made large inroads into non-performing loans but the COVID crisis has created new non-performing exposures. Banks' capital, while within regulatory requirements, is low, weighing on new lending and weakening banks' ability to invest in improving their operations. Deferred tax credits make up a large share of banks' capital and discourage new private investments in the banks. The government's on-lending of NextGenerationEU loans to private investors via financial institutions can expand access to finance but brings implementation and fiscal risks. FinTech and other alternatives to bank financing are little developed. Low investment demand reflects low but improving business dynamism, especially the many very small firms with thin management capacity. This slows firms' pursuit of new opportunities in digitalisation and the green economy transition.	Swiftly complete the clearance of non-performing loans, including through the Hercules scheme. **Encourage banks to build their capital bases by increasing profits organically and by considering raising capital buffer requirements.** Closely monitor the disbursement and performance of Recovery and Resilience Faculty loans, be ready to slow disbursement or reallocate the funds to other projects in the case of mounting risks, and to protect the State's contribution in the case of loan defaults. Encourage the growth of non-bank financing by regulating to ensure transparency and information sharing about loan portfolios and platforms' performance. Expand and subsidise access to quality management training for small- and medium-sized business management, including to digitalise their business operations.
After a decade with prices growing at among the slowest rates across OECD countries, inflation has risen and broadened. In many markets, price competition is low due to weak contestability or many low-productivity operators. Entry barriers remain high in some key professions, such as legal services. The Hellenic Competition Commission is resolving its backlog of cases and has been strengthening its resources. However, important sectors of Greece's economy remain dominated by few actors. Regulatory burdens to operate in some key sectors and to re-develop land impede new entrants and raise costs.	Strengthen the Hellenic Competition Commission and other economic regulators to independently improve competition and effective market operation. **Lower entry barriers, prioritising professional services, and simplify land zoning rules.** Strengthen regulatory impact assessments, and require them to cover effects on competition. **Improve the legal system's effectiveness by including it in horizontal measures to review and simplify all administrative processes.** Pursue the collection and reporting of court performance indicators. Proceed with the codification of regulations and incorporate regulatory impact assessments into the process. Pursue national spatial plans, consolidating responsibility for planning into a national authority.
Achieving Greece's green economy transition	
Effective carbon prices differ substantially between fuels and users and are below levels expected to be necessary to reach net-zero. Higher carbon prices would disproportionately affect low-income households under current social support schemes.	**In the medium term, raise the price of emissions to at least the level of the EU Emission Trading Scheme, accompanied by temporary and targeted measures to help households adjust.**
The railway network is under-used and underdeveloped with low perceived efficiency. Infrastructure investments prioritise road transport.	**Raise investment in public transport informed by cost-and-benefit analyses.**
The government targets renovating the energy efficiency of 60 000 dwellings annually, and this pace will need to approximately double to renovate all insufficiently insulated buildings by 2050.	**Mandate a timeline of tightening minimum energy efficiency standards, to apply to all existing buildings by 2050.**
Public compensation for damages from extreme weather events imposes fiscal costs and provides little certainty. Insurance coverage is low and the sharing of risk between the public and private sectors is not transparent.	**Formalise risk-sharing, for example by making property insurance for extreme weather events compulsory for all buildings.**
The transition to a green economy will require many workers, firms and regions to adapt their existing activities to new opportunities.	**Increase access and quality of active labour market policies and training of workers across all sectors and regions affected by the green economy transition.**

References

Adema, W., C. Clarke and O. Thévenon (2016), "Background brief on fathers' leave and its use", *ELS Background Brief*, OECD, Paris, https://www.oecd.org/els/family/Backgrounder-fathers-use-of-leave.pdf (accessed on 8 May 2022). [53]

Bank of England (2020), *Open data for SME finance: what we proposed and what we have learnt*, Bank of England, London, https://www.bankofengland.co.uk/-/media/boe/files/fintech/open-data-for-sme-finance.pdf?la=en&hash=FD4BC43BBD61EDEC5F8460C6BB7488EFDE647581 (accessed on 28 June 2022). [68]

Bank of Greece (2022), , *Έκθεση χρηματοπιστωτικής σταθερότητας*, Vol. 2022/May, https://doi.org/10.52903/finsta.gr202205. [11]

Bank of Greece (2022), *Αξιολόγηση του ισχύοντος νομοθετημένου κατώτατου μισθού και ημερομισθίου*, Bank of Greece, Athens. [4]

Bank of Greece (2021), *Governor's Annual Report, 2021*, Bank of Greece, https://www.bankofgreece.gr/en/news-and-media/press-office/news-list/news?announcement=672dcad9-1bfc-4e2f-917a-51084664261d. [15]

Bender, S. et al. (2018), "Management Practices, Workforce Selection, and Productivity", *Journal of Labor Economics*, Vol. 36/S1, pp. S371-S408, https://doi.org/10.1086/694107. [76]

Berestycki, C. et al. (2022), "Measuring and assessing the effects of climate policy uncertainty", *OECD Economics Department Working Papers*, No. 1724, OECD Publishing, Paris, https://doi.org/10.1787/34483d83-en. [72]

Berestycki, C. and A. Dechezleprêtre (2020), "Assessing the efficiency of environmental policy design and evaluation: Results from a 2018 cross-country survey", *OECD Economics Department Working Papers*, No. 1611, OECD Publishing, Paris, https://doi.org/10.1787/482f8fbe-en. [73]

Bianchi, N. and M. Giorcelli (2021), "The Dynamics and Spillovers of Management Interventions: Evidence from the Training Within Industry Program", *NBER Working Papers* 28833. [83]

Blake, H., T. Bulman and I. Joumard (2023), *A framework for assessing distributional impacts of carbon pricing: the case of Greece*. [3]

Bloom, N. and J. Van Reenen (2010), "Why Do Management Practices Differs across Firms and Countries?", *Journal of Economic Perspectives*, Vol. 102/1, pp. 167-201, https://doi.org/10.1257/jep.24.1.203. [82]

Calvino, F. et al. (2022), "Closing the Italian digital gap: The role of skills, intangibles and policies", *OECD Science, Technology and Innovation Policy Papers* No. 126, https://www.oecd.org/sti/closing-the-italian-digital-gap-e33c281e-en.htm. [81]

Causa, O. et al. (2022), "Getting on the job ladder: The policy drivers of hiring transitions", *OECD Economics Department Working Papers* 1710, https://doi.org/10.1787/0304c673-en. [52]

Corrado, C. et al. (2021), "New evidence on intangibles, diffusion and productivity", *OECD Science, Technology and Industry Working Papers* 2021/10, https://doi.org/10.1787/18151965. [78]

Criscuolo, C. et al. (2021), "The role of telework for productivity during and post-COVID-19: Results from an OECD survey among managers and workers", *OECD Productivity Working Papers*, No. 31, OECD Publishing, Paris, https://doi.org/10.1787/7fe47de2-en. [45]

Criscuolo, C. et al. (2021), "The Human Side of Productivity: Uncovering the role of skills and diversity for firm productivity", *OECD Productivity Working Paper Series* 29, https://doi.org/10.1787/5f391ba9-en. [74]

ECB (2022), *Press Release: The Transmission Protection Instrument*, European Central Bank, https://www.ecb.europa.eu/press/pr/date/2022/html/ecb.pr220721~973e6e7273.en.html (accessed on 28 July 2022). [8]

ECB (2021), *Monetary Policy Statement Press Conference*, https://www.ecb.europa.eu/press/pressconf/2021/html/ecb.is211216~9abaace28e.en.html (accessed on 22 May 2022). [7]

ECB (2021), *SSM-wide Stress Test 2021: Final results*, European Central Bank, https://www.bankingsupervision.europa.eu/press/pr/date/2021/html/ssm.pr210730_aggregate_results~5a1c5fb6bd.en.pdf (accessed on 31 January 2022). [14]

European Central Bank (2021), *Opinion of the European Central Bank of 29 July 2021 on deferred tax assets of Greek credit institutions*, European Central Bank, Frankfurt, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52021AB0025&from=EN (accessed on 26 July 2022). [10]

European Commission (2022), *COUNCIL RECOMMENDATION: on the 2022 National Reform Programme of Greece and delivering a Council opinion on*, https://ec.europa.eu/info/system/files/2022-european-semester-csr-greece_en.pdf. [2]

European Commission (2022), *Enhanced Surveillance Report: Greece February 2022*, https://ec.europa.eu/info/publications/economic-and-financial-affairs-publications_en. [88]

European Commission (2022), "Enhanced Surveillance Report: Greece, May 2022", *European Economy Institutional Paper*, No. 178, European Commission, Luxembourg, https://doi.org/10.2765/402122. [9]

European Commission (2021), *2021 Rule of Law Report Country Chapter on the rule of law situation in Greece*, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52021SC0709&from=EN (accessed on 14 March 2022). [31]

European Commission (2021), *State aid: Commission approves prolongation of market conform asset protection scheme for banks in Greece*, https://ec.europa.eu/commission/presscorner/detail/en/ip_21_1661 (accessed on 26 July 2022). [12]

European Commission (2021), "The 2021 Ageing Report. Economic and Budgetary Projections for the EU Member States (2019-2070)", *European Economy Institutional Paper*, No. 148, European Commission, Luxembourg, https://doi.org/10.2765/84455. [18]

European Commission (2021), *The 2021 EU justice scoreboard*, European Commission, https://doi.org/10.2838/67330. [71]

European Investment Bank (2021), *EIB Investment Survey 2021 Greece Overview*, https://www.eib.org/attachments/publications/eibis_2021_greece_en.pdf (accessed on 18 January 2022). [60]

Flamant, E., S. Godar and G. Richard (2021), "New Forms of Tax Competition in the European Union: an Empirical Investigation", *Report*, No. 3, EU Tax Observatory, https://www.taxobservatory.eu/wp-content/uploads/2021/11/EU-Tax-Observatory-Report-3-Tax-Competition-November-2021.pdf (accessed on 23 May 2022). [92]

Gal, P. et al. (2019), "Digitalisation and productivity: In search of the holiy grail - Firm-level empirical evidence from EU countries", *OECD Economics Department Working Papers* No. 1533, https://doi.org/10.1787/5080f4b6-en. [79]

Giorcelli, M. (2019), "The long-term effects of management and technology transfers", *American Economic Review*, Vol. 109/1, pp. 121-152, https://doi.org/10.1257/aer.20170619. [84]

Gourgiotis, A., S. Kyvelou and I. Lainas (2021), "Industrial Location in Greece: Fostering Green Transition and Synergies between Industrial and Spatial Planning Policies", *Land*, Vol. 10/3, p. 271, https://doi.org/10.3390/land10030271. [86]

Hanusch, M. et al. (2016), "The Ghost of a Rating Downgrade: What Happens to Borrowing Costs When a Government Loses its Investment Grade Credit Rating?", *MFM Discussion Paper*, No. 13, World Bank Group, Washington, DC, https://documents1.worldbank.org/curated/en/241491467703596379/pdf/106667-NWP-MFM-Discussion-Paper-13-SARB-CreditRating-28-Jun-2016-PUBLIC.pdf (accessed on 22 May 2022). [6]

Haskel, J. and S. Westlake (2018), *Capitalism without Capital - The Rise of the Intangible Economy*, Princeton University Press. [77]

Huerta, M. et al. (2013), "Fathers' Leave, Fathers' Involvement and Child Development: Are They Related? Evidence from Four OECD Countries", *OECD Social, Employment and Migration Working Papers*, No. 140, OECD Publishing, Paris, https://doi.org/10.1787/5k4dlw9w6czq-en. [51]

IEA (2021), *Net Zero by 2050 - A Roadmap for the Global Energy Sector*, International Energy Agency, Paris, https://www.iea.org/events/net-zero-by-2050-a-roadmap-for-the-global-energy-system (accessed on 10 May 2022). [47]

Ioannou, C., Y. Sidiropoulos and A. Agnantopoulos (2020), *Telework in Greece during the Covid-19 pandemic: A preliminary review of evidence*, SEV, https://en.sev.org.gr/wp-content/uploads/2020/06/Telework_SEV_english.pdf (accessed on 27 June 2022). [49]

ITF (2021), *ITF Transport Outlook 2021*, OECD Publishing, Paris, https://doi.org/10.1787/16826a30-en. [48]

Jaramillo, L. and M. Tejada (2011), "Sovereign Credit Ratings and Spreads in Emerging Markets: Does Investment Grade Matter?", *SSRN Electronic Journal*, https://doi.org/10.2139/ssrn.1780802. [5]

Kaousar Nassr, I. and G. Wehinger (2015), "Unlocking SME finance through market-based debt: Securitisation, private placements and bonds", *OECD Journal: Financial Market Trends*, https://doi.org/10.1787/fmt-2014-5js3bg1g53ln. [63]

Kari, S., H. Karikallio and J. Pirttila (2009), "The Impact of Dividend Taxation on Dividends and Investment: New Evidence Based on a Natural Experiment", *SSRN Electronic Journal*, https://doi.org/10.2139/ssrn.1458882. [91]

Keller, A. (2018), *2018 OECD Performance Budgeting Survey: Key findings and trends*, https://www.slideshare.net/OECD-GOV/international-trends-in-performance-budgeting-anne-keller-oecd. [27]

Kingma, A. and A. Vandeplas (2022), "The Macro-Economic Benefits of Gender Equality", *Economic Brief*, No. 071, European Commission, https://doi.org/10.2765/08810. [43]

Kluve, J. et al. (2016), "Do Youth Employment Programs Improve Labor Market Outcomes? A Systematic Review", *IZA Discussion Paper*, No. 10263, Forschungsinstitut zur Zukunft der Arbeit Institute for the Study of Labor, https://docs.iza.org/dp10263.pdf (accessed on 23 May 2022). [40]

Kontolaimou, A., E. Korra and G. Skintzi (2021), *Information and Communication Technologies and E-Commerce in Greece*, https://www.kepe.gr/images/ektheseis/Sinopsi_ENG_Ekthesi_81.pdf. [69]

Kovacevic, A. (2009), "The Impact of the Russia-Ukraine Gas Crisis in South Eastern Europe Oxford Institute for Energy Studies", No. NG 29, Oxford Institute for Energy Studies, https://www.oxfordenergy.org/wpcms/wp-content/uploads/2009/03/NG29-TheImpactoftheRussiaUkrainianCrisisinSouthEasternEurope-AleksandarKovacevic-20091.pdf (accessed on 5 May 2022). [1]

Laidroo, L. et al. (2022), *Estonia Fintech Report 2021*, TalTech School of Business and Governance, http://www.financeestonia.eu/wp-content/uploads/2021/06/FinTech-report-2021-final.pdf (accessed on 17 March 2022). [65]

MAPS (2022), *Draft Summary of Recommendations - for discussion and validation*. [32]

Marinakos, K. and G. Pistikou (2019), "The Spatial Framework of Tourism in Greece as a Determinant Hotel Investment Facility Factor", *Ourismos: An International Multidisciplinary Journal Of Tourism*, Vol. 14/1, https://tourismosjournal.aegean.gr/article/view/561/507 (accessed on 24 May 2022). [85]

Moretti, D., A. Keller and B. Chevauche (2019), "Budgeting in Greece", *OECD Journal on Budgeting*, https://doi.org/10.1787/2f5e7d7a-en. [26]

Mourougane, A. et al. (2016), "Can an Increase in Public Investment Sustainably Lift Economic Growth?", *OECD Economics Department Working Papers*, No. 1351, OECD Publishing, Paris, https://doi.org/10.1787/a25a7723-en. [19]

OECD (2022), *Global Plastics Outlook: Economic Drivers, Environmental Impacts and Policy Options*, OECD Publishing, Paris, https://doi.org/10.1787/de747aef-en. [94]

OECD (2022), "Greece", in *Financing SMEs and Entrepreneurs 2022: An OECD Scoreboard*, OECD Publishing, Paris, https://doi.org/10.1787/e160626a-en. [61]

OECD (2022), "Marketplace and FinTech lending for SMEs in the COVID-19 crisis", *OECD Business and Finance Policy Papers*, No. 02, OECD Publishing, Paris, https://doi.org/10.1787/ff11697f-en. [67]

OECD (2022), *Recommendation of the Council on Transparency and Procedural Fairness in Competition Law Enforcement*, OECD. [70]

OECD (2021), *Government at a Glance 2021*, OECD Publishing, Paris, https://doi.org/10.1787/1c258f55-en. [23]

OECD (2021), *Health at a Glance 2021: OECD Indicators*, OECD Publishing, Paris, https://doi.org/10.1787/ae3016b9-en. [24]

OECD (2021), *OECD Economic Surveys: European Union 2021*, OECD Publishing, Paris, https://doi.org/10.1787/a77ab220-en. [22]

OECD (2021), *OECD Economic Surveys: Italy 2021*, OECD Publishing, Paris, https://doi.org/10.1787/07d8b9cd-en. [37]

OECD (2021), *Pensions at a Glance 2021: OECD and G20 Indicators*, OECD Publishing, Paris, https://doi.org/10.1787/ca401ebd-en. [17]

OECD (2021), *PF2.1 Parental Leave Systems*, OECD, Paris, https://www.oecd.org/els/soc/PF2_1_Parental_leave_systems.pdf (accessed on 28 June 2022). [54]

OECD (2021), "What have countries done to support young people in the COVID-19 crisis?", *OECD Policy Responses to Coronavirus (COVID-19)*, OECD Publishing, Paris, https://doi.org/10.1787/ac9f056c-en. [41]

OECD (2020), *International Migration Outlook 2020*, OECD Publishing, Paris, https://doi.org/10.1787/ec98f531-en. [55]

OECD (2020), *OECD Economic Surveys: Greece 2020*, OECD Publishing, Paris, https://doi.org/10.1787/b04b25de-en. [16]

OECD (2020), *OECD Environmental Performance Reviews: Greece 2020*, OECD Environmental Performance Reviews, OECD Publishing, Paris, https://doi.org/10.1787/cec20289-en. [38]

OECD (2020), *OECD Territorial Reviews: Regional Policy for Greece Post-2020*, https://doi.org/10.1787/cedf09a5-en. [87]

OECD (2020), *Productivity gains from teleworking in the post COVID-19 era: How can public policies make it happen?*, OECD, Paris, https://read.oecd-ilibrary.org/view/?ref=135_135250-u15liwp4jd&title=Productivity-gains-from-teleworking-in-the-post-COVID-19-era (accessed on 6 May 2022). [44]

OECD (2020), *Promoting an Age-Inclusive Workforce: Living, Learning and Earning Longer*, OECD Publishing, Paris, https://doi.org/10.1787/59752153-en. [46]

OECD (2020), *Regional Policy for Greece Post-2020*, OECD Territorial Reviews, OECD Publishing, Paris, https://doi.org/10.1787/cedf09a5-en. [21]

OECD (2019), *Budgeting and Public Expenditures in OECD Countries 2019*, OECD Publishing, Paris, https://doi.org/10.1787/9789264307957-en. [28]

OECD (2019), *Negotiating Our Way Up: Collective Bargaining in a Changing World of Work*, OECD Publishing, Paris, https://doi.org/10.1787/1fd2da34-en. [50]

OECD (2019), *OECD Skills Strategy 2019: Skills to Shape a Better Future*, https://doi.org/10.1787/9789264313835-en. [75]

OECD (2019), *Reforming Public Procurement: Progress in Implementing the 2015 OECD Recommendation*, OECD Public Governance Reviews, OECD Publishing, Paris, https://doi.org/10.1787/1de41738-en. [34]

OECD (2019), *Skills Matter: Additional Results from the Survey of Adult Skills*, OECD Skills Studies, OECD Publishing, Paris, https://doi.org/10.1787/1f029d8f-en. [25]

OECD (2018), *Good Jobs for All in a Changing World of Work: The OECD Jobs Strategy*, OECD Publishing, Paris, https://doi.org/10.1787/9789264308817-en. [57]

OECD (2018), *OECD Economic Surveys: Greece 2018*, OECD Publishing, Paris, https://doi.org/10.1787/eco_surveys-grc-2018-en. [39]

OECD (2018), *OECD Employment Outlook 2018*, OECD Publishing, Paris, https://doi.org/10.1787/empl_outlook-2018-en. [58]

OECD (2017), *Evaluating Publicly Supported Credit Guarantee Programmes for SMEs*, OECD, https://www.oecd.org/finance/Evaluating-Publicly-Supported-Credit-Guarantee-Programmes-for-SMEs.pdf. [62]

OECD (2017), *Making Integration Work: Assessment and Recognition of Foreign Qualifications*, Making Integration Work, OECD Publishing, Paris, https://doi.org/10.1787/9789264278271-en. [56]

OECD (2015), *New Approaches to SME and Entrepreneurship Financing: Broadening the Range of Instruments*, OECD Publishing, Paris, https://doi.org/10.1787/9789264240957-en. [64]

OECD (Forthcoming), *Income security during joblessness in Greece: Design of effective unemployment support*, OECD. [59]

Pain, N. et al. (2018), "A model-based analysis of the effect of increased public investment", *National Institute Economic Review*, Vol. 244, pp. R15-R20, https://doi.org/10.1177/002795011824400110. [20]

Pronto (2019), *European Public Procurement Landscape: The case of Greece.*, Pronto-PPI, https://www.pronto-ppi.eu/download.php?fd=33&l=en&key=14967c8ec8566f0bef4eba5b75a6aa9d (accessed on 15 March 2022). [33]

Schick, A. (2014), "The metamorphoses of performance budgeting", *OECD Journal on Budgeting*, https://doi.org/10.1787/budget-13-5jz2jw9szgs8. [29]

Spinellis, D. et al. (2022), "Intelligent modeling of e-Government initiatives in Greece", *GreeSE Paper*, No. 168, Hellenic Observatory Papers on Greece and Southeast Europe, London, https://www.lse.ac.uk/Hellenic-Observatory/Assets/Documents/Publications/GreeSE-Papers/GreeSE-168.pdf (accessed on 21 March 2022). [36]

Swedbank (2021), *Latvia Fintech Report 2020*, https://www.swedbank.lv/static/pdf/campaign/FinTech_report_2020_ENG.pdf (accessed on 17 March 2022). [66]

Syverson, C. (2011), "What Determines Productivity?", *Journal of Economic Literature*, Vol. 49/2, pp. 326-65, https://doi.org/10.1257/jel.49.2.326. [80]

Transparency International (2021), *Corruption Perceptions Index 2021*, https://images.transparencycdn.org/images/CPI2021_Report_EN-web.pdf (accessed on 14 March 2022). [30]

Tuccio, M. (2019), "Measuring and assessing talent attractiveness in OECD countries", *OECD Social, Employment and Migration Working Papers*, No. 229, OECD Publishing, Paris, https://doi.org/10.1787/b4e677ca-en. [93]

Vagia, A. and M. Haralabidis (2021), "Greek Banking Sector's 2021 EU-wide Stress Test Results", *HFSF Bulletin*, Vol. 1, pp. 1-14, https://hfsf.gr/wp-content/uploads/2021/11/HFSF-Bulletin-No-1-EU-Stress-Test-Results-2021_publ-22-Nov.pdf (accessed on 8 February 2022). [13]

Valaskas, K., E. Demian and S. Stavrak (2022), *The role of the Greek plastics industry in the circular economy*, IOBE, http://iobe.gr/docs/research/RES_05_F_08022022_REP_GR.pdf. [89]

World Bank (2022), *Women, Business and the Law*, The World Bank, https://doi.org/10.1596/978-1-4648-1817-2. [42]

World Bank (2021), *Worldwide Bureaucracy Indicators version 2.0*, World Bank. [35]

Yagan, D. (2015), "Capital Tax Reform and the Real Economy: The Effects of the 2003 Dividend Tax Cut", *American Economic Review*, Vol. 105/12, pp. 3531-3563, https://doi.org/10.1257/aer.20130098. [90]

2 Transitioning to a green economy

A changing climate is threatening livelihoods and economic activity in Greece and the world. Transitioning to a green economy – mitigating the causes of climate change and adapting to its effects, while sustaining activity and improving well-being – is among the greatest policy challenges of the coming decades. In Greece, legacies of high emission intensity, limited fiscal space and scarce private financing amplify the challenge. Greening Greece's energy system is at the core of this transition. This entails swiftly developing its large potential for renewable energies and adapting energy consuming sectors. A well-chosen mix of policies – including carbon pricing, public infrastructure investments, and gradually tightening regulations on minimum energy efficiency standards, while providing financial support and protecting vulnerable households – would minimise the costs of this transition. Developing insurance coverage can better protect households and firms from damages resulting from a warming climate, while limiting fiscal exposure. Engaging all stakeholders and supporting those affected by the transition will help build the consensus for implementing these policies into the long term.

Climate change is making the transition to a green economy imperative

The climate in Greece is changing. Higher average temperatures and more extreme weather events are harming well-being, challenging the economy and threatening livelihoods. Disruptions are likely to grow as climate change accelerates, even if adaptive measures can reduce some of the damages. Over recent years Greece has cut its greenhouse gas emissions (GHG) faster than most OECD countries. By 2050, it has committed to reach net-zero GHG emissions in line with the Paris Agreement, and it has adopted ambitious intermediate targets to get there in time. Greece recognises the need for immediate policy action to help people and businesses to become more resilient to a changing climate, as the priorities of its Recovery and Resilience Plan and the creation of the Ministry for Climate Crisis and Civil Protection demonstrate.

Transforming the economy to mitigate and adapt to climate change will ultimately improve people's lives and firms' productivity. With 70% of emissions generated by fossil fuels, shifting to a green energy system is at the core of this transition, and promises wider benefits. Energy prices increased substantially since the recovery from COVID-19 and the war in Ukraine (discussed in Chapter 1). High energy bills weigh on production costs for firms' and households' purchasing power. Replacing fossil fuels with renewable sources will reduce dependency on oil and gas imports. Many buildings in Greece are not energy efficient and energy poverty is widespread. Renovations will improve housing quality and lower energy bills. Reliance on cars is high, as are air pollution, accidents and road congestion. Shifting to net zero emissions from transport will entail greener and less polluted cities and improved access to transport modes other than cars.

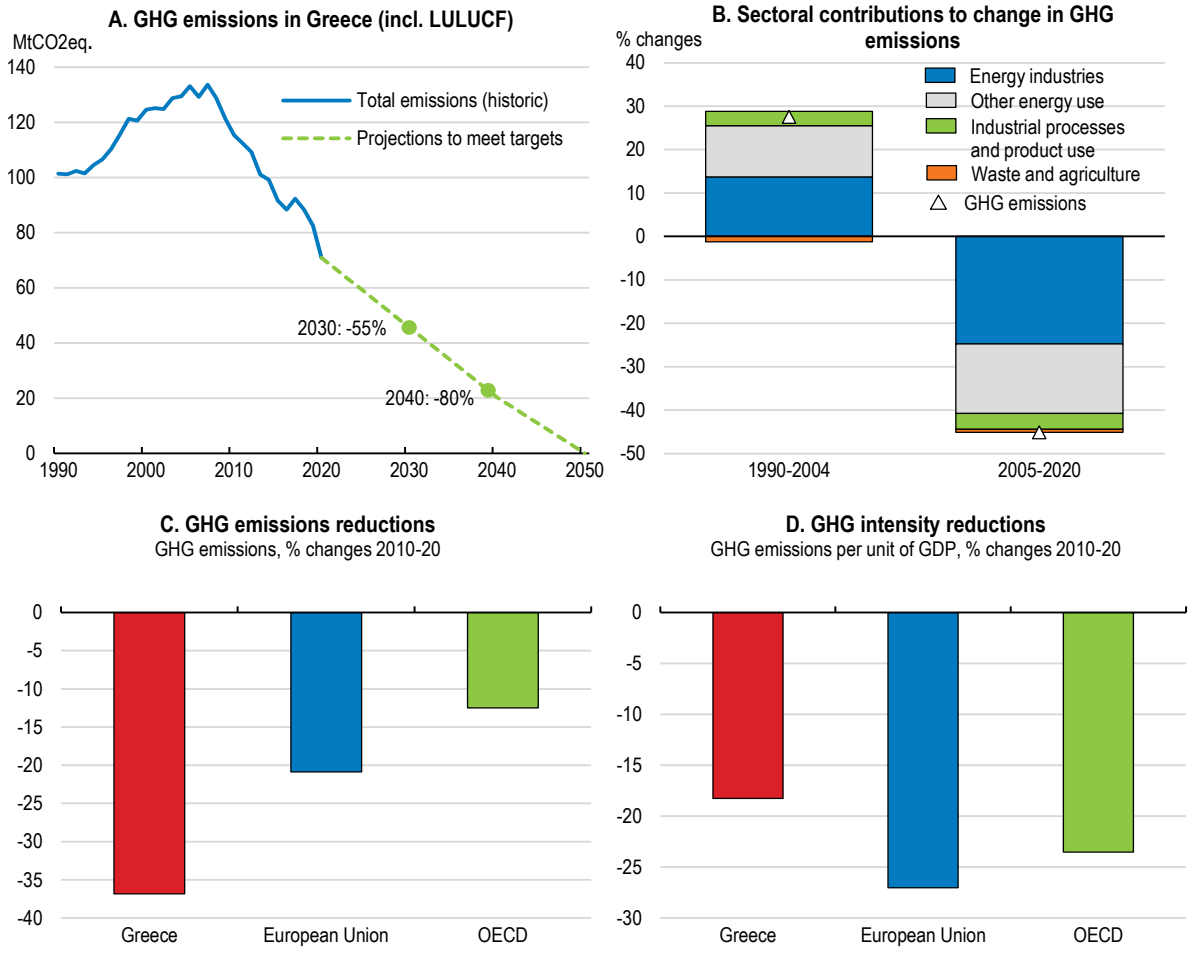
Notwithstanding the long-term benefits, transforming the economy brings inherent costs, especially in the short run. Businesses in sectors ranging from transport to tourism are likely to experience higher costs and will need to invest and restructure their operations. Capital bound up with fossil fuels needs to be replaced and new infrastructure needs to be built. Some products, especially those intensive in carbon, will become more expensive because of carbon pricing policies. Financing capacity has been curbed by the decade-long economic crisis, and the transition will absorb scarce fiscal space and private finance, especially once the exceptional NextGenerationEU facility concludes in 2026. Mobilising capital while cutting emissions and adapting to a changing climate, all at the lowest cost to households, firms and the public sector, are key challenges for Greece for the coming decades. Sustaining a broad consensus for the comprehensive and long-ranging changes involved in transitioning to a green economy will be essential to achieve this. Legacies of low levels of public trust and inconsistent government implementation capacity challenge these goals.

This chapter identifies a mix of policies to help Greece transition cost-effectively to a green economy, by mitigating its contribution to climate change and adapting to a changing climate in a socially and politically acceptable way. The analysis and recommendations are informed by new research conducted by the OECD and the International Transport Forum, assessing different policy options for Greece to cut emissions, and their macroeconomic and distributional consequences. The chapter first focuses on the central role of the green energy transition to meet Greece's GHG emission goals and discusses key cross-sectoral policies as well as macroeconomic and fiscal implications. It then discusses how policies specific to key sectors can support this transition, then on policies to support households and businesses to reduce vulnerabilities by adapting to a hotter and more volatile climate. The final section discusses how these long-term policy programmes for mitigating and adapting to climate change can be implemented by building a consensus and supporting firms and workers through the green transition.

Towards net-zero via the green energy transition

Greece has achieved large reductions in greenhouse gas (GHG) emissions since their peak in 2005 (Figure 2.1, Panel A). This reduction was largely associated with the nearly thirty percent contraction in Greece's GDP during the economic crises of the 2010s, which compressed energy demand, while a shift in energy sources away from coal and oil towards natural gas and renewable energy reduced emission intensity (Figure 2.1, Panel B). This is reflected in the fact that total emissions declined faster than the OECD and the EU (Figure 2.1, Panel C), while the decline in emissions per unit of GDP was slower (Figure 2.1, Panel D). In 2020, Greece's economy remained more emission-intensive than the OECD average (Figure 2.2, Panel A), reflecting a combination of low energy use per unit of GDP (Figure 2.2, Panel B) but high emissions per unit of energy produced (Figure 2.2, Panel D), also because power and heat generation uses more fossil fuels than in most other OECD countries (Figure 2.2, Panel C).

Figure 2.1. Greece needs to sustain its recent pace of GHG emission reductions to reach net zero



Note: Panel A: GHG emissions include land use, land-use change and forestry (LULUCF). Preliminary data for 2019. The reduction for 2030 and 2040 are relative to the 1990 GHG emission level. Panel B: GHG emissions exclude LULUCF.
Source: OECD (2022), Environment: Air and climate (database); and European Environment Agency (2021), EU Emissions Trading System (ETS) data viewer.

StatLink https://stat.link/k716ln

Greece has adopted ambitious plans to reduce GHG emissions over recent years (Box 2.1). In 2022 it raised the targets in its National Energy and Climate Plan and in its Climate Law is now committed to cutting GHG emissions by 55% by 2030 and 80% by 2040 compared to 1990 levels, in line with recent

EU-level targets. Achieving these targets while sustaining growth in economic activity will require Greece decoupling GHG emissions from economic activity faster than achieved thus far.

Box 2.1. Greece's main policy plans and goals for the green economy transition

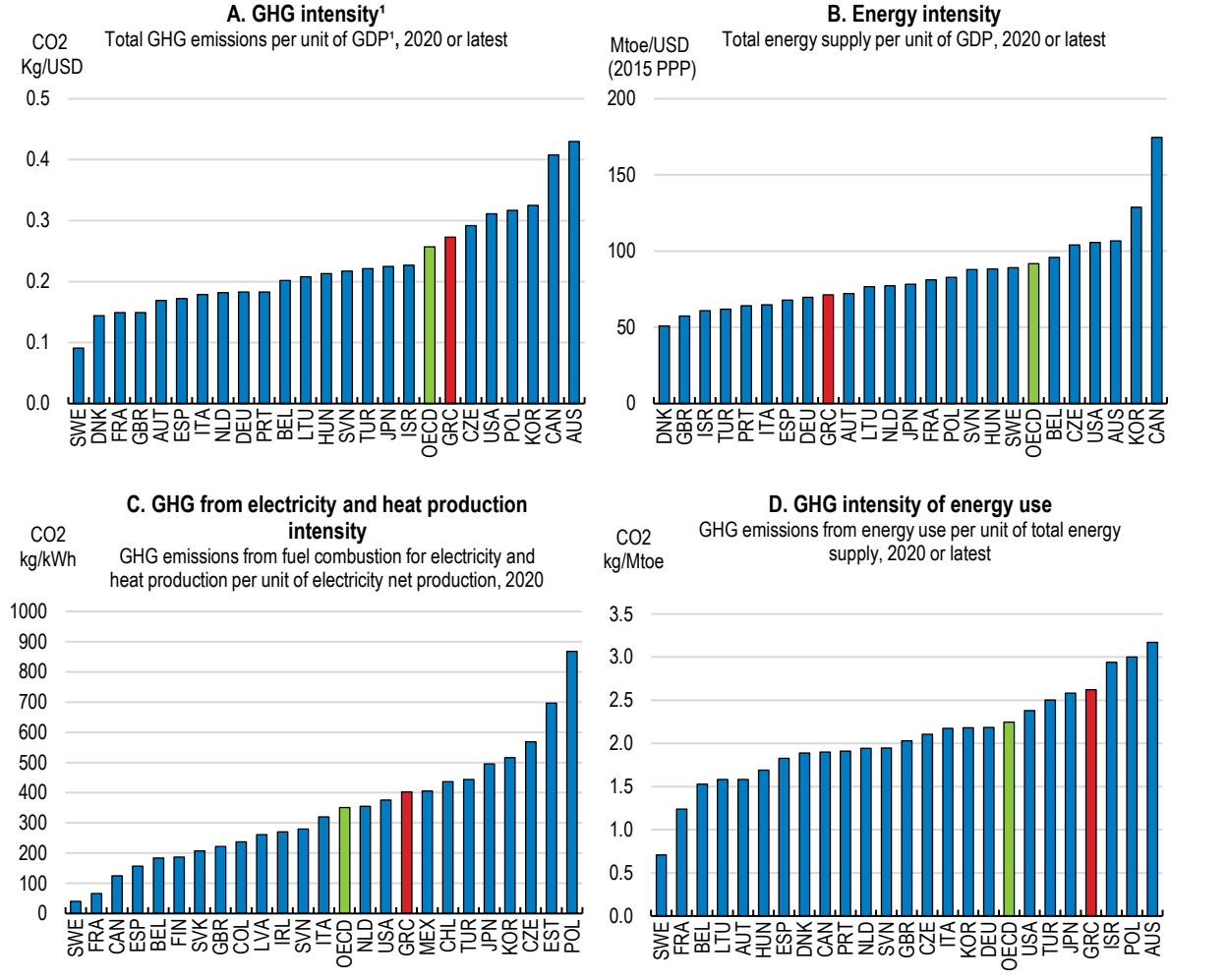
The main policy goals and measures relating to the green economy transition are set out in the National Energy and Climate Plan, the National Climate Law, and the Recovery and Resilience Plan "Greece 2.0", which dedicates 37.5 % of grants and loans to green objectives. Overall, EUR 6.2 billion (3% of 2021 GDP) are budgeted for the green transition, which are expected to mobilise a total of EUR 11.6 billion (6% of 2021 GDP) (Table 2.1). Focusing on adaptation, the National Strategy for Adaptation to Climate Change provides guidelines and indicative actions, which will support identifying policy priorities and devising action plans at the regional and local level through Regional Plans for Adaptation to Climate Change, which are currently being finalised.

Table 2.1. Policy targets and measures for achieving the green economy transition

	National Energy and Climate Plan (2019)	National Climate Law (2022)	Greece 2.0 (2021)
Total greenhouse gas emissions	By 2030 reduction of 43% compared to 1990 level	By 2026, introduction of 5-year sectoral carbon budgets By 2030 reduction of 55% compared to 1990 level By 2040 reduction of 80% compared to 1990 level By 2050 reach net-zero	
Energy industry	After 2028, ban of lignite for power generation; close lignite plants currently in operation by 2023 By 2030, at least 35% of final energy consumption from renewable sources By 2030, connecting to mainland or upgrading power grid for remaining 29 unconnected islands	After 2028, ban of solid fossil fuels for electricity generation, which can be brought forward until 2025 From 2023, requirement for most new and large buildings generate electricity on-site from renewable sources	Investments for electricity storage (EUR 0.5 bn), interconnection of islands (EUR 0.2 bn), and upgrading electricity network (EUR 0.1 bn) Reform account for Renewable Energy Sources (EUR 0.2 bn), licensing procedures and spatial planning for renewable energy sources
Buildings	In 2030, limit final energy consumption to 16.5 Mtoe Upgrade energy efficiency of 60 000 dwellings on average annually Renovate 3% of floor area of central public administration buildings annually	From 2025, sale and installation of heating oil burners is prohibited From 2030, sale of heating oil is allowed only when it is mixed at least 30% with renewable fuels	Investment subsidies for energy saving actions, including renovations, for households (EUR 1.25 bn), businesses (EUR 0.5 bn) and public sector (EUR 0.2 bn) Create framework for tackling energy poverty
Transport	By 2030, 30% of registrations for new vehicle are zero-emissions	From 2030, only new passenger and light commercial vehicles with zero emissions can be sold From 2024, one fourth of business cars have to be electric or plug in hybrid emission below 50 CO_2/km From 2026, in Athens and Thessaloniki, new taxis and one third of new rental cars have to be electric	Subsidies for charging stations and electrification of public transport (EUR 0.2 bn); framework for charging stations R&D investment to cut emissions on carbon capture and passenger shipping (EUR 0.3 bn)
Adaptation			Investment to upgrade water management infrastructure (EUR 0.2 bn), flood protection (EUR 0.1 bn), and civil protection (EUR 0.4 bn)

Note: The table shows selected policy targets and measures.
Source: National Energy and Climate Plan; law 4936/2022 "National Climate Law - Transition to Climate Neutrality and Adaptation to Climate Change"; Recovery and Resilience Plan Greece 2.0.

Figure 2.2. Greening energy use is crucial for decoupling emissions from economic activity



1. Greenhouse gas (GHG) excl. LULUCF emissions intensity per unit of GDP, kg/USD, 2015 PPP
Source: OECD (2022), OECD Environment Statistics (database); and OECD (2022), OECD Economic Outlook (database).

StatLink https://stat.link/zw8os0

This Section provides an overview of the policy mix likely to be required to meet Greece's emission reduction goals, focusing on the green energy transition – the shift from fossil fuels to renewable sources. It first presents how reducing the 70% of total emissions that arise from energy use (Figure 2.3, Panel A) can contribute to Greece's mitigation targets. It then discusses key policies to cut emissions from energy use across sectors to achieve the transition at lowest costs, with sector-specific policies then discussed. It concludes by discussing macroeconomic implications for growth, investment needs and the fiscal impact of transforming the energy system.

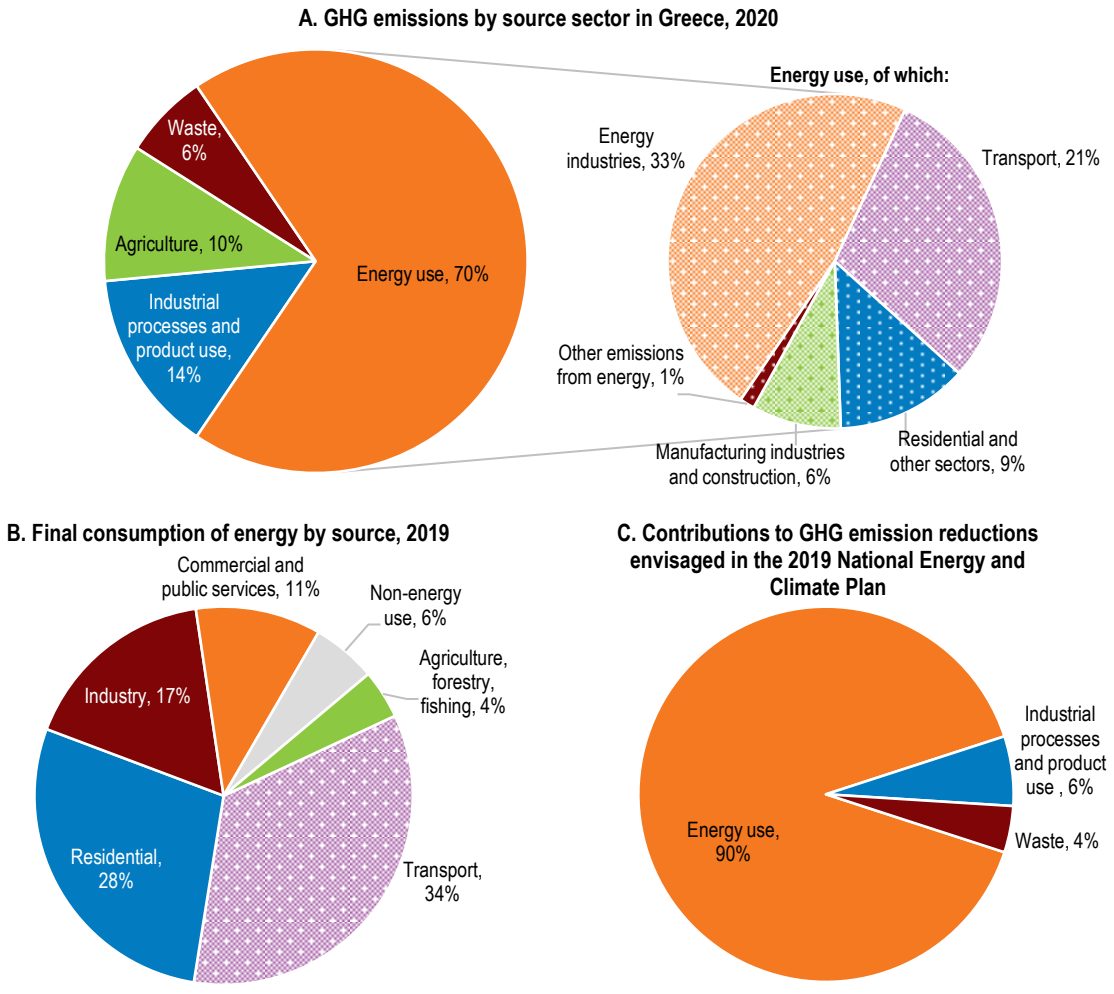
Achieving the green energy transition is key for reaching emission targets

Greece aims to transition to a green energy system to meet its GHG emission targets for 2030. Greece's National Energy and Climate Plan Energy envisages about 90% of emission reductions until 2030 coming from energy use (Figure 2.3, Panel C). The plan is currently under revision to account for its new intermediate emission targets. Sizeable increases in energy use from renewable sources will likely be required to meet these targets, given the large share of GHG emissions from energy use (Figure 2.3, Panel A). OECD modelling (OECD, 2022[1]) suggests that reaching a share for renewable sources of 70% of

primary energy consumption would allow Greece to meet its 2030 GHG emissions target, while reaching a lower share from renewable sources would require achieving more sizeable reductions from emissions not related to energy use.

Upscaling power generation from renewable sources will be key to achieving the green energy transition. In addition, to expand the role of renewable sources, energy use in energy consuming sectors needs to adapt. Most energy is consumed for housing and transport, discussed below, which together account for almost two thirds of final energy use (Figure 2.3, Panel B). Adapting energy use in these sectors to achieve Greece's policy goals for 2030 will be challenging. For transport, given Greece's high car dependency, this entails either replacing its large fossil-fuelled car fleet with more expensive low- or zero-emission vehicles, or shifting transport off the road. For buildings, the latest available data indicate that 70% of final energy consumption come from the direct use of fossil fuels, mostly for heating (MoEE, 2018[2]). Swiftly upgrading Greece's building stock through renovations, improving energy efficiency and replacing machinery will be crucial to reduce reliance on fossil fuels.

Figure 2.3. Transforming the energy system will achieve the largest emission cuts



Note: Panel B: Agriculture includes other non-specified energy use.
Source: OECD (2022), Air and Climate, Environment Statistics (database); IEA (2022), IEA World Energy Statistics and Balances (database).
StatLink https://stat.link/lz9uf2

In the longer-term, shifting to low-emission energy sources will not be enough to be reach net zero. Just under one-third of GHG emissions are unrelated to energy use and arise from chemical reactions in industrial processes and product use, agriculture, and waste (Figure 2.3, Panel A). Half of these emissions arise from industrial processes, for example when producing cement or steel, and are mostly covered by the EU Emission Trading Scheme (ETS) (MoEE, 2020[3]). International cooperation and gradually rising prices under the EU-ETS can encourage reductions in these sectors, for example by accelerating the diffusion of technologies to produce cement and steel with less energy, improve recycling of materials, and boost research into new technologies, such as carbon capture and hydrogen (OECD, 2019[4]).

Emissions from agriculture, for example from livestock, contribute 10% of Greece's total GHG emissions. Substantial emission reductions can be achieved by providing financial incentives to adopt already available measures to either absorb more emissions in agricultural soils or reduce emissions from agricultural production (Wreford, Ignaciuk and Gruère, 2017[5]; OECD, 2019[6]). Measures include, for example, adopting improved cropland and grazing land management to capture more CO2, changing the feed composition for cattle so less methane is emitted during digestion, or using less fertilisers by better predicting crops' fertiliser needs to reduce nitrous oxide emissions (Henderson et al., 2021[7]).

Emissions from waste management, with most waste going to landfills in Greece, account for 6% of emissions. Physical waste management and low rates of recycling are long-standing issues in Greece. The European Court of Justice fined Greece EUR 127 million in 2021 for the slow improvement in plastics management, and further fines are likely without raising the share of plastics that are collected and recycled. Measures to encourage recycling and reduce landfill include enforcing landfill fees, which were enabled by a 2021 law, or promoting pay-as-you-throw pricing of waste collection (OECD, 2020[8]). Requiring plastic products contain minimum amounts of recycled material would raise demand for plastics to recycle and improve the sectors' economics (Valaskas, Demian and Stavrak, 2022[9]; OECD, 2022[10]).

Policies for reducing emissions from energy use across sectors at lowest cost

A policy mix, combining both sector-specific and cross-cutting measures, can achieve a successful and cost-effective transition to net-zero greenhouse gas (GHG) emissions. Table 2.2 outlines selected policy instruments and how they can contribute to lowering abatement costs.

Pricing emissions from energy use while protecting vulnerable groups is central to identify and exploit the lowest-cost opportunities to cut emissions across sectors (D'Arcangelo et al., 2022[11]; Pisany-Ferry, 2021[12]). How costly it is to cut emissions differs between emission sources, abatement measures, and is likely to change over time as new technologies become available. Putting an equal price on GHG emissions for all sectors, businesses and households in Greece will help to make the most of opportunities to reduce emissions. By contrast, uncertainty and decentralised information about the costs of reducing emissions imply that relying mostly on more directive approaches, such as regulations, may raise total abatement costs by missing already available opportunities for low-cost emission reductions. For example, lower effective emission prices for housing than for transport may encourage fewer low-cost energy saving renovations, for which Greece has large potential (discussed below), and may in turn require larger reductions from other sectors to meet intermediate mitigation targets – for example from transport, where emission costs are already high but where cuts are difficult to achieve due to Greece's high reliance on cars (discussed below). Meanwhile, raising carbon prices can be politically challenging. Box 2.2 discusses how assessing public opinion allows support to be tracked and measures to be adapted.

Table 2.2. Comparing mitigation policy instruments along several cost dimensions

Policy instrument	Cost-effectiveness	Administrative and fiscal costs	Distributional and social concerns	Political acceptability
(a) Emission pricing and incentive-based instruments				
Emission pricing, e.g. GHG tax or fuel excise taxes	High cost-effectiveness. Encourages innovation to reduce future abatement costs, but does not address all market failures.	Low to moderate administrative costs. Increased revenue.	Moderate concerns. Regressive effects can be flanked with compensational policies. May lead to leakage.	Low acceptability. Can be improved through recycling revenues.
Subsidies, e.g. feed-in-tariffs	Medium to high cost-effectiveness. Risk of 'picking winners'.	High administrative costs. Increased expenditure.	Low concerns.	High acceptability.
(b) Standards and regulations				
Performance standards, e.g. zero-emission vehicles	Low cost-effectiveness in short-term. Can reduce future abatement costs by spurring innovation.	Low administrative costs. Fiscal impact neutral.	Low concerns.	Moderate-high (effects on prices are hidden). Associated investments to meet standards can reduce acceptability.
Information requirements, e.g. energy efficiency of electrical equipment	Low to moderate cost-effectiveness. Can help to guide or `nudge' consumption behaviour towards low emission alternatives.	Low administrative costs. Fiscal impact neutral.	Minimal concerns.	High acceptability.
(c) Complementary policies				
Public infrastructure investments, e.g. in railway or electricity network	Reduces overall abatement costs by addressing public good and coordination problem market failures.	Moderate administrative costs. Increased expenditures.	Low concerns.	Mixed acceptability.
Financial support policies, e.g. subsidised loans for renovations or vehicle purchase subsidies	Reduces overall abatement costs by addressing financial frictions and coordination failures.	Moderate administrative costs. Increased expenditures, more for grants than for loans.	Regressive, as favouring those who can afford activities.	High acceptability.

Source: Adapted from D'Arcangelo et al. (2022[11]).

Pricing emissions alone is likely to be insufficient to achieve net zero emissions (D'Arcangelo et al., 2022[13]; D'Arcangelo et al., 2022[11]; High-level Commission on Carbon Prices, 2017[14]). Combining carbon pricing with a mix of complementary, sector-specific instruments – including a mix of regulation, financial support, public investment, and institutional reforms measures – is crucial to make it cheaper to shift away from fossil fuels for several reasons. Reducing emissions is challenged by multiple market failures requiring different instruments, for example credit constraints preventing households from financing cost-saving renovations or coordination failures limiting the adoption of green technologies, such as the lack of charging points for electric vehicles in Greece. In addition, policy instruments can be more effective if combined with one another, while incoherence between instruments can weaken their effectiveness. For example, encouraging renovations by imposing energy efficiency standards that buildings must meet in the future, while providing financial support to address credit constraints, is more effective if carbon pricing strengthens price signals for energy savings. Complementary measures would also shore up competitiveness by lowering energy bills and improving the transport system (European Investment Bank, 2021[15]), counteracting some of the adverse effects from raising costs of emission-intensive inputs.

Harmonising carbon prices to better encourage low-cost emission cuts across sectors

Aligning the price of GHG emissions across fuels and uses by adjusting tax rates and subsidies would provide more consistent price signals. Most energy-related CO_2 emissions in Greece are already priced

either explicitly, through the EU Emissions Trading Scheme (ETS), or through fuel excise taxes, and average CO_2 prices are high in international comparison (Figure 2.4, Panel A). However, there are large differences in the cost of CO_2 emissions across users. For example, CO_2 emitted by road transport is four- to twenty-fold as expensive as CO_2 emitted from other uses. Among road transport fuels, CO_2 emissions from gasoline are twice as expensive as from diesel (OECD, forthcoming[16]). These price differences across emissions reflect the fact that high carbon prices are largely driven by fuel excise taxes, especially from transport (Figure 2.4, Panel C), whereby fuel taxes are typically imposed for objectives other than cutting CO_2 emissions, such as raising revenues and addressing non-climate related negative external effects. Greece's high tax exemptions and subsidies for fuels, for example for remote areas and islands not yet connected to the mainland electricity grid to even energy costs with the mainland, additionally weaken price signals (Figure 2.4, Panel B). Gradually aligning effective carbon prices in the medium-term – to assure that at least a common, minimum price applies – to all sources of GHG emissions would encourage more low-cost emission cuts. The expansion of electricity connections to islands and remote areas provides an opportunity to cut subsidies for these areas. Developing a detailed list of subsidies and taxes, including expenditures for tax exemptions, on fossil fuels as a part of 'green budgeting' expenditure tagging would make it easier to identify policy distortions (OECD, 2020[8]; European Commission, 2020[17]).

Projected pathways to reach net zero by the International Energy Agency suggest increasing carbon prices in the future. Greece's current effective carbon prices are below the level expected to be necessary from 2030 onwards to be on track for net-zero (IEA, 2021[18]; OECD, 2021[19]) (Table 2.3). About 57% of energy-related emissions in Greece are covered by the EU-ETS. Introducing a price floor across fuels and users for the remaining emissions in the medium-term, after the current surge in energy prices, by aligning and gradually raising fuel excise taxes on emissions that are priced below the minimum, would provide more consistent price signals and raise overall effective carbon prices. Empirical work carried out for this Survey, leveraging cross-country experiences of emission reductions associated with carbon pricing, suggests that introducing a carbon price floor at 120 EUR/tCO_2 by itself could decrease CO_2 emissions by 16% relative to 2021 emissions, and bring up to EUR 1.8 billion (1% of 2021 GDP) additional annual revenues (Table 2.3). While the effectiveness of higher emission prices can be impaired by emission-intensive firms shifting production to countries with lower or no carbon prices, past experience points to only small emission leakage effects resulting from pricing emissions (Pizer and Aldy, 2015[20]; Borghesi, Franco and Marin, 2020[21]; Sato and Dechezleprêtre, 2015[22]; Naegele and Zaklan, 2019[23]). Providing rebates, which are gradually phased out, to emission-intensive and exporting firms affected by higher carbon prices could be considered to address concerns about competitiveness and leakage.

Box 2.2. Understanding public acceptability of mitigation policies across countries

Public attitudes towards measures to reduce greenhouse gas (GHG) emissions can be a challenge for implementing policies. Understanding peoples' attitudes about policy tools can help to strengthen support by addressing concerns and potential misconceptions. Ongoing OECD work conducts comparable and nationally representative surveys covering 40 000 respondents across 20 countries to assess how people think about climate policies and which factors shape policy support (Dechezleprêtre et al., Forthcoming[24]).

Beliefs about effectiveness, equity and own costs of climate policies shape policy support

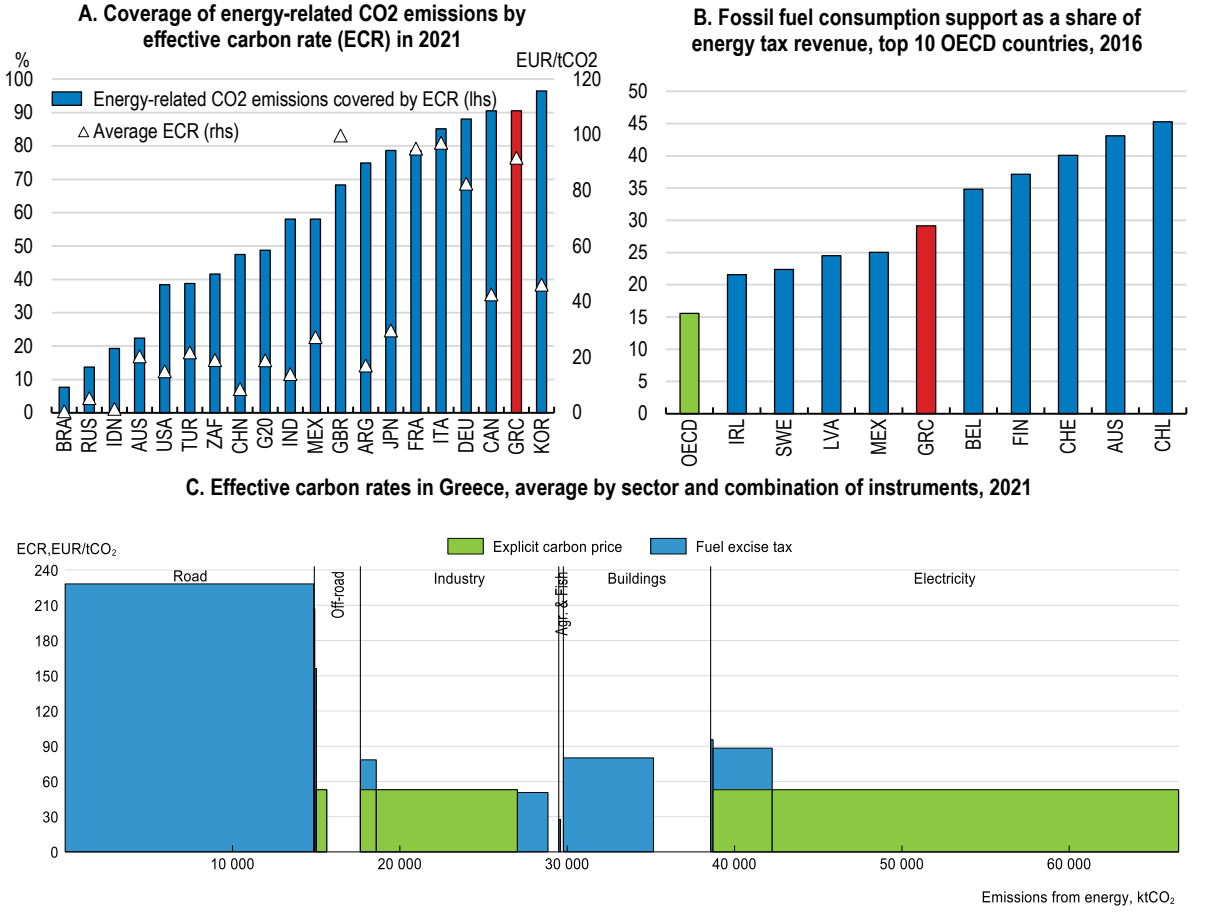
The survey finds broad awareness about climate change: in each country at least three quarters of respondents agree that tackling climate change is important. However, this awareness not always translates into support for climate policies. Whether a policy enjoys strong support is found to hinge on three beliefs: a policy enjoys stronger support if (a) it is perceived to be effective at cutting GHG emissions, and lower support if it is perceived to (b) increase inequality or (c) impose personal costs. These beliefs are much stronger predictors than socioeconomic and lifestyle factors, which are linked more weakly and with more mixed patterns to how a person thinks about climate policies. For example,

while more educated and left-leaning respondents show generally stronger support for climate policies, higher income is related to stronger policy support only in 9 out of 20 countries, and young people are not generally found to show stronger support for climate policies than older people.

Addressing concerns and informing about policies can raise policy support

Designing policies to address peoples' concerns about fairness and their personal costs and informing people about how policy measures work can raise support. A sub-sample of respondents were shown videos on impacts of climate change in their country as well as on particular climate policies; in particular a carbon tax with cash transfers, a ban on combustion-engine cars, and a green infrastructure programme. Seeing videos on policies significantly increased support for these policies, while videos on the impact of climate change had no significant impact. Survey results also indicate that reducing personal costs can raise support. For example, support for a ban of combustion-engine cars in city centres was higher if people had better access to public transport. Support for carbon taxes was higher when revenues are earmarked to support low-income groups or fund green infrastructure projects, reflecting how policies perceived to be fair and contribute to cutting emissions enjoy stronger support.

Figure 2.4. Revising fossil fuel taxes and subsidies to introduce a minimum carbon price floor would make emission pricing more effective



Note: Panel C: Figures shows coverage and height of effective carbon pricing of CO_2 emissions from energy use in Greece in 2021. The width of the bars shows how much of emissions in the respective sector are priced. The height of the bars indicates the effective carbon price. Effective carbon prices do not account for subsidies for fossil fuels, such as heating allowances.
Source: OECD Centre for Tax Policy and Administration; OECD Environmental Performance Reviews: Greece 2020.

StatLink https://stat.link/8sxr5q

Table 2.3. A higher minimum carbon price floor can reduce emissions while raising revenues

Simulation results for Greece from introducing a minimum price floor for CO_2 emissions from energy use

Effective carbon price floor (EUR/tCO_2)	Year carbon price will be consistent with net-zero	Reduction in CO_2 emission from energy use in 2021	Additional revenues in EUR billions
60	n.a.	-2%	0.40
120	2030	-16%	1.84
220	2050	-37%	3.09

Note: Results refer to annual long-run effects of introducing a minimum price floor for effective carbon prices and removing free allowances and fossil fuel subsidies. Effective carbon prices already above the price floor at left unaffected.
Source: (IEA, 2021[18]; OECD, 2021[19]).

Protecting vulnerable households while encouraging energy savings

Unwinding Greece's energy subsidies and tax expenditures, and instead providing direct support to vulnerable households, would encourage emission reductions and improve equity. Greece supports energy consumption of low-income households mainly by subsidising electricity tariffs and by providing an allowance conditional on heating with fossil fuels. To address the recent surge in energy prices, Greece expanded existing measures and provided several additional subsidies, mostly horizontal subsidies making energy based on fossil fuels cheaper (Table 1.1). Replacing price subsidies with direct income transfers not linked to how much or which type of fuel is being used would better encourage energy savings and switching to cleaner fuel types. For example, converting the subsidy households receive through social tariffs into a direct income transfer means that they could afford their existing energy consumption, while energy savings would bring larger gains in disposable income. Only about one-third of guaranteed minimum income recipients in 2018 received social electricity tariffs (Marini et al., 2019[25]). Targeted income transfers can ensure support reaches the most vulnerable households.

Redistributing revenues from higher carbon pricing would protect lower-income households from rising living costs. OECD work (Blake, Bulman and Joumard, forthcoming[26]) suggests that harmonising and raising prices for energy-related CO_2 emissions to at least EUR 120 per tonne would raise monthly household expenses by EUR 68 on average (Box 2.3). Vulnerable households would be disproportionately affected as they spend a larger share of their budget on energy. For example, while costs for the 20% households with the highest incomes would increase by about 3%, poor households would have to pay about 11% more to maintain consumption. Additional revenues from implementing a minimum carbon price would initially be more than enough to offset higher living costs of lower-income households through income transfers. Over time, both adverse income effects and additional revenues would diminish as consumption becomes less emission-intensive.

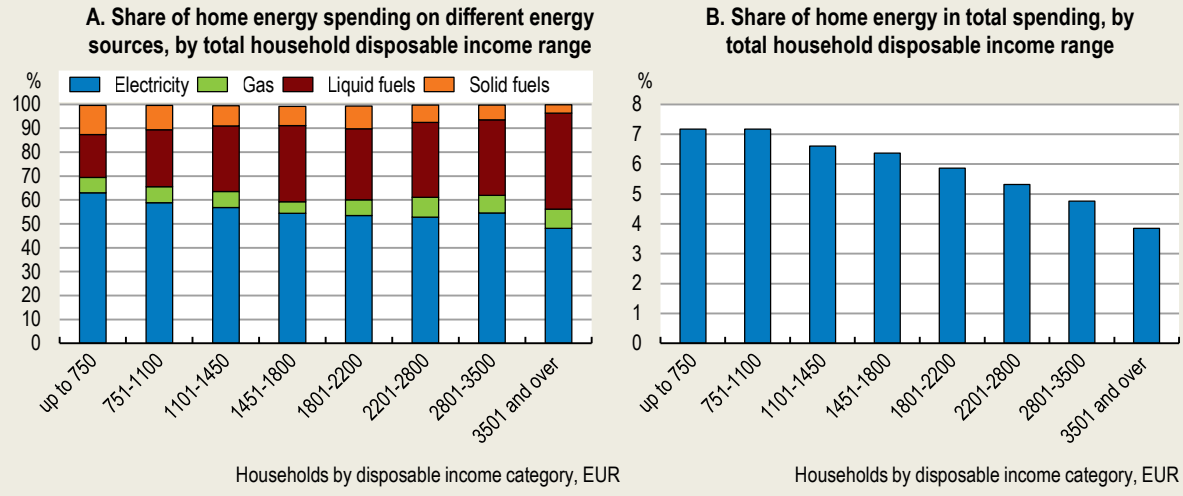
Box 2.3. Income transfers can offset regressive effects from carbon pricing

Introducing a minimum carbon price floor can raise the price of fossil fuels and reduce households' real incomes. Impacts are likely to differ across income groups with share of income spent on emission-intensive goods and services. New empirical research carried out for this survey assessing how households are impacted across income groups can help design appropriate compensatory policies.

Relative to other EU countries, Greek households are particularly vulnerable to an increase in energy prices due to the still high share of coal used for electricity generation (24% in 2019, against a 15% average in European OECD countries). Lack of proper insulation in many buildings additionally raises costs for heating and cooling and contributes to relatively high levels of energy poverty.

Carbon pricing will reduce households' purchasing power through a direct and an indirect effect. The direct effect raises prices of fuels they directly consume whose emission price is below the price floor. Low-income households are more exposed as they spend a higher share of their income spent on home energy: households earning less than EUR 1 100 per month (30% of households) spend on average 7% of their expenditures home energy while this share amounts to less than 4% for households earning more than EUR 3 501 (Figure 2.5).

Figure 2.5. Lower income households spend a larger share of their income on home energy, especially electricity



Source: ELSTAT, Household Budget Survey 2018.

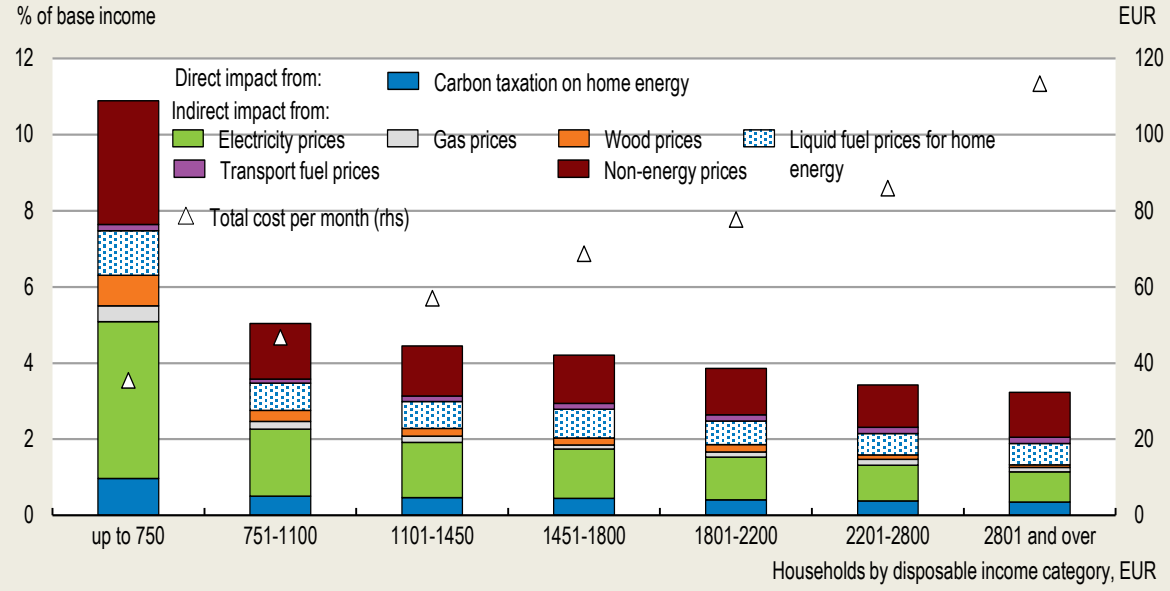
StatLink https://stat.link/385hci

The indirect effect of carbon pricing stems from raising the costs for fuels used as inputs, most notably for electricity production. Using information on the carbon embodied in final demand, calculated from input-output tables, allows assessing how carbon pricing can affect final prices, which is crucial to assess the regressive impact of carbon pricing (Blake, Bulman and Joumard, forthcoming[26]). This is because electricity generally accounts for a larger share in lower-income households' energy mix, who rely less on central heating – only 27% of households with incomes below than EUR 1101 per month compared to 40% for the whole population – and more on electric heating (Figure 2.5).

On average, a minimum carbon price floor of at least EUR 120 per tonne CO_2 in Greece, leaving higher prices unaffected, would imply that households need to pay EUR 68 more per month to maintain

consumption. By far the largest effect, 68% of the total impact on purchasing power, would be indirect, from using fossil fuels as inputs (Figure 2.6).

Figure 2.6. Higher carbon prices would reduce lower income households' real incomes the most



Note: Graph show the estimated direct and indirect impact of a EUR 120 carbon tax price floor on household income. Estimates are based on 2018 spending patterns. Changes in consumption patterns resulting from price changes are not taken into account but are likely to occur. Complementary policies that decrease the carbon content of consumption and are likely to dampen regressive effects.
Source: Calculation based on data from the Greece Household Budget Survey 2018; IEA (2021), Energy prices (database); and OECD data on carbon embodied in trade from Environment Statistics (database).

StatLink https://stat.link/9l052p

Poorer households would have to increase their spending by a larger percentage (Figure 2.6). This regressive impact largely stems from electricity consumption. Besides differential effects across income groups, rural households would be more affected compared to urban households, although the difference would be much smaller than between income groups. The cost of rural households' current consumption baskets would rise by only 2% more than the cost of an urban household. Their living costs would increase by 4.8% of their income, compared with a 3.9% increase for urban households, reflecting rural households' slightly higher share of income spent on energy.

To cushion the loss in purchasing power related to a minimum carbon price floor for the low-income households and offset the regressive impact, the government could provide a means-tested subsidy. The overall cost would amount to EUR 1.4 billion (0.7% of GDP in 2021), which would be less than the additional revenues gained from a minimum carbon price floor.

Growth, investment and fiscal implications of the green energy transition

Gradually abandoning the use of fossil fuels for other energy sources constitutes an economic challenge (Pisany-Ferry, 2021[12]; OECD, 2021[27]). Production costs continue to depend on energy prices from fossil fuels, which are likely to rise with higher emission prices. Shifting away from fossil fuels entails faster depreciation of capital and of workers investing in the skills required to shift to new activities. These costs could be reduced through productivity gains generated by the energy transition, for example from reduced energy needs or a more effective transport system. Importantly, considering the potentially catastrophic

damage of climate change, contributing to the global shift to net-zero emissions remains the best way to limit the overall cost, sustain livelihoods and support activity into the long-term of a changed climate.

The loss of output from the green energy transition for Greece is likely to be modest overall, and can be offset by the continued policy reforms and investments to raise Greece's productivity and employment rates discussed in Chapter 1. Scenarios illustrate the potential investment needs and change in output engendered by the shift to net zero emission energy system. These scenarios extend the OECD global long-term model by incorporating abatement cost estimates from the Network for Greening the Financial System and the OECD's ENV-Linkages Computable General Equilibrium model (OECD, 2022[1]) (described in Box 2.4). They suggest that average annual output would be 0.3% slower between 2023 and 2050 under the scenario of a front-loaded energy transition, and 0.2% slower in the case of a slower transition, both compared to a scenario that abstracts from the shift to low- and zero-emission energy sources. Regarding the path of the transition to net zero emissions, achieving a fast transition in line with Greece's ambitious targets – as compared to a more gradual transition – would entail a larger slowing in economic growth in the current decade and a smaller slowing in growth in the following decades (Figure 2.8, Panel A). Importantly, a more gradual transition to net zero emission energy would require larger cuts in emissions generated by other sectors for Greece to meet its intermediate emission reduction targets. Figure 2.8, Panel B illustrates this by showing that, from 2030, the level of energy emissions under the 'slow' transition scenario would be near the level of total projected GHG emissions consistent with overall emission reduction targets, while under the 'fast' scenario energy emissions are well below total projected emissions. Further, a slower transition implies that Greece would accumulate higher total emissions before reaching net zero emissions, equivalent to about three times current annual emissions (Figure 2.8, Panel C). If replicated globally, higher cumulative emissions entail larger increases in average temperatures, and a higher risk of reaching climatic tipping points with more disastrous consequences.

Achieving the green energy transition goals requires significant, but feasible, front-loaded investments. Chapter 1 discusses how to mobilise private and public investment which can support the green energy transition in a fiscally sustainable way. For a fast transition, estimates suggest the needed additional investments to develop renewable generation capacity correspond to about 0.8% of GDP per year over the current decade (Figure 2.8, Panel D). Investment needs in subsequent decades would be substantially smaller. Additional investments will be needed to upgrade the electricity network, provide storage, and adapt energy use to renewable sources, for example to replace internal combustion engine cars and renovate houses. Research conducted for this survey by the International Transport Forum and the OECD suggests adopting ambitious scenarios for greening transport would require additional infrastructure investments of 0.2% of GDP per year on average until 2050. The 'Greece 2.0' Recovery and Resilience Plan allocates EUR 1.0 billion (0.5% of 2021 GDP) to direct investments in the electricity network and capacity from renewable sources until 2026, in addition to the EUR 2.27 billion (1.2% of 2021 GDP) scheme to encourage investments in capacity from renewable sources. In addition, some of the revenues from 25 million EU-ETS allowances, worth EUR 2.0 billion at 80 EUR/tonne CO_2 (1% of 2021 GDP), will be used for investments to connect islands to the mainland electricity grid, and for storage and capacity from renewable energy sources.

Box 2.4. Modelling the macroeconomic implications of transitioning to a green energy system

The OECD regularly prepares long-term scenarios about economies' long-term prospects for activity, investment and employment in light of their structural policies and demographic developments. New empirical research extends the OECD global long-term model to account for the macroeconomic implications of measures to reduce greenhouse gas emissions from energy use (OECD, 2022[1]). The model abstracts from direct effects of climate change, such as damages from extreme weather events, the scale of which remains highly uncertain.

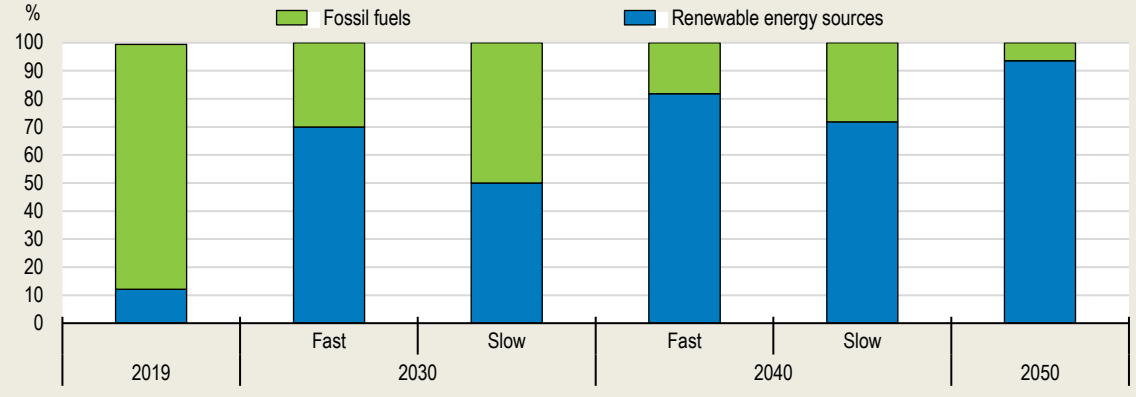
The green energy transition entails shifting energy use away from fossil fuels towards low- or zero-emission energy sources, notably renewable energies. The focus on energy use reflects their contribution of 73% of global greenhouse gas emissions (Lenaerts, Tagliapietra and Wolff, 2021[28]). For a particular country, the model produces trajectories for a host of macroeconomic variables for a given evolution of the primary energy mix. The link between the green energy transition and potential output is mediated by an abatement cost curve. This cost curve expresses how much annual GDP growth is reduced as a function of emissions reduction in that year relative to a business-as-usual path. It is based on reduced-form estimates of average carbon mitigation costs in two Integrated Assessment Models (MESSAGEix-GLOBIOM 1.1 and REMIND-MAgPIE 2.1-4.2, using the Network for Greening the Financial System scenarios) and one Computable General Equilibrium model (ENV-Linkages). It captures the trade-off between rising costs from cutting more emissions in a given year – as the lowest-cost means of reducing emissions are exhausted and additional reductions are more costly – and falling costs in the future – as technological advances make low-emission alternatives less costly. Among others, the model produces results on potential output, investment needed to build capacity for energy generation, and CO_2 emissions. The development of these long-term scenarios is ongoing. Future work will enrich how different policy choices affect abatement costs.

Two scenarios, shown in Figure 2.7, Panel A, are considered to assess the macroeconomic implications of the green energy transition for Greece:

- "Fast": the energy mix evolves to meet intermediate targets by cutting emissions from energy use. Renewable sources generate 70% of energy needs by 2030 and reach a share compatible with net-zero greenhouse gas emissions in 2050.
- "Slow": the energy mix evolves slowly at first, with 50% of energy generated by renewable sources by 2030, but speeds up thereafter and reaches a share compatible with net-zero greenhouse gas emissions in 2050.

Figure 2.7. Scenarios for greening the energy mix

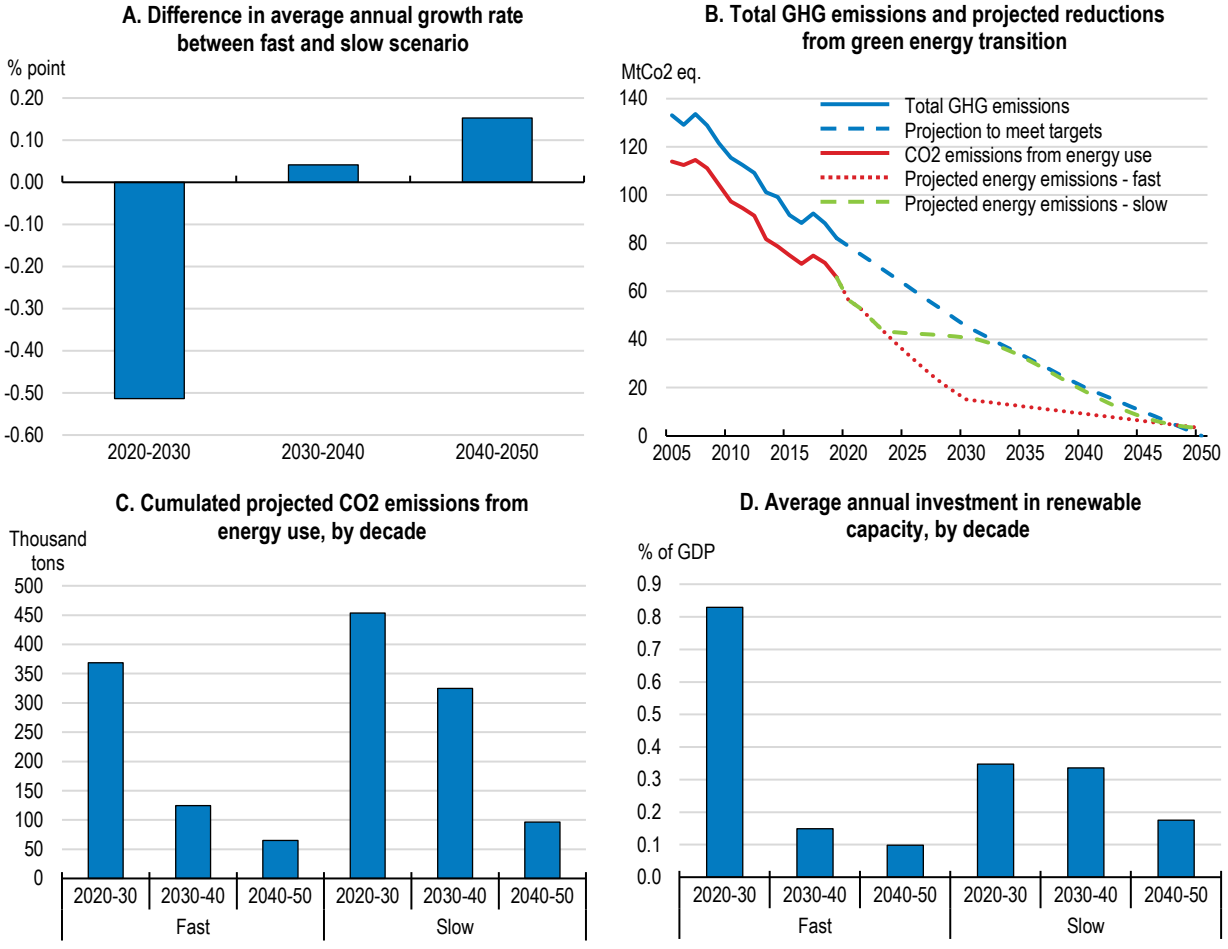
The assumed evolution of primary energy sources under different transition scenarios



Source: OECD calculations; and OECD Energy database.

StatLink https://stat.link/hu3yjt

Figure 2.8. A faster green energy transition would shift growth to future decades and contribute to reducing the damages from climate change



Source: Simulations based on the OECD's Global Long-Term Model and Eurostat population projection scenarios (OECD, 2022[1]) and OECD (2022), Environment: Air and climate (database).

StatLink https://stat.link/2q9zx1

Containing the fiscal impact of the green transition

Transitioning to a green economy entails fiscal costs. Most importantly, the transition requires additional investments, including for renewable energy production, building renovations, and in low-emission transport modes. These investments will, at least partly, be financed by the public sector directly or through grants and loans. In addition, the green transition will affect government revenues. While rising carbon prices under the EU-ETS or raising fuel excise taxes to at least a minimum carbon price floor will bring additional revenues in the short- to medium-term, these revenues will ultimately shrink as the economy becomes less emission intensive.

Revenues from taxing road transport, mostly from fuel excise taxes, are substantial in Greece, at about 4% of GDP (Figure 2.9). Analysis based on the ITF transport model suggests that tax revenues related to road transport over 2020 to 2050 would be up to 20% lower in a scenario for transformative change of the transport system (Box 2.6). Disruptions to the labour market as jobs shift from carbon-intensive work to new opportunities in the green economy can temporarily reduce employment, decrease revenues from income tax and social security contributions, and raise spending on unemployment benefits. Tax

expenditures to support green investments can help achieve emission reduction goals but reduce public income.

This Survey proposes measures to help contain fiscal costs. Measures would contribute in several ways, as detailed in Table 2.4. First, they would bring additional revenues, for example from introducing a minimum carbon price floor or, in the long-term, shifting towards distance-based charges in road transport discussed in Box 2.5. Second, they would reduce public expenditures, for example by boosting energy-efficiency improving renovations to halve energy consumption from buildings (MoEE, 2018[2]), or cost-effective training and hiring subsidies (Brown and Koettl, 2015[29]). Third, they would help to make public spending more effective by combining subsidised loans with gradually tightening regulations to leverage more private financing.

Table 2.4. Selected measures to help limit fiscal costs of the green economy transition

Section	Policy area	Description of proposed measures	Contribution to limiting fiscal costs
2.2.2	Carbon pricing	Harmonised and rising fuel excise taxes to at least a minimum price floor for carbon emissions.	Additional revenues, which will decline as fossil fuels are used less intensively.
2.2.2	Energy support measures	Replacement of energy price subsidies with targeted income transfers.	No fiscal impact.
2.3.2	Transport	Increased investments in public transport; replacement of purchase grants for low emission vehicles with subsidised loans; adjustment of vehicle taxes and restrictions of use in cities for fossil fuel cars. Increased reliance on road usage pricing.	Reduced need for financial support for fleet renewal to meet intermediate emission targets; leveraging more private financing through loans and regulations. Additional revenues from vehicle taxes and increased road usage pricing.
2.3.3	Building renovations	Tightening regulations on minimum energy efficiency standards for more existing buildings; expansion of financial support measures prioritising subsidised loans over grants.	Lower spending needs on energy support measures in longer-term; leveraging more private financing through loans and regulations.
2.4.2	Adaption	Regulations broadening insurance coverage against damages from extreme weather events.	Reduced contingent liabilities of public sector by leveraging more private financing.
2.5.2	Labour market	Expansion of active labour market policies, including training and hiring subsidies.	Higher revenues and lower expenditures through shorter unemployment spells and higher employment level.

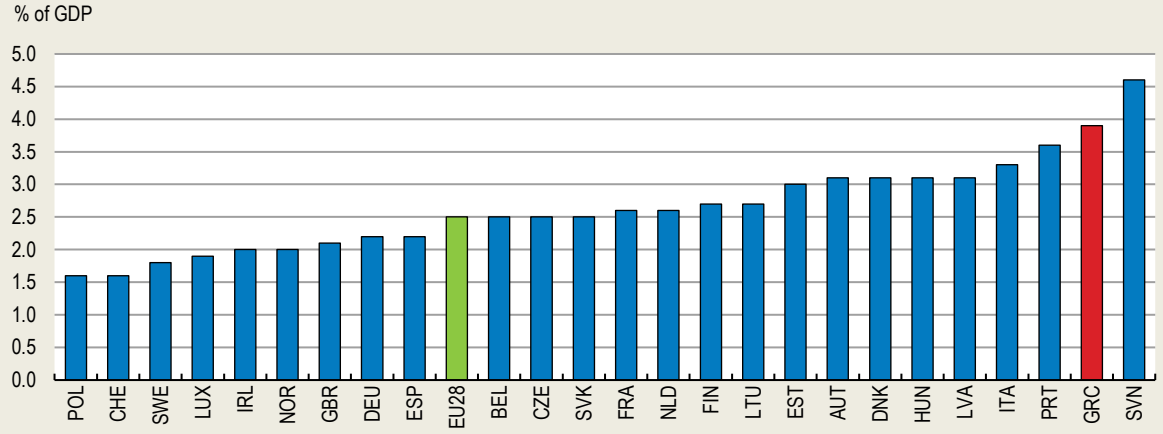
Box 2.5. Raising revenues from road transport in a green transport system

Taxes from road transport, for example from fuel excise taxes, are an important revenue source for governments, especially in Greece (Figure 2.9). Road transport taxes also support efficiency objectives, as a means to charge for road use, and to apply a cost to congestion, pollution and noise.

Changing the transport system to achieve net-zero emissions from transport implies that, under current tax and charging schemes, revenues from road transport would decline substantially as internal combustion engine vehicles give way to low- and zero-emission vehicles and fossil fuels are used less. New empirical analysis from the OECD and the International Transport Forum (ITF), described in Box 2.6, suggests revenues from road transport – in particular fuel excise duties, registration and circulation taxes, and tolls – would be one-fifth lower until 2050 in a scenario of transformative change.

Figure 2.9. Taxes from road transport are a significant source of governmental income

Total tax and charge revenues for road, rail and inland navigation transport, 2016



Source: European Commission (2019), Directorate-General for Mobility and Transport, Transport taxes and charges in Europe: an overview study of economic internalisation measures applied in Europe, https://data.europa.eu/doi/10.2832/416737.

StatLink https://stat.link/vzi2gx

A stable tax base for a transport system less reliant on conventional cars could be achieved by shifting from fuel-based to distance-based charges reflecting the costs related to the distance driven. The ITF model suggests that Greece could sustain tax revenues while transforming the transport system by charging about EUR 0.003 per kilometre in 2025, rising gradually to EUR 0.021 in 2050. The revenue so gained would correspond to EUR 86 per adult and year on average, and would equal the decrease in revenue from road-related taxes compared to the baseline scenario.

Source: (OECD/ITF, 2019[30]).

Policy mixes to achieve the green energy transition in key sectors

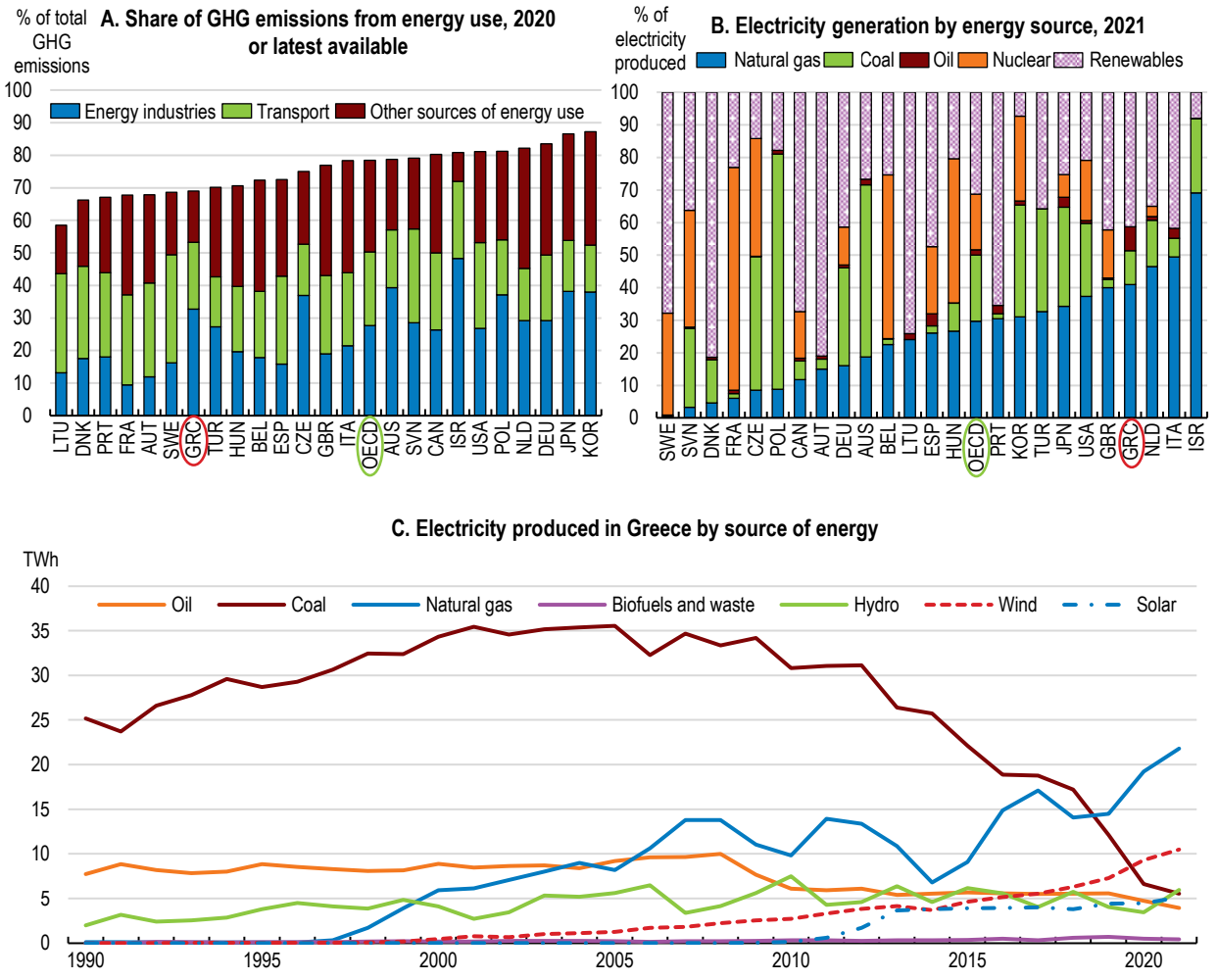
This Section discusses sector-specific policy mixes aiming at reducing the costs of shifting to low-emission alternatives for energy use in key sectors, complementing cross-cutting policies discussed above. It focuses in turn on electricity generation, buildings, and transport, which contribute the bulk of emissions from energy use.

Shifting electricity production to renewable sources

Upscaling electricity production from renewable sources will be essential to enable low-cost and low-emission energy as alternative to fossil fuels. Energy use produces 70% of Greece's GHG emissions. Using more renewable sources in the energy industry, for example to replace lignite for power generation, would allow cuts of up to half of those emissions; the other half of emissions can be cut by adapting other sectors to use electricity produced from renewable sources (Figure 2.10, Panel A). This will require expanding electricity generation from renewable sources, and producing more electricity overall (DESFA, 2022[31]).

Greece's reliance on fossil fuels for electricity production remains high (Figure 2.10, Panel B). Recent years have seen coal being replaced mostly with natural gas (Figure 2.10, Panel C), as carbon pricing made coal less competitive to natural gas. Replacing coal with gas has slowed however as a result of rising natural gas prices and uncertain supply following Russia's invasion of Ukraine, with closures of several coal plants postponed (Greece's reliance on Russian energy imports is discussed in Chapter 1). Replacing coal with gas can deliver more limited emission reductions while generation from renewable sources is being expanded, as natural gas produces about one-third less CO_2 emissions than coal to generate an equivalent amount of electricity (OECD, 2022[1]). In the long run, retrofitting gas generation plants with carbon capture or to run on hydrogen can further reduce emissions from natural gas, although costs can be high (IEA, 2021[18]). Greece does not envisage developing nuclear power generation. It will ban solid fossil fuels, such as lignite, for electricity production by 2028.

Figure 2.10. Greening electricity generation can make significant inroads into Greece's emissions



Note: Panel A: Other sources of energy use covers manufacturing industries and construction, residential and other sectors, and fugitive emissions from fuels. Panel B: Renewables include biofuels and waste, hydro, wind, solar, geothermal and other energies.
Source: OECD (2022), Environment Statistics (database); and IEA (2021), Electricity Information (database).

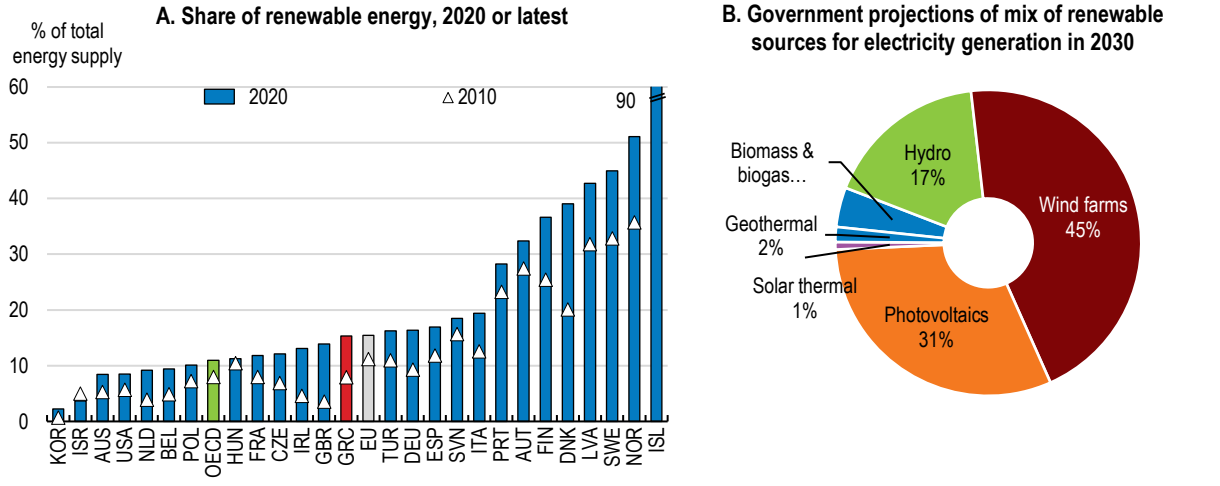
StatLink https://stat.link/76ts4y

Boosting the role of renewable sources in the electricity system

Greece has ambitious aims to exploit its large potential for renewable energy, including from solar and wind (OECD, 2020[8]). Its share of electricity generated from renewable sources grew faster than the EU average in recent years, driven by generous feed-in-premiums, but still lags most other OECD countries (Figure 2.11, Panel A). Greece plans to substantially raise the share of renewable sources for final energy consumption, relying mostly on solar and wind (Figure 2.11, Panel B). Reaching a 70% share of renewable sources of primary energy consumption would allow meeting its GHG emission target in 2030 by focusing on cutting emissions from energy use. This would require the share to expand about four times faster than during the previous decade. For example, providing the increased share through wind power alone to meet projected demand for 2030 would correspond to installing more than 310 large wind turbines (based on 10MW capacity and operating at their full capacity on average 35% of the time) each year (DESFA, 2022[31]).

Greece is encouraging and simplifying investments to scale up renewable capacity. A EUR 2.27 billion (1.2% of 2021 GDP) scheme provides financial incentives to develop capacity via a contract-for-difference premium, guaranteeing a stable price – established through competitive auctions – to electricity suppliers from renewable sources (European Commission, 2021[32]). New legislation, requiring most buildings larger than 500m^2 to install solar panels covering at least 30% of the building covered area will further add capacity from renewable sources. Planned reforms of licensing procedures and special spatial plans for renewable sources are intended to speed up procedures to implement investments.

Figure 2.11. Greece plans to rapidly expand electricity generated from renewable sources



Source: OECD (2022), Green Growth Indicators, Environment Statistics (database); and Ministry of the Environment and Energy (2019), National Energy and Climate Plan.

StatLink https://stat.link/spdi2c

Greece is expanding its electricity network to allow it to better exploit its renewable energies. Limited network capacity is emerging as a major constraint for scaling up electricity production from renewable sources. Investments in the transmission and distribution network will allow connecting more capacity from renewable sources to its electricity grid (IPTO, 2021[33]). In addition, the Greece 2.0 Resilience and Recovery Plan provides for ongoing investments to connect islands to the mainland electricity grid. This will allow exploiting more fully the large potential for renewable energy sources on islands (OECD, 2020[8]). Meanwhile, prices for electricity network costs are lower compared to other EU countries (ACER, 2021[34]). Assuring that prices for network usage provide sufficient funds for maintaining and expanding the network may further support upscaling electricity production from renewable sources.

Assuring reliable energy from renewable sources

Further investments in Greece's electricity system will be needed to ensure supply is reliable as more energy will come from renewable sources. Uncertainty about when the wind blows or the sun shines makes it difficult to predict electricity production from renewable sources, while periods of peak electricity demand do not generally align with peak supply. More balancing capacity from sources that can be switched on and off at short notice, and better limiting non-essential electricity consumption when production is low, can help to align energy supply and demand (OECD/NEA, 2012[35]; NEA, 2019[36]). Making buildings more energy efficient, as discussed below, will complement these efforts.

Greece is planning to boost capacity for energy supply when production from renewable sources is low. Greece 2.0 includes grants for installing storage capacity of up to 1400 MW. A previously planned Strategic Reserve Mechanism for 2023 has been abolished, as the postponed closure of several coal-fuelled generators means they can provide balancing capacity for longer. For the future, when currently high electricity prices may have decreased, Greece is considering proposing a capacity remuneration scheme to encourage private investors to provide balancing capacity (European Commission, 2021[37]).

Better integrating Greece's electricity network with neighbouring countries will add additional capacity by enlarging the pool of potential energy supply. Greece made important progress in connecting its wholesale electricity market with neighbouring countries by implementing the EU target model in November 2020 (Ioannidis et al., 2021[38]), and is taking several steps to improve capacity for cross-border trade (IPTO, 2021[33]; European Commission, 2021[37]).

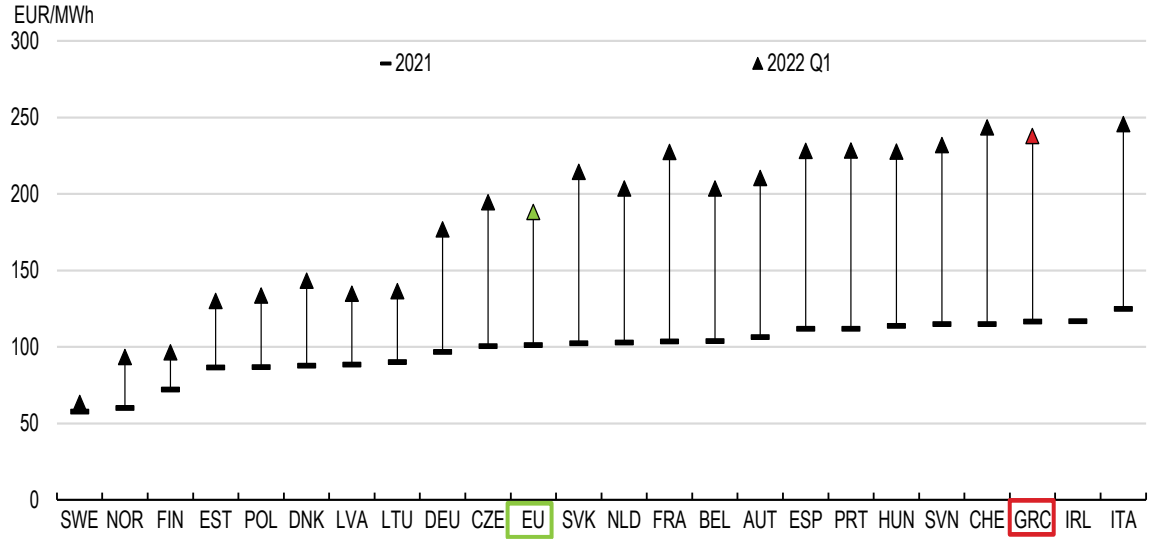
Making electricity consumption more responsive to supply conditions, for example by programming energy-intensive tasks for times when supply is plentiful relative to demand, would reduce system stress and the need for balancing capacity (IEA, 2021[18]). This can be achieved through disseminating smart meters, which inform consumers about their electricity consumption in real-time, combined with dynamic pricing, which provides financial incentives to shift electricity demand to periods when supply is more plentiful. Measures in Greece 2.0 will promote the roll-out of smart meters, while the share of consumers with dynamic pricing contracts, which reflect current production costs more closely, is low (European Commission, 2022[39]). Promoting time-differentiated tariffs while informing customers about the risks and benefits, replacing price subsidies with income transfers (ACER/CEER, 2021[40]), and simplifying electricity bills by removing items not related to energy costs (IEA, 2017[41]), could encourage uptake of dynamic contracts.

Providing affordable electricity through a more competitive market

Wholesale electricity prices have generally been higher in Greece than in other OECD countries (Figure 2.12), and were among the highest in Europe during the 2021-2022 price surge (ACER, 2021[34]), mainly due to the high dependence of electricity production on natural gas. While a successful transition likely would ultimately reduce energy costs (IEA, 2021[18]), several factors may temporarily contribute to rising electricity prices as renewable sources become more important for Greece's energy mix. Fossil fuels will become more expensive as their prices incorporate the environmental costs of carbon emissions, while investments in exploration and production reduce. Replacing retiring fossil fuel plants with renewables requires substantial investments, whose costs will likely be passed on to customers (IEA, 2021[18]). While new installations of renewables are increasingly competitive with fossil fuels, they entail growing systemic costs, for example for providing storage, as their share of overall electricity supply increases (IEA/NEA, 2020[42]). In addition, wholesale prices are largely based on variable production costs. As more energy comes from renewable sources, prices could vary substantially depending on whether there is enough supply from renewable sources to satisfy demand, or whether dispatchable sources need to be switched on. Lowering electricity prices, also by improving competition in electricity markets and reducing systemic costs through flexible demand and providing balancing capacity as discussed above, will be key to limit costs and support businesses' competitiveness.

Figure 2.12. Wholesale electricity prices in Greece are among the highest in Europe

Wholesale prices for electricity, annual average of day-ahead electricity prices (EUR/MWh)

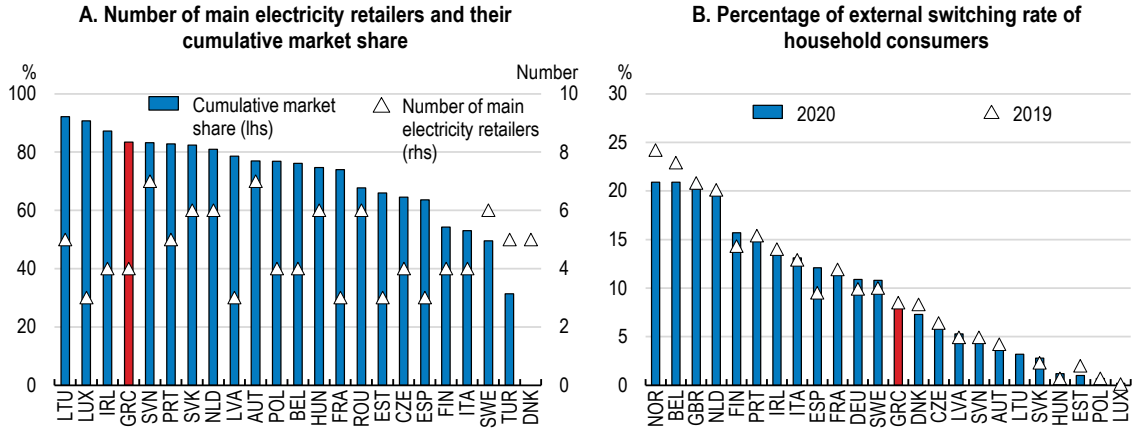


Note: 2022 Q1 covers the period from 1st January 2022 to 13th March 2022.
Source: Union of the Electricity Industry – Eurelectric (2021), Power Barometer (powerbarometer.eurelectric.org).

StatLink https://stat.link/obick6

More competitive wholesale and retail markets could make electricity more affordable. Retail prices are generally lower in countries with less concentrated electricity markets (European Commission, 2022[39]). While Greece considerably improved competition in both wholesale and retail markets in recent years (IEA, 2017[41]; European Commission, 2021[37]), market concentration in the retail market remains high (Figure 2.13, Panel A), and customers change suppliers – which raises competitive pressure by enabling customers to shift to more competitive suppliers – less often than in other countries (Figure 2.13, Panel B). Promoting price comparison tools, for example with data-driven information campaigns aimed at winning new users (ACER/CEER, 2021[43]), would promote competition and contribute to reducing electricity bills. The introduction of a framework to encourage demand responses in wholesale electricity markets in 2022, allowing all domestic and non-domestic consumers to provide balancing capacity for example by trading reductions in their electricity consumption to third parties, is welcome. When considering a future capacity remuneration scheme, assuring that no restrictive requirements, for example minimum bid sizes, prevent capacity providers – those reducing consumption or generating electricity – from participating would further support competition in wholesale electricity markets (ACER/CEER, 2021[40]; Vitale and Terrero, 2022[44]).

Figure 2.13. Greece could further improve competition in its electricity retail market



Note: Panel A: retailers considered as "main" if they sell at least 5% of the total national electricity consumption.
Source: Eurostat; ACER/CEER (2021), Annual Report On The Results Of Monitoring The Internal Retail Markets And Consumer Protection In 2020.

StatLink https://stat.link/8jdgib

Research shows that, across OECD countries, more independent and well-governed regulators are associated with more pro-competitive decision-making, better firm performance and higher investments in network industries (Sutherland et al., 2011[45]; Koop and Hanretty, 2018[46]; Demmou and Franco, 2020[47]). Best practice principles (OECD, 2014[48]), complementing the OECD Council Recommendation on Regulatory Policy and Governance, suggest that further safeguards for the independence of Greece's Regulatory Authority for Energy could involve selecting heads and board members by an independent panel, instead of by the government, and restricting government guidance on its work programme (Vitale and Terrero, 2022[44]).

Shifting transport to net zero emission fuels

Greater reductions in the transport sector's greenhouse gas (GHG) emissions would put Greece more firmly on a path towards net zero. Transport is the second largest source of total GHG emissions in Greece; one fifth of energy-related GHG emissions emanate directly from transport, for example when burning fuel to run an internal combustion engine car (Figure 2.3, Panel A). Transport is the single sector with the largest energy needs and accounts for 38% of final energy consumption (Figure 2.3, Panel B).

Large emission reductions by 2030 could be achieved from land transport. For some forms of transport – notably aviation, shipping, and heavy trucks – commercial low-emission technologies are still to be developed (IEA, 2021[18]). For land transport, low-emission solutions such as electric vehicles, rail, and metro, are more readily available. Most emissions from transport in Greece, 85%, arise from road transport (Figure 2.14, Panel A), as Greece relies intensively on road transport for both passengers and freight (Figure 2.14, Panel B and C). Simulations conducted for this Survey, described in Box 2.6, suggest that adopting a high-ambition policy path focusing on reducing emissions from road transport and shifting transport off the road, for example onto rail, could achieve large emission cuts by 2030, and up to 74% by 2050 if including comprehensive measures such as land use and urban planning (Table 2.5). These policies also hold the potential to raise firms' productivity, for example by improving linkages between ports and rail to lower freight costs. Technological advances will reduce future abatement costs for still hard-to-decarbonise transport modes, including for ferries which account for 12% of emissions from passenger transport. Box 2.7 discusses challenges for Greece's large shipping services sector to reduce emissions from ocean freight shipping.

Box 2.6. Simulating policy pathways with the International Transport Forum model

Scenarios for the global development of transport until 2050 have been developed by the International Transport Forum (ITF) in the ITF Transport Outlook 2021 (ITF, 2021[49]). The global model covers detailed transport modes for passenger and freight transport within cities, between cities and between countries. Characteristics such as speed and costs of available transport modes, demand for trips and which modes are being used to optimally satisfy mobility needs, are estimated sequentially at the detailed geographical level. A set of assumptions about regional policy pathways and technological developments, indicating different levels of ambition to reduce greenhouse gas (GHG) emissions from transport, are reflected in several scenarios: 'Recover' reflects mostly existing policy commitments, limited support for technological developments and a return to travel norms before the Covid-19 pandemic, whereas 'Reshape+' reflects more ambitious policies to transform the transport system and seize opportunities from the pandemic to change travel behaviours, such as expanding teleconferencing. While 'Reshape+' is consistent with transport's contribution to limit global warming to 1.5 degrees, ambitions under 'Recover' are insufficient to bring transport's contribution to net zero.

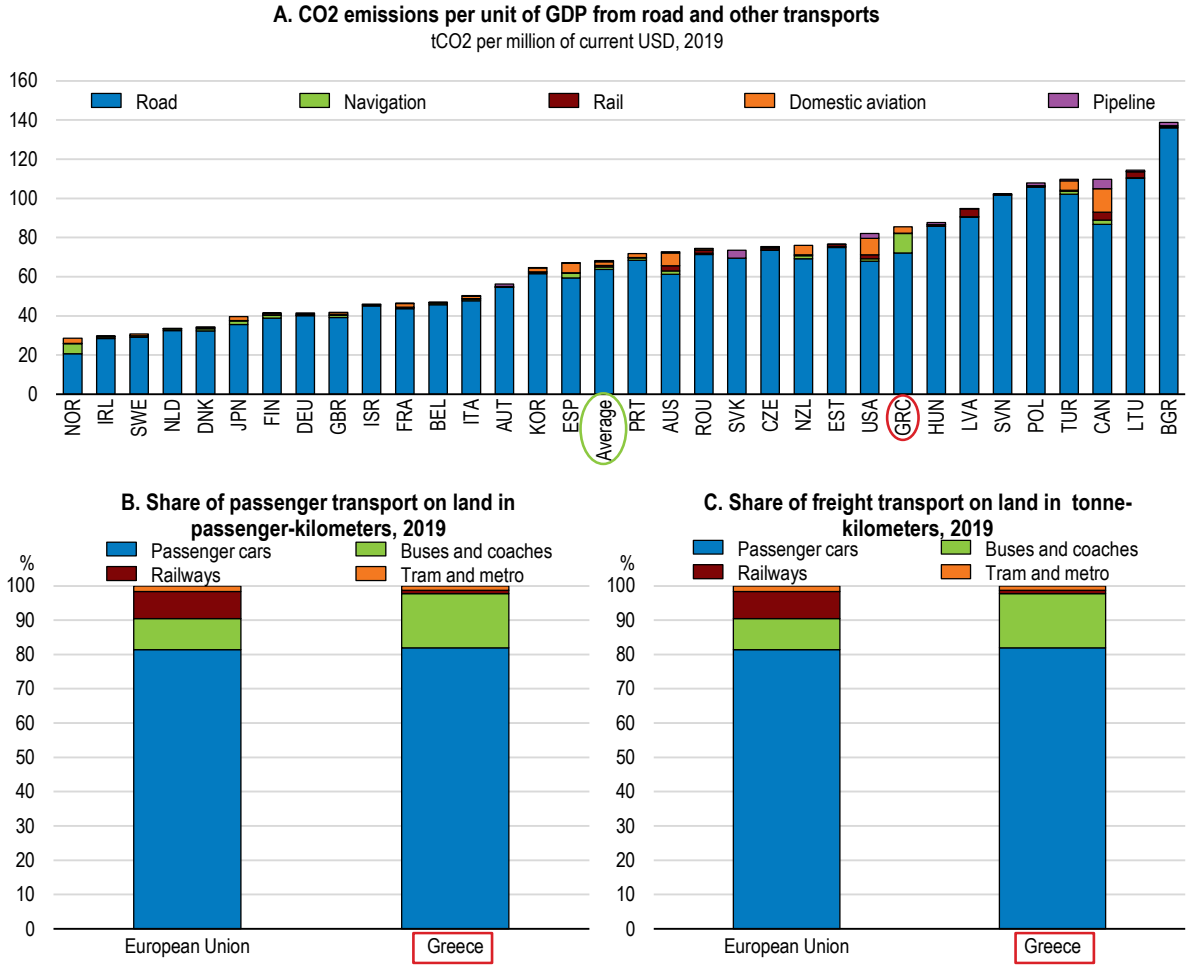
New empirical analysis developed by the OECD and the ITF for this survey explored by how much different policy pathways could reduce emissions for Greece in 2030 and 2050 and associated costs. The scenarios considered high ambition policies for particular policy areas for land transport, based on Greece's regional specification of `Reshape+', while remaining policies and technological developments followed the `Recover' scenario. Scenarios and results are described in Table 2.5 below.

Table 2.5. More ambitious policies focusing on land transport could achieve large emission cuts

			Reduction in annual GHG emissions from transport, relative to 2019, %		Additional average network infrastructure costs until 2050, % of GDP	Average annual foregone tax revenues until 2050, % of GDP
	Policy scenario	High ambition policy areas	2030	2050		
1	Private transport	Diffusion of zero-emission vehicles and low-emission fuels; longer range and lower costs of electric cars	13%	57%	0.0%	0.2%
2	Public transport	Increase in rail use to close gap in intensity of use of existing railway network to EU average with improvement in service quality, frequency and speed; improved linkages between railway and ports; improvement in network density and frequency of metro and bus; improved integration between different public transport modes and ticketing; prioritisation of public transport in traffic	13%	47%	0.2%	0.2%
3	Public transport and transport efficiency	Scenario 2 plus increase in mixed use neighbourhoods around public transport hubs and limiting urban sprawl with land use and urban planning; improved shared transport; increased teleconferencing; deprioritisation of private car transport	19%	51%	0.2%	0.1%
4	Transformative change	Scenarios 1 plus 3	29%	74%	0.2%	0.4%

Note: Simulations for Greece based on ITF Transport Outlook 2021 (ITF, 2021[49]). GHG emissions from domestic and international passenger and freight transport. Emissions from international transport not emitted in Greece and from sea transport not landing in Greek harbours have been excluded. Infrastructure costs include additional construction and maintenance costs for urban and non-urban road, metro, bus and rail networks compared to the baseline scenario; costs for purchasing vehicles are not included. Costs and foregone revenues from taxes on fuels, car registration and circulation, and tolls under current tax system, are calculated relative to baseline scenario Recover and expressed as percentage of cumulated simulated GDP over 2020 to 2050.
Source: OECD and ITF calculations for Greece based on (ITF, 2021[49]).

Figure 2.14. Road transport can make a large contribution to reducing Greece's GHG emissions



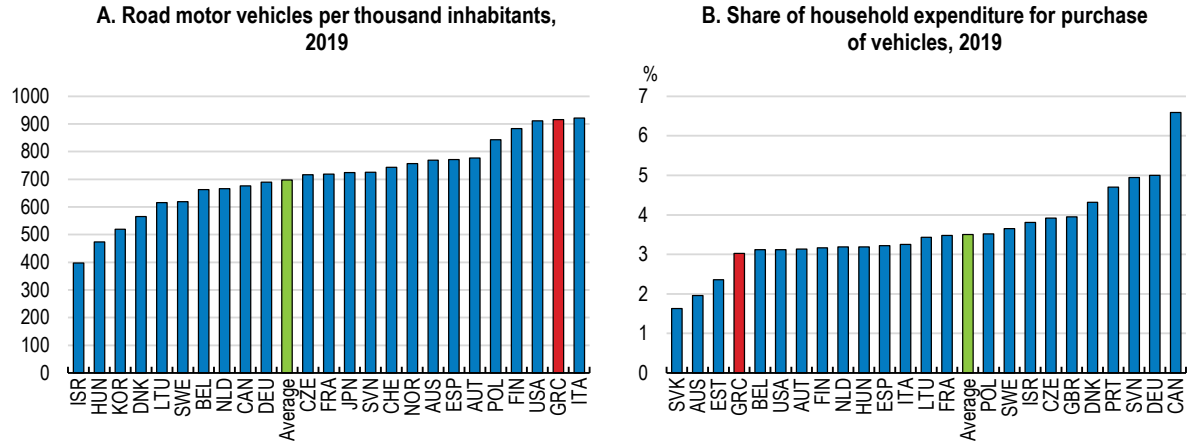
Note: Panel A: Emissions from international transport and navigation excluded. Pipeline refers to long-distance transport of liquids or gas through a system of pipes. Average shown for countries included in the figure.
Source: OECD transport database; EC (2021), Statistical Pocketbook for Transport 2021.

StatLink https://stat.link/irsf5m

Cutting emissions in road transport

Greece faces financial headwinds to green its vehicle fleet. The fleet renews only slowly, likely reflecting limited financial resources of households and businesses to purchase cars. Greeks use motor vehicles for transport more than most other OECD countries (Figure 2.15, Panel A) but spend among the lowest share of their income on buying cars (Figure 2.15, Panel B). Buying used cars is common, with second-hand cars making up almost half of all passenger car and more than half of all van registrations in 2020-22 (ELSTAT, 2022[50]). As a result, Greece has one of the oldest car fleets among OECD countries (Figure 2.16, Panel A). Financial constraints and high costs for electric vehicles may delay the switching of many households and businesses to zero-emissions cars. Although price gaps between electric and combustion engine cars may disappear within the next few years (Lutsey and Nicholas, 2019[51]), used combustion engine cars are likely to remain substantially cheaper beyond 2030.

Figure 2.15. Greece is especially reliant on motor vehicles but spends few resources on purchasing them



Note: Average shown for countries included in the figure.
Source: OECD Transport database.

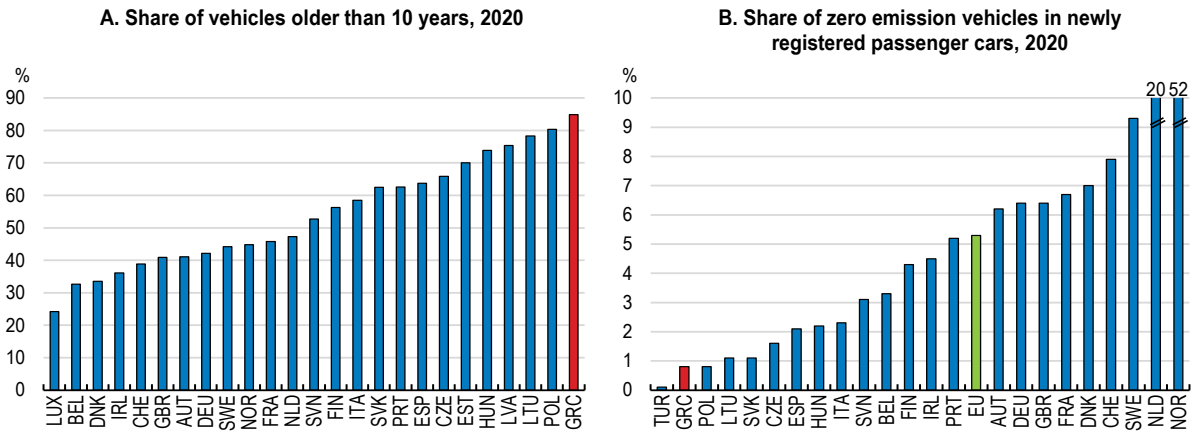
StatLink https://stat.link/dhnouv

Ambitious policies will be needed to overcome these headwinds. Greece lags other countries in adopting zero-emission vehicles. Both the share of zero-emission vehicles for the existing fleet (Figure 2.16, Panel B) and for new registrations is among the lowest in the OECD and EU (IMF, 2021[52]). Greece plans to raise the share of zero-emission cars among new registrations from 0.8% in 2020 to 30% in 2030. Replacing older and more emission-intensive cars with newer internal combustion engines would bring some modest emission reductions. Starting in 2024 and 2026, restrictions to registering new business vehicles, taxis or rental cars will promote zero- and low emission vehicles (see Table 2.1). From 2030, for new cars, only zero-emission passenger and light commercial vehicles can be sold. Achieving this will depend on sufficient zero-emission cars being produced, which may be challenging given global supply constraints. Slow fleet renewal implies these measures may make limited inroads into overall emissions reductions from vehicles. For example, based on registrations for passenger cars in 2019, these plans imply replacing vehicles with zero-emission cars corresponding to 0.7% to 2.5% of the current vehicle stock each year, thus taking several decades to replace all internal combustion engine cars (European Commission, 2021[53]). Measures to ban the import of used, very high-emission cars are welcome. Making purchasing zero-emission vehicles more attractive compared to internal combustion engine cars, as discussed below, would accelerate the adoption of zero-emission vehicles. OECD and ITF modelling suggests that adopting a high-ambition policy scenario focusing on the fast diffusion of zero-emission vehicles would yield GHG emissions reductions from transport of 13% in 2030 and 57% in 2050 (Table 2.5).

Developing a dense network of charging points would make electric vehicles more attractive. Most charging for electric cars is done at home or at work. However, having easy access to charging points elsewhere is crucial for their practicality. Greece has one of the least dense networks for public charging stations among OECD countries (IMF, 2021[52]). Measures included in Greece 2.0, such as a framework and financial support for installations, plan to add more than 8 000 charging points. This corresponds to achieving one charging point every 13 kilometres along Greece's road network. Leveraging more private capital, and concentrating public support on areas where charging points are not financially viable, could further bolster the network's density. Greece's recent Climate Law requires municipalities to prepare and implement Charging Point Plans together with private investors. Regulation could make the installation of publicly accessible charging points obligatory for petrol stations or other focal points (IEA, 2021[54]). Germany, for example, planned to negotiate voluntary commitments by petrol station owners to equip 75%

of all existing petrol stations by 2026 with charging points, and to mandate this if the goal is missed (Bundesregierung, 2020[55]).

Figure 2.16. Greece's vehicle fleet is old and fleet renewal towards greener vehicles is slow



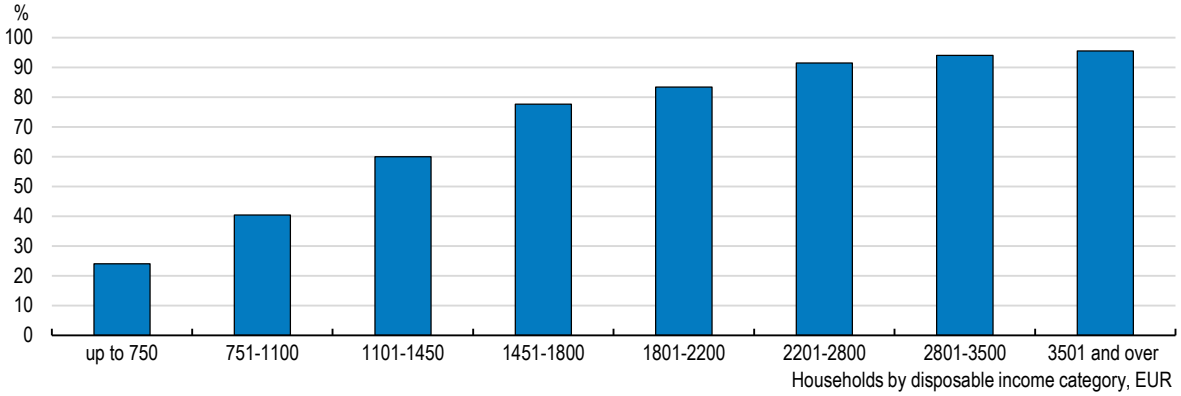
Source: European Automobile Manufacturers' Association (ACEA, 2022), Vehicles in Use - Europe 2022; European Commission and European Alternative Fuel Observatory (EAFO).

StatLink https://stat.link/1bzd7k

Targeted financial support to buy cleaner vehicles could accelerate take-up. Greece is offering generous purchase grants of up to EUR 8000 in addition to vehicle or business tax reductions or exemptions, including for registration taxes (ACEA, 2021[56]). An additional EUR 1000 is offered for scrapping an old conventional vehicle. Making zero-emission cars cheaper to buy helps to kick-start the market but is a fiscally costly way to promote wider adoption. For example, providing purchase subsidies to replace one-third of the vehicle stock, at the same average cost per vehicle as Greece's programme operating in mid-2020 (Electrive, 2019[57]), would require EUR 12 billion (6.5% of 2021 GDP) of grants. Furthermore, the households that buy electric cars and benefit from these subsidies largely have high incomes. In the United States, for example, 90% of tax credits for electric vehicles went to the 20% highest income households (Borenstein and Davis, 2016[58]). Subsidising stations with zero-emission cars available for renting could provide better access for low-income households, who are less likely to own a car (Figure 2.17) (Nicholas and Bernard, 2021[59]). Subsidising loans rather than grants for purchasing zero emission vehicles, as done in Scotland, addresses financial constraints by overcoming high upfront costs of electric cars and mobilises more private funding (ICCT, 2020[60]).

Figure 2.17. Poorer households are less likely to own a car

Percentage of households with car ownership across household income groups, 2018



Source: ELSTAT, Household Budget Survey 2018.

StatLink https://stat.link/n2l9tg

Box 2.7. International coordination will be crucial to cutting emissions from shipping

Maritime transport is core to global trade flows, and for producers and consumers of essential goods from food to energy supplies. 90% of global merchandise is moved via ships. Greece plays a key role for maritime transport. Greek ship-owners own about one-fifth of the global shipping capacity. Ships owned by Greeks are of strategic importance for the European Union's oil and natural gas and other essential goods and staples' imports. 32% of oil tankers and 22% of liquefied natural gas carriers globally are Greek-owned. In turn, maritime transport is also important for Greece's economy, to which it contributes about 3% of value added, while shipping services contribute about 20% of total export receipts.

Maritime transport accounted for 2.5% of global emissions from energy in 2020, making it important for the global economy to become greenhouse gas emission neutral by mid-century. Most of maritime transport is by bulk carriers and tankers operating across oceans, which require fuels with high energy density. Batteries are still far less energy dense than conventional fuels, while alternative fuel types, such as hydrogen and ammonia, are not yet commercially available in the needed volumes at ports across the globe (IEA, 2021[18]).

In the short term, including shipping in carbon pricing schemes such as the European Union's Emission Trading Scheme can encourage commercial ship operators to reduce emissions and support innovation. For example, slow steaming (i.e., reducing vessel speed to use less fuel per trip (Degiuli et al., 2021[61])), is already available, but currently high freight rates and shortages of ships pressure commercial ship operators to minimise journey times. Until technologies and fuels allowing for larger emission cuts become commercially viable, pricing emissions from shipping may lead to higher trade costs with little effect on emissions.

In the longer term, including shipping in the green economy transition will require switching to low-emission fuels. Several technologies are being developed but it remains uncertain which ones will dominate. In this context, Greece proposed the establishment of an EU Research Centre for Alternative Marine Fuels and Technologies. The long lifespan of vessels, ranging from 25 to 35 years (IEA, 2021[18]), and of port infrastructure, make the required transition to net zero emissions from shipping less than one vessel lifetime away. Today's investment decisions need to anticipate future technologies. For example, ship builders need to decide how to adapt ships currently being built for future fuels. Ports globally will need to invest in the infrastructure to supply the future low-emission fuels so carriers are able to refuel. Coordination across global ship-owners and shipbuilders, marine fuel producers and suppliers, port operators, commercial ship operators, industry associations and regulators will be central to developing solutions. The key global role of Greece's shipping services firms makes it a potential leader in this process.

Source: Union of Greek Shipowners.

Adjusting vehicle taxes, for example for registration and ownership, could encourage faster fleet renewal. Measures to impose a special environmental tax on imported used, high-emission vehicles are welcome. However, unlike for passenger cars, vehicle taxes for commercial vehicles, coaches and busses are not based on CO2 emissions; vehicle taxes for used passenger cars, including the luxury tax, decrease with vehicle age (ACEA, 2021[62]; OECD, 2020[8]). Making all vehicle taxes dependent on CO2 emissions, and removing the negative link between vehicle taxes and car age, would strengthen financial incentives for switching to new zero-emission vehicles.

Gradually tightening restrictions for using fossil-fuel cars in large cities, with a clear timeline, would also encourage buyers to choose a zero-emission vehicle sooner. Some cities in Greece already impose restrictions on cars, for example to reduce congestion or pollution. Enforcement of restrictions for high-emission cars is weak, however (OECD, 2020[8]). Measures to exempt electric vehicles from these

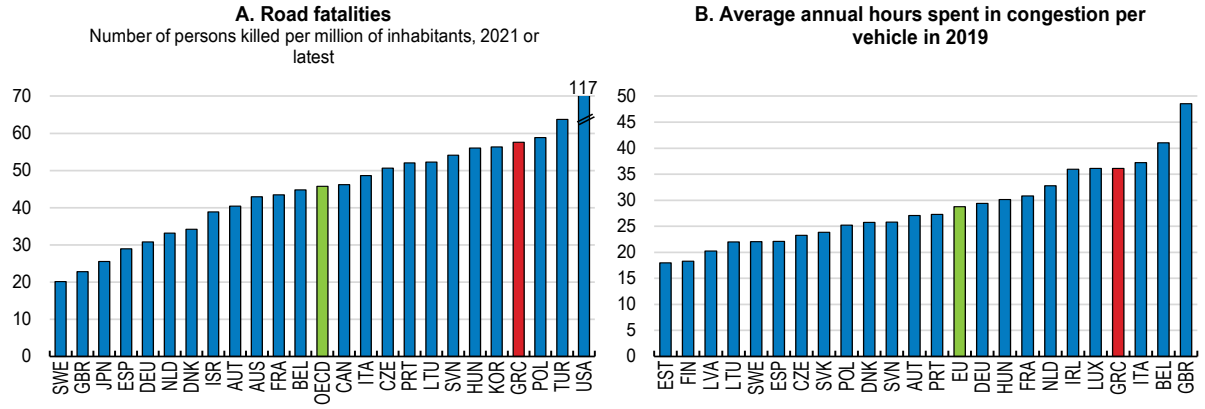
restrictions and being granted free parking are welcome. Enforcing and expanding restrictions based on vehicle emissions, for example through road pricing, congestion charges, priority lanes, emission-free zones in cities where other transport modes are readily available, would add to the benefits of zero-emission cars. For example, Amsterdam, Oslo, Paris, Rome, London and Milan are planning to phase out fossil-fuel cars (ICCT, 2020[60]).

Cutting emissions by moving transport off the road

There is substantial scope to reduce emissions by making public transport more attractive to shift more transport off the road. OECD and ITF modelling suggests that adopting a high ambition policy path focusing on improving public transport services and infrastructure could achieve greenhouse gas (GHG) emission reductions of up to 13% in 2030 and 47% in 2050, and by 19% and 51% if combined with more comprehensive measures (Table 2.5). As well as cutting emissions, reducing road transport would reduce air pollution, traffic congestion and road accidents, which in Greece are higher than in most other countries (Figure 2.18, Panels A and B).

Greece's railway network is one of the least dense railway networks in the OECD and additionally is used less intensively than in most other OECD countries (Figure 2.19, Panel A and B). With slow trains, reports of delays and routes not being served, perceived efficiency of train services is among the lowest in the OECD (Figure 2.19, Panel D). Greece has one of the OECD's most competition-friendly rail industry regulatory frameworks (Figure 2.19, Panel E), which largely reflects the absence of direct government involvement with any rail operator, while the number of competing firms in the sector is very small. Governance of the rail sector could be improved (Figure 2.19, Panel F). Reforming sectoral regulation to use competitive tenders to allocate public service contracts could improve service quality (Vitale and Terrero, 2022[44]). Low service quality also likely reflects lack of public investment in rail, which is among the lowest in the OECD (Figure 2.19, Panel C). Greece is undertaking several measures to improve the infrastructure, organisation, and service quality of its railway system, including investments of EUR 1.3 billion (0.7% of GDP in 2021), partly covered by the Recovery and Resilience Fund and the Connecting Europe Facility (Hellenic Republic, 2022[63]). The recent start of its first fast train between Athens and Thessaloniki signals ongoing improvements. Further increasing investment to rail, to first making better use of its existing network and then expanding it, would support the shift towards travelling or moving goods by train.

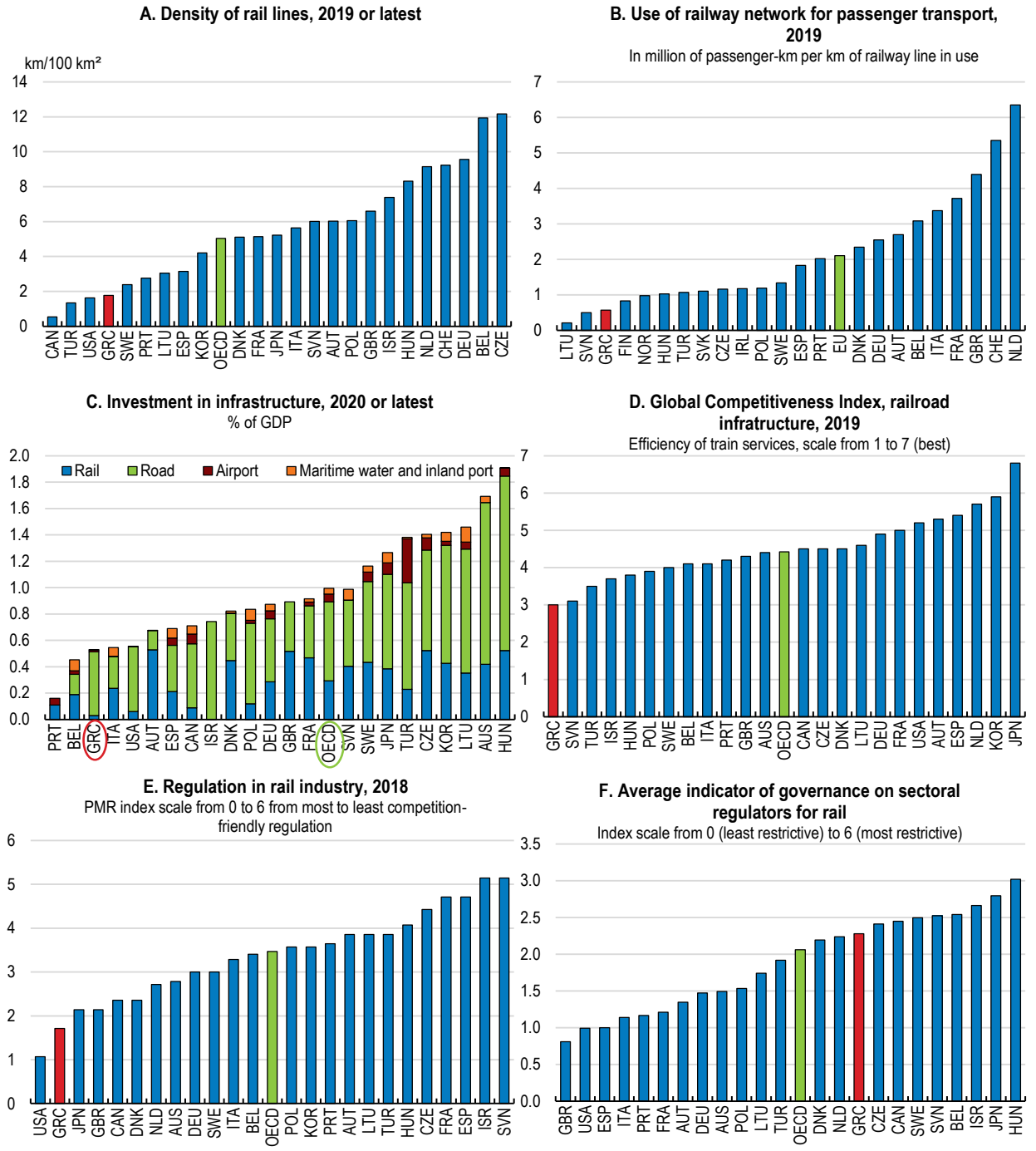
Figure 2.18. Using cars less would reduce Greece's high incidence of accidents and congestion



Note: Panel A: OECD is an unweighted average. Panel B: Average number of hours spent in road congestion per year by a representative commuting driver. Data are estimated by the Commission Joint Research Centre, based on data from TomTom.
Source: International Transport Forum (2022), Trends in the Transport Sector (database); and European Commission, Directorate-General for Mobility and Transport.

StatLink https://stat.link/gp364z

Figure 2.19. Greece's railway network can be expanded and used more intensively



Note: Panel A: OECD unweighted average excludes Australia, Colombia, Costa Rica, Iceland and New Zealand. Panel C: OECD unweighted average excludes Colombia, Costa Rica and the Netherlands. The ITF survey covers all sources of financing, a number of countries do not include private spending. Panel D: OECD unweighted average excludes Costa Rica and Iceland. Panel E: OECD unweighted average excludes Iceland. Panel F: Average indicator of governance on sectoral regulators for rail on independence, accountability and scope of action.

Source: OECD Transport database; and EC (2021), EC Transport Pocketbook 2021; International Transport Forum (ITF, 2021), ITF Investment in Transport Infrastructure Questionnaire; World Economic Forum (2019), The Global Competitiveness Report 2019; OECD (2018), PMR database; OECD Indicators on the Governance of Sector Regulators 2018.

StatLink https://stat.link/eu0gvj

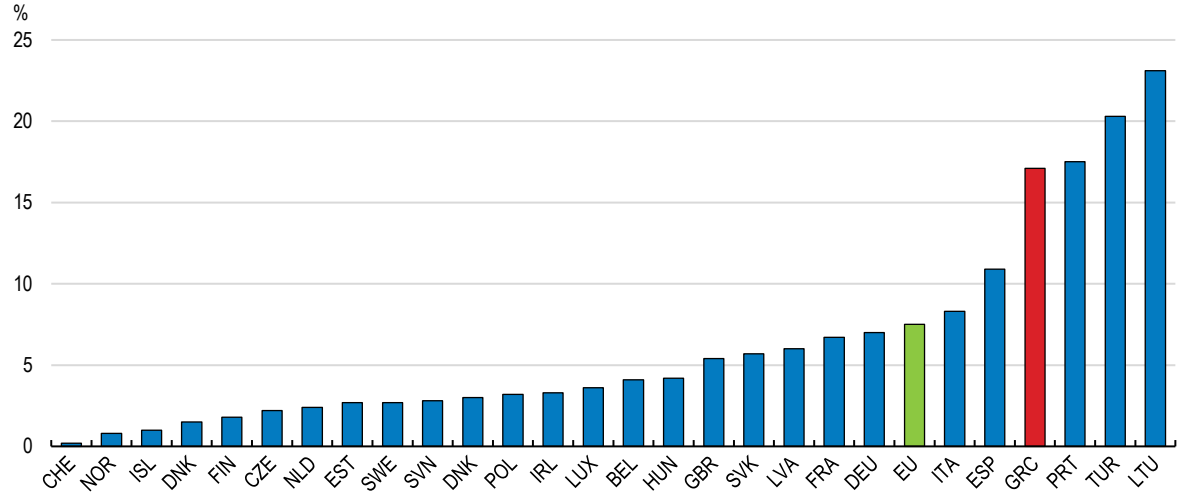
Making travelling by public transport more attractive would help reduce car use. Many people may choose travelling by car because public transport is slower over the total journey, does not cover the entire journey, or requires switching between different modes. Several investment measures, worth EUR 4.3 billion (2% of GDP in 2021), will improve the metro network in Athens and Thessaloniki (Hellenic Republic, 2022[63]). There is further scope to make different public transport modes work together more seamlessly with digital technologies (European Commission, 2021[64]), for example by promoting Mobility-as-a-Service or offering integrated ticketing, and by promoting shared transport modes such as on-demand taxi-buses to cover the last kilometre (ITF, 2017[65]). Better incorporating transit in urban development would make using public transport more convenient by bringing terminals closer to where people live, work and shop (ITF, 2021[49]).

Making buildings part of the green energy transition

Making buildings more energy efficient is crucial for containing energy consumption and reducing greenhouse gas (GHG) emissions from energy use. Residential and tertiary buildings are responsible for 40% of Greece's energy consumption, mostly for heating (MoEE, 2018[2]). Better insulating buildings is also crucial to adapt to a hotter and more extreme climate (discussed above). Renovating residential buildings would additionally help to reduce households' energy bills and the high incidence of energy poverty (Figure 2.20).

Figure 2.20. A large share of the population faces high energy bills and limits heating

Percentage of inhabitants unable to keep their home adequately warm, 2020 or latest available



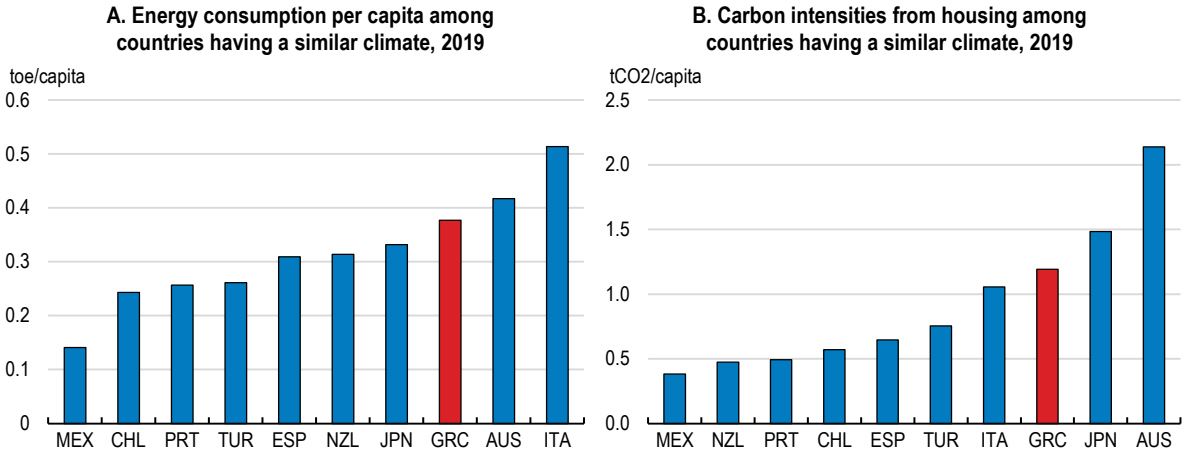
Source: Eurostat.

StatLink https://stat.link/10eidl

Improving the energy efficiency of existing buildings can generate large energy savings. Since June 2021, new buildings must meet near-zero-energy standards (BPIE, 2021[66]). Many existing buildings, however, lack sufficient insulation, with more than 80% of the building stock in 2014 having been constructed before 2000, when thermal regulations were either absent or lax (European Commission, 2021[67]; BPIE, 2018[68]). The use of emission-intensive heating oil is still widespread (MoEE, 2018[2]). As a result, both energy consumption (Figure 2.21, Panel A) and GHG emissions from housing (Figure 2.21, Panel B) are high compared to countries with similar heating needs. New legislation banning the sale and installation of oil-fuelled heating burners by 2025 is welcome. Promoting renovations of existing buildings – for example by installing shading systems, improving thermal insulation, upgrading heating systems and installing automatic control devices – would substantially reduce greenhouse gas (GHG) emissions and energy costs (EC/EIB, 2019[69]) and could contribute to climate change adaptation (discussed below) by making

buildings more heat resistant. State aid systems for such interventions are already under implementation funded by the EU and national sources.

Figure 2.21. Energy consumption and carbon emissions of Greece's buildings can improve

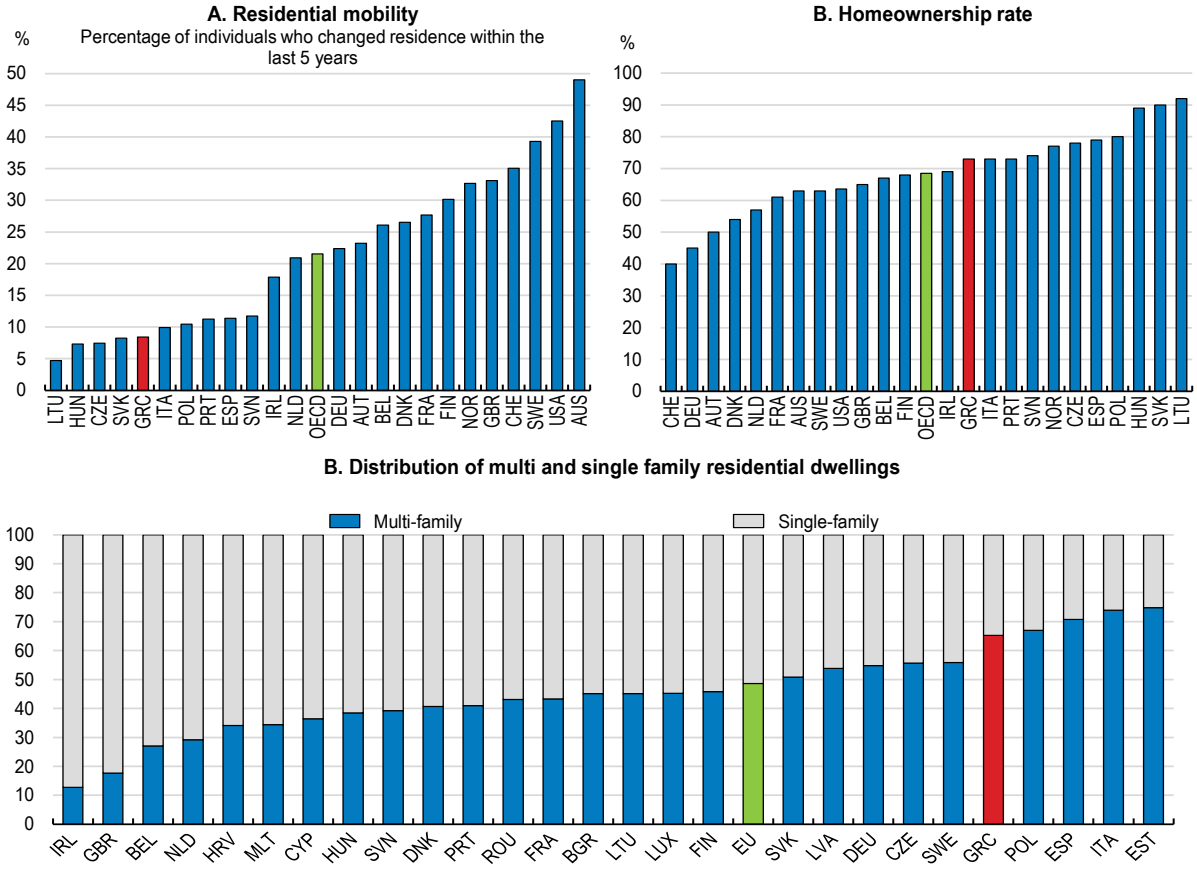


Note: Countries with similar numbers of heating degree days are classed as having similar climates. Heating days are the number of degrees that a day's average temperature falls below the level at which residents typically turn on the heating system.
Source: OECD (2021), Brick by Brick: Building Better Housing Policies, OECD Publishing, Paris, https://doi.org/10.1787/b453b043-en.
StatLink https://stat.link/txcovj

Improving energy efficiency will require an acceleration in building renovations for households and small and medium enterprises (SMEs). Greece's National Energy and Climate Plan proposes renovating 60 000 dwellings per year until 2030 (OECD, 2020[8]). This corresponds to achieving about as many renovations every year as the previous main support programme "Saving at Home" achieved over six years (EC/EIB, 2019[69]). Upgrading the entire building stock by 2050 would require twice as many renovations per year as currently planned (European Commission, 2020[17]). Making inroads to renovating housing will be key for reaping gains from energy efficiency improvements, with housing accounting for 84% of the total floor area in 2014 (European Commission, 2021[67]). Businesses in hospitality and retail, which are dominated by SMEs, and public sector buildings account for a smaller share of about 4% of the total floor area (European Commission, 2021[67]), while commercial buildings consume up to two times as much energy as housing (MoEE, 2018[2]). Financial support measures and investments included in the 'Greece 2.0' Recovery and Resilience Plan promote renovations especially for energy-poor households, both SMEs and larger firms, and the public sector. Greece is making good progress with implementing these measures (European Commission, 2022[70]). Financial support measures included in the plan aim to renovate up to 105 000 households by 2025 (Hellenic Republic, 2022[63]). Expanding financial support measures to more buildings and households and SMEs would realise more of the potential reduction in buildings' emissions.

Expanding the coverage of energy efficiency regulations to all existing buildings would boost demand for renovations. Mandatory energy performance certificates and minimum efficiency standards for existing buildings apply when selling, renting to new tenants, or renovating properties (BPIE, 2018[68]). Such regulations have limited impact given the high share of owner-occupiers and low housing ownership turnover in Greece compared with other OECD countries (Figure 2.22, Panel A and B). In 2016, less than 20% of residential buildings possessed an energy efficiency certificate (BPIE, 2018[68]; Gaglia et al., 2018[71]). Greece could follow other countries in applying increasingly demanding minimum energy efficiency standards that apply to existing buildings, for example as discussed in Box 2.8. Providing a timeline for regulatory requirements would allow owners to adapt and encourage businesses and workers to acquire the skills and build the capacity needed to undertake the renovations.

Figure 2.22. Requirements to upgrade buildings' energy efficiency will need to account for Greece's high home ownership rate, low mobility and high share of multi-owner buildings



Source: OECD (2021), Brick By Brick: Building Better Housing Policies; and European Commission (2022), EU Buildings Factsheets (https://ec.europa.eu/energy/eu-buildings-factsheets_en).

StatLink https://stat.link/4sx6fd

Overcoming barriers to renovations will require a mix of regulation and financial support measures. Access to finance remains challenging, following the prolonged economic crisis (Chapter 1). Even with access to funds, investors are often deterred by renovations' high upfront costs and long and uncertain returns through energy savings (Economidou, Todeschi and Bertoldi, 2019[72]). Recent surges in energy prices or future carbon price increases may act to strengthen financial incentives. In the short run, however, shrinking real incomes and growing material costs and shortages of materials and workers have made renovations more costly. The previous "Saving at Home" programme combined subsidised loans with grants to promote renovations among households. Upscaling schemes with sizeable grant components is fiscally costly and may end up paying for investments that would have taken place with private financing. Targeting grants to vulnerable groups, and providing subsidised loans that are repaid via utility bills through energy savings, such that customers do not pay more for energy plus the renovation than they would have paid without the renovation, to other households and SMEs can address barriers to renovations while leveraging more private capital (Economidou, Todeschi and Bertoldi, 2019[72]).

Multi-owner buildings are particularly widespread in Greece (Figure 2.22, Panel C). Agreeing on costly and potentially disruptive renovations is more difficult for rented properties or apartment buildings with several owners, as the link between an owner's contribution to renovation costs and their benefit from energy savings is weakened (Castellazzi, Bertoldi and Economidou, 2017[73]). Supporting loans with on-bill repayment can address this challenge, as agreeing on renovations may be easier when upfront costs are

fully financed through future energy savings (Economidou, Todeschi and Bertoldi, 2019[72]). There may be scope to further support renovations in multi-owner buildings by changes to the legal arrangements governing these renovations, for example to promote majority-based decision-making and individual metering (Castellazzi, Bertoldi and Economidou, 2017[73]). Energy service companies, which the 'Greece 2.0' Recovery and Resilience Plan plans to involve in renovating public buildings, can provide finance to larger renovation projects of commercial owners, where savings are high enough to repay the costs of the service companies' involvement (Economidou, Todeschi and Bertoldi, 2019[72]).

Box 2.8. Using energy efficiency standards to boost renovations in existing buildings

To substantially scale up energy efficiency-improving renovations, several countries plan or have adopted plans to gradually tighten regulations on minimum energy efficiency standards, applying to a broadening range of office, residential and rented properties.

In the **Netherlands**, for example, office buildings are required to have an energy label that is revised every four years. From 2023 onwards, all larger office buildings which consume more than certain threshold levels of energy, will need to reach an energy label of at least C (on a scale ranging from A to G). Municipalities or provinces are responsible for enforcement depending on the size of the business.

In **Belgium**, its capital Brussels plans legislation to first make energy labels obligatory for all residential buildings by 2025, and then require renovations improving energy efficiency in five-year intervals to reach particular minimum energy efficiency standards in 2050. Brussels is also planning exemptions from inheritance and property taxes for more ambitious renovations. The Flemish Region plans to mandate minimum energy performance standards, yet to be defined, for all non-residential buildings from 2030 onwards. Minimum efficiency standards are enforced at the municipal level.

France set out a strategy to gradually tighten minimum efficiency standards for rented properties. Rent increases were banned from 2021 for properties which have an energy label below E (on a scale ranging from A to G). From 2023, properties below the minimum efficiency standard will be banned from being rented, and from 2028 onwards the worst performing buildings must renovate.

In the **United Kingdom**, proposed measures to enforce minimum energy efficiency for rental properties include registering and licencing landlords contingent on possessing energy efficiency certificates, and giving tenants legal rights for compensation in case landlords fail to comply with standards.

Source: (European Commission, 2021[74]), (OECD, 2021[75]), (RSM, 2019[76]).

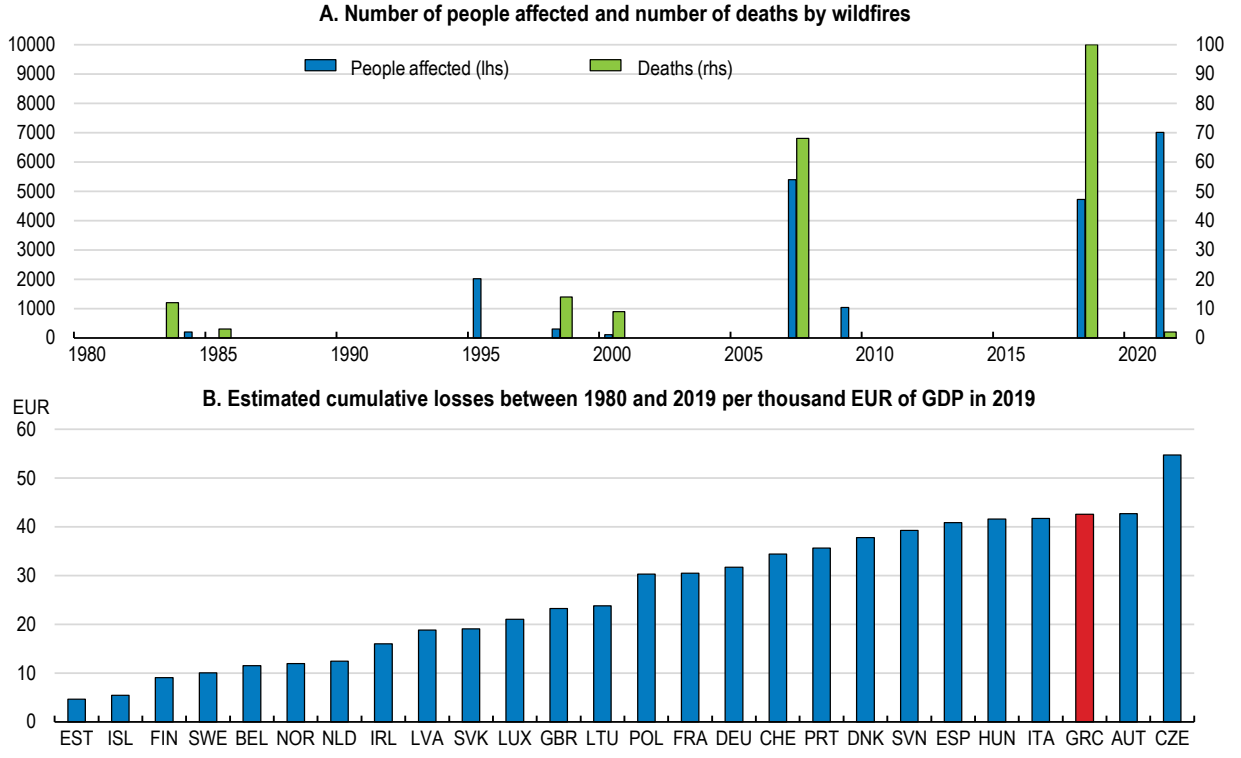
Many owners may not renovate because they are unaware of potential energy savings or find the renovations too difficult to plan. While these obstacles can prevent even large firms from undertaking energy-efficient renovations, they are particularly pronounced among households and SMEs (European Commission, 2021[74]; OECD, 2021[75]). Providing more information alongside energy performance certificates, for example on renovation roadmaps, and making information more widely available, could better guide market and investment decisions. There is no publicly available registry for energy performance certificates, which appear to have limited influence on real estate prices (BPIE, 2018[68]). Easier access to information about renovations would make regulatory and financial support measures more effective. France, for example, provides an online platform for energy efficiency passports, which suggests measures to improve energy efficiency (European Commission, 2021[74]). Greece could build on its progress in digitalising public services to promote one-stop-interfaces on potential energy savings and available financing. Providing targeted technical assistance to SMEs, as Ireland and Sweden do via energy consultants at the local level, would address SMEs' limited planning capacity (OECD, 2021[75]).

Policies to adapt to a changing climate

The impact of climate change on people and businesses in Greece will mount

Greece is already experiencing relatively large human and economic losses from climate change (Figure 2.23, Panels A and B), which are likely to increase with a warming climate. Average daily temperatures in Greece are likely to be one to two degrees higher than in pre-industrial times by 2050 if the global community manages to sharply lower emissions, and may be two to three degrees higher otherwise (ECMWF, 2021[77]). If the international community fails to achieve the globally agreed emission reduction targets, even larger and more frequent losses from climate change become more likely (IPCC, 2022[78]). As a Mediterranean country, Greece is particularly vulnerable to the impact of climate change. Extreme weather events such as forest fires, frequently involving casualties, are on the rise (Figure 2.23, Panel A), and the economic losses are already high (Figure 2.23, Panel B). Deaths from heat waves in southern Europe will likely be ten to forty times higher by 2050 compared to the period before 2010, depending on the level of global warming (Naumann et al., 2020[79]). Precipitation may decrease by 5-10% by 2050 if emissions are low and by 10-20% if emissions remain high (Figure 2.24). Water stress is relatively high (Figure 2.26, Panel A) and will become more severe with higher water demand and lower rainfall during hotter summers (MoEE, 2018[80]). Also, 21% of Greece's coastline is vulnerable to a one metre rise in sea level. Sea levels are projected to rise between 0.2 and 2 meters by 2100, which can lead to flooding and coastline erosion. One-third of the population live within one to two kilometres of the coastline (Bank of Greece, 2011[81]).

Figure 2.23. Wildfires have already become more frequent and severe



Note: Panel A: Number of people affected by wildfires is the sum of people injured, requiring immediate assistance during emergency situation, or being homeless as result of wildfires. Panel B: The figures vary according to the proportion of damage that is insured and do not therefore reflect the real cost of damage.

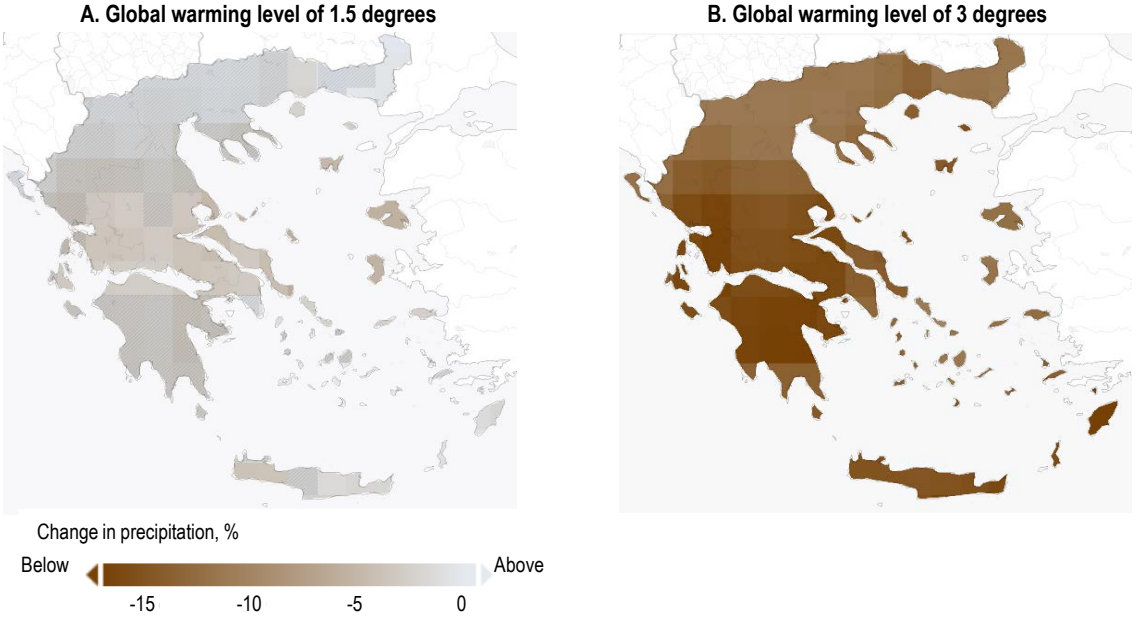
Source: CRED/UCLouvain (2022), the International Disaster Database (EM-DAT, www.emdat.be); and calculations based on records from the NatCatService provided by Munich Re and Eurostat structural indicators.

StatLink https://stat.link/y2tmjn

Businesses and employees, especially in tourism and agriculture, will encounter changing seasonal patterns and more frequent natural disasters (MoEE, 2018[80]; Dianeosis, 2021[82]). Risks of physical damages from climate change to businesses, and potential knock-on effects on the banking system, are higher in Greece than many other Euro-zone countries and may contribute to new non-performing loans in the future (Alogoskoufis et al., 2021[83]; Bank of Greece, 2021[84]). The European Commission estimates cumulated costs of extreme weather and climate events for Greece between 1980 and 2020 to be 5.4% of GDP in 2019 (European Environment Agency, 2022[85]). An impact assessment from 2011 by the Bank of Greece, which is currently being updated, found cumulative losses of climate change corresponding to two to three times annual GDP until 2100, depending on the level of global warming (Bank of Greece, 2011[81]); recent analysis estimates GDP in 2050 to be up 3.5% lower if emissions are contained in line with the Paris Agreement, but up to 13% lower if average temperatures rise by more than 3 degrees (Swiss Re Institute, 2021[86]).

Figure 2.24. Climate change is likely to affect the south and west of Greece most

Relative change in precipitation in percent at different levels of global warming for 2050 compared to 1986-2006



Source: Climate Analytics, https://climate-impact-explorer.climateanalytics.org/.

Policies can help people and businesses adapt to mounting climate change risks

There is scope for policies to reduce the costs of climate change by limiting vulnerabilities and reducing exposure. Awareness for the types of risks related to climate change, which take long to materialise fully and involve relatively infrequent extreme events such as floods and forest fires, can be low due to cognitive biases. People and businesses may thus largely abstain from taking protective measures. Policies can help to overcome these biases by providing information and encourage limiting exposure through regulations and price signals (Economides et al., 2018[87]). In addition, adapting public infrastructure to a hotter, drier and more volatile climate implies substantial investment needs.

Encouraging businesses and people to adapt

Households and businesses can adapt more effectively with more, and more easily accessible, information on their vulnerability and exposure to the impacts of climate change. Providing information on risk exposure can encourage protective behaviour, such as limiting exposure during heatwaves or reducing human

hazards that exacerbate the risks of wildfires. Price signals, for example from insurance premiums, are also more effective if people know which adaptation measures work best. Greece created a new Ministry for Climate Crisis and Civil Protection which focuses on coordinating emergency response. It provides a contact point for information on self-protection and risk maps, and Greece is actively involved in disseminating this information effectively (OECD, 2016[88]). The plans for several initiatives – including a Climate Dialogue Website, a National Observatory for Climate Change Adaptation, and a National Adaptation Hub – to collect and disseminate information and engage with stakeholders are welcome.

Expanding private insurance coverage for extreme weather events can reduce the contingent liability for governments and raise the involvement of private finance. Greece, like many other countries, partially compensates private losses after disasters have occurred (OECD/The World Bank, 2019[89]). The lack of clear risk-sharing rules implies uncertainty about how and when people will be compensated and slows down the recovery from disasters. In addition, if the government is known to step in to cover losses from extreme events, private actors have fewer incentives to minimise their risks and to invest in their own protection.

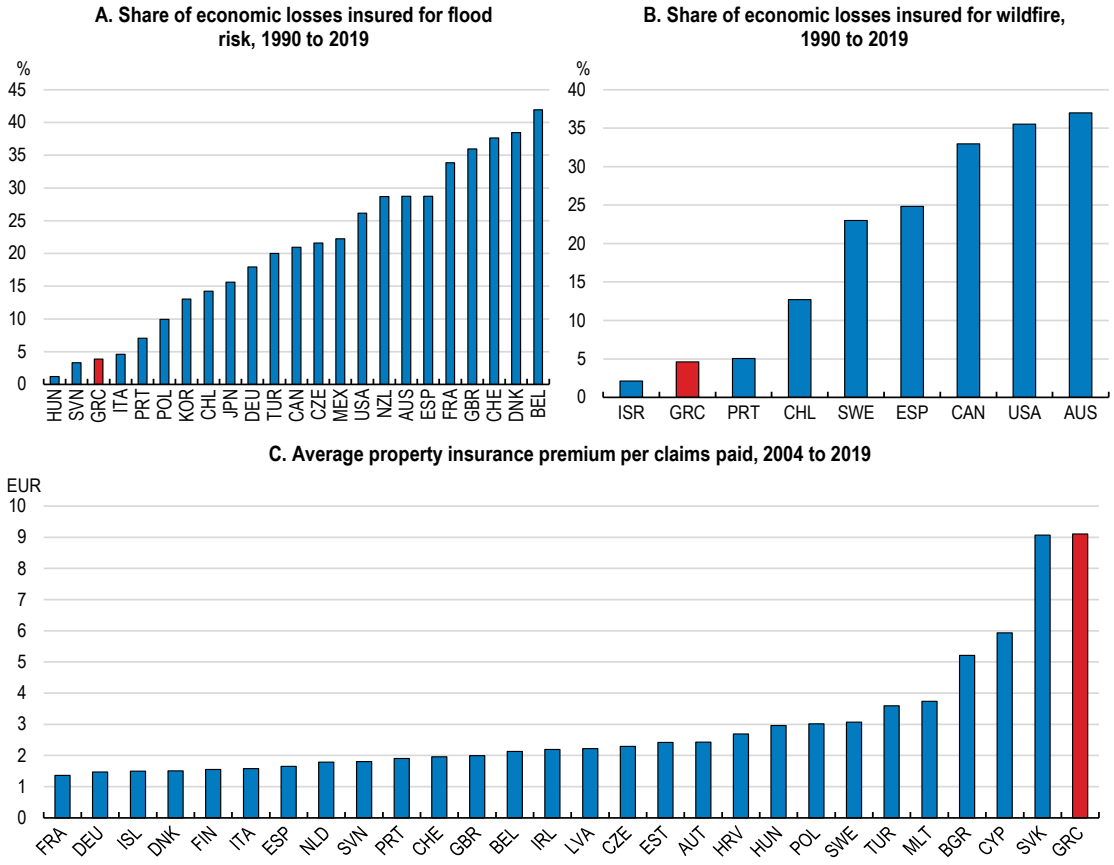
Making insurance against climate-related damages mandatory for all buildings would expand insurance coverage and could reduce prices for insurance (European Commission, 2018[90]) (OECD, 2021[91]). Insurance coverage for damages from extreme weather events is low compared to other countries (Figure 2.25, Panels A and B), while insurance costs for property are high (Figure 2.25, Panel C). Greece's insurance market is characterised by a large number of insurance companies, including many international providers. Monitoring competition and supporting transparent publication of information about policy costs and coverage could help to assure that premiums for mandatory insurance are competitive. The nature and intensity of risks may also evolve with climate change, making it more difficult to run insurance markets (OECD, 2021[91]). Conducting regular risk assessments about likely damages would inform insurers' financial planning, and the need for re-insurance to assure insurability, as risks evolve (G20/OECD, 2012[92]).

Covering more buildings and risk types allows insurance providers to charge lower premia by pooling risks. To achieve broad coverage, Switzerland, for example, mandates building insurance against natural catastrophes in 22 out of 26 of its cantons, which either private or public insurers provide at a rate that varies with risk (OECD, 2017[93]; OECD, 2016[94]). In France, the CATNAT insurance scheme mandates a premium at a flat rate for all property and motor vehicle insurance policies to insure against natural disasters (OECD/The World Bank, 2019[89]). Involving insurance providers also leverages their capacities to collect data, assess risks and damages, and disburse funds (OECD, 2021[95]). For example, Denmark set up an independent Danish Storm Council with technical expertise that assesses damages and provides compensation for floods, windfall and storm surges, financed by a premium surcharge, for those who choose fire insurance for their property (OECD, 2021[91]).

Making insurance against climate-related damages mandatory for all buildings can raise several issues for insurers and low-income households, though experience in OECD countries provides guidance on how to address them. Insurers may choose to offer no or very costly insurance as large and growing potential damages from climate-related extreme events can exceed their financial capacity or require large and costly reserves. Public support may be needed to assure that all building owners can afford insurance. Providing a public backstop for losses borne by insurance providers can limit uncertainty, and thus costs, for private insurances (OECD, 2021[95]). Japan shares losses from earthquakes between the government and private insurers depending on the aggregate loss. Losses up to about EUR 800 million are fully covered by private insurers, additional losses up to about EUR 2 billion are shared equally, and losses above this threshold are largely borne by the state (OECD/The World Bank, 2019[89]). Meanwhile, setting a maximum compensation can limit fiscal exposure. New Zealand offers direct insurance against natural perils but limits compensation to about EUR 90 000 for each property (OECD, 2021[91]). Finally, mandatory insurance implies higher housing costs for households. Subsidising insurance for vulnerable households could address potential concerns about housing affordability (OECD, 2021[96]).

Using water efficiently will become crucial as temperatures increase and precipitation declines. Water is currently used less efficiently than in other countries. For example, water abstraction is high and in agriculture, which accounts for about 80% of water consumption, is mostly used for irrigation, for which more wastewater could be used (Figure 2.26, Panel B). Planned investments in the national irrigation network and the establishment of a new water and wastewater regulatory authority can contribute to using water more efficiently (Hellenic Republic, 2022[63]). Water prices vary substantially across municipalities but are generally too low to recover costs (Farmaki and Tranoulidis, 2018[97]). Better reflecting water scarcity and delivery costs in water prices would improve incentives for businesses and households to use water efficiently, which is especially important on islands. Higher water supply revenues can finance investments to improve the efficiency of the water system, such as developing groundwater recharging. Replacing social water tariffs with income transfers not linked to water consumption would encourage saving water while protecting vulnerable groups (OECD, 2020[8]).

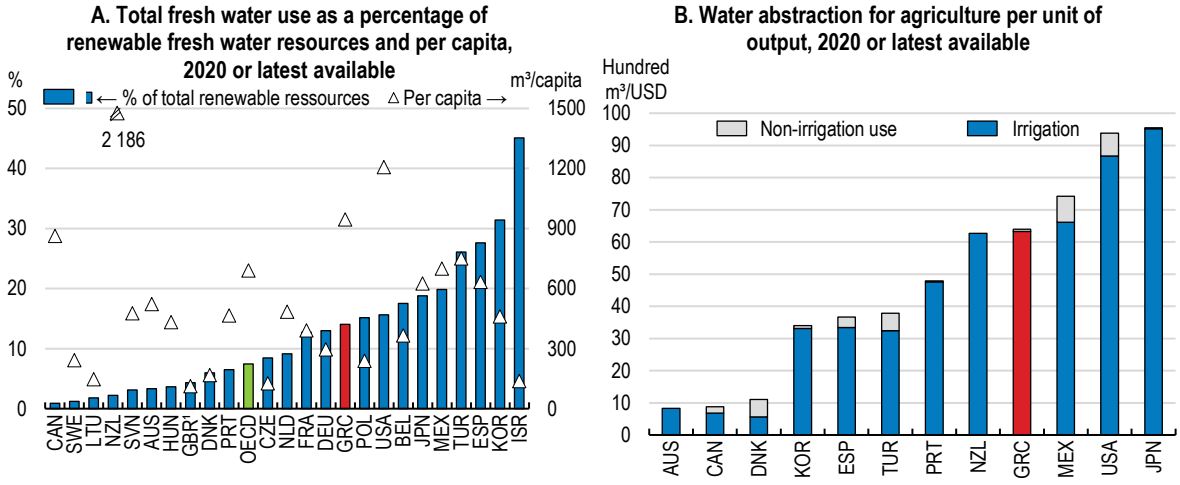
Figure 2.25. Greece can increase coverage and reduce costs for climate-related insurance



Note: Panels A and B: To account for single events with large losses, results are shown as average of two measures: (a) the share of total insurance losses of economic losses and (b) the average of the share of losses included for each event, giving each event equal weight. The data for Japan includes both Japanese private and mutual insurers although data from mutual insurers for individual events is not always available. As a result, some underestimation of insured losses in Japan in possible.
Source: OECD (2021), Enhancing Financial Protection Against Catastrophe: The Role of Catastrophe Risk Insurance Programmes; and Insurance Europe (2021), European insurance industry database, https://www.insuranceeurope.eu/.

StatLink https://stat.link/8ugron

Figure 2.26. Greece can use its water resources more efficiently



1. England and Wales only.

Note: Panel B: Gross freshwater abstraction (surface and ground water) for agriculture, forestry and fishing in cubic meter divided by gross value added in agriculture, forestry and fishing at current prices converted into USD using current PPPs.

Source: OECD Environment Statistics (database); OECD National Accounts (database); and OECD calculations.

StatLink https://stat.link/l42m1s

Investing in protective and resilient infrastructure

Making existing public infrastructure more resilient to extreme weather events, and emergency responses will further reduce vulnerabilities to climate change (OECD, 2018[98]; World Bank, 2021[99]). Adjustments include making electricity networks able to withstand extreme weather events and cope with higher peak demand during more intense summers, protecting coastline infrastructure against erosion, and making water systems more efficient to cope with changing rain patterns and more evaporation (MoEE, 2018[80]). Better warning systems and more equipment will help to reduce damages from more frequent and intense forest fires and other natural catastrophes. The uncertain impact of climate change means that investment needs keep evolving (OECD, 2018[98]). Investment measures included in Greece's Recovery and Resilience Plan are welcome and will improve the resilience of its electricity network, adapt the built environment to warmer temperatures, improve the efficiency of the water system, and improve emergency measures. Revising the National Adaptation Strategy currently underway and finalising Regional Adaptation Action Plans may identify additional investment needs.

Incorporating adaptation concerns into plans for how space is being used and how new infrastructure, which will remain for many years, is built would reduce future vulnerabilities. Reforms contained in Greece 2.0 to consider climate change adaptation needs in urban and spatial planning are welcome. Cities are particularly vulnerable to climate change due to their high density and the built environment's heat absorption (OECD, 2010[100]), and Athens has been the first European city to appoint a Chief Heat Officer to identify ways how to improve the city's heat resilience. Legacies of many illegal buildings, partly in forest and coastal areas, pose a challenge, and can raise exposure to damages (OECD, 2020[101]). Strengthening enforcement in high-risk areas, and accounting for the risks illegal buildings are exposed to when retroactively legalising buildings, would contribute to reducing exposure (OECD, 2020[8]). Incorporating adaptation concerns into infrastructure projects often incurs additional costs. Fully reflecting adaptation concerns in procurement processes would assure that bidders who integrate climate resilience into their offers are not put at a disadvantage (OECD, 2018[98]).

Implementing the policies to transition to a green economy

The preceding discussion described what are the key policies for Greece to mitigate and adapt to climate change. This Section presents priorities for how these policies can be implemented. Many of the policies for the green economy transition entail significant near-term costs, in the form of significant investments and higher prices especially for carbon-intensive goods. Many will take many years to fully implement and deliver outcomes. Most of these measures are intended to reduce the scale and costs of climate change.

Sustaining such a policy programme is notoriously challenging, given the inevitable pressures of responding to short-term shocks and of the political cycle. The experience of several OECD countries (Box 2.9) suggests that implementing the policies for the green economy transition will require: building a consensus around policies, by improving understanding of the climate change challenges and ensuring processes lead to sustained and well-designed policies; helping workers and firms during the transition phase; and ensuring adequate and sustained financing for policies (D'Arcangelo et al., 2022[11]).

Developing, implementing and sustaining well-designed green policies

Developing broad awareness of the challenges posed by climate change and the green economy transition

Awareness of the potential costs of climate change is high in Greece (Figure 2.27), and around 80% of the public support the adoption of more stringent environmental laws (WWF, 2018[102]). This awareness provides solid foundations for climate policies. Teachers are trained to cover environmental issues and about 80% of primary and secondary schools partake in sustainability initiatives. To distribute educational materials on environmental matters to teachers, parents and the general public, Greece has developed the Photodentro (Tree Light) digital platform, managed by the Institute of Educational Policy (IEP) under the Ministry of Education (OECD, 2020[8]). It has also integrated into the mandatory national curriculum the "Skill Labs" school module, which promotes education for sustainable development, climate change and environment.

Box 2.9. Lessons from OECD countries on implementing policies for the green economy transition

Several OECD countries' green transition policies have faced at times strident and broad-based criticism for their costs and distributional effects. Anticipating and addressing these, countries have taken steps to develop awareness and consensus around policies, and to remedy some of the distributional and transition costs.

In 2014, **the French government** initiated an ambitious carbon tax scheme (Contribution Climat-Énergie or CCE) to reduce the country's greenhouse gas (GHG) emissions, planning to annually increase the carbon price from EUR 7 per tonne of CO_2 in 2014 to EUR 86.2 per tonne of CO_2 by 2022. In this context, the so-called "Yellow Vests" protests broke out in November 2018, centring around the regressive outcomes that were not coupled with fully parallel compensation for the most vulnerable or rural households – perceived as unfair (Douenne and Fabre, 2020[103]; Guisse and Hoibian, 2017[104]; Vie Publique, 2017[105]; Agence de la transition écologique (ADEME), 2019[106]; Conseil des prélèvements obligatoires (CPO), 2019[107]). In addition, the pre-planned carbon price increase in 2018 coincided with a sharp rise in world oil prices (Magnenou, 2019[108]; Statista, 2019[109]), while general communication efforts were insufficient. The strong public response led the government to freeze the carbon price at EUR 44.6 per tonne of CO_2 (Douenne and Fabre, 2020[103]). Subsequently, the French president led the formation of the Citizens Convention for Climate (Convention Citoyenne pour le

Climat), which assembled in 2019 and 2020 as a deliberative body to propose policies to reduce GHG emissions by 40% from their 1990 level, while accounting for social needs and challenges.

The **British Columbia province of Canada**, which introduced carbon pricing in 2008 (with a schedule for annual increases of CAD 5 per tonne of CO_2 up to a maximum levy of CAD 30 per tonne of CO_2 in 2012) suffered from similar challenges. Rural communities argued they would bear more of the cost of the tax, due to the colder weather they face and greater reliance on private transport (Peet and Harrison, 2012[110]); and the tax was applied in a period of high gas prices – further hampering acceptability. However, public support for the tax significantly rose by 2012, in part thanks to revenue recycling and complementary support measures to firms, income tax cuts, targeted property tax rebates to rural and northern homeowners and targeted financial transfers for low-income households (Beck et al., 2015[111]).

Switzerland's Long-Term Climate Strategy, adopted by the Federal Council in 2018, established climate targets for key sectors and set the carbon price at CHF 96 per tonne of CO_2 (about EUR 88 per tonne of CO_2) (OECD, 2019[112]). To address distributional and competitiveness concerns, the federal government redistributed about two-thirds of the tax revenue to households (through a lump-sum rebate) and firms (through a reimbursement proportional to their wage bill), with the remaining third earmarked for retrofitting works and the development of sustainable heating fuels. It also exempted from carbon taxation large emitters who are not included in the ETS ('grandfathering') if they committed to abate emissions, and committed to freezing any carbon price increases upon early achievement of abatement goals (Office fédéral de l'environnement (OFEV), Confédération Suisse, 2020[113]).

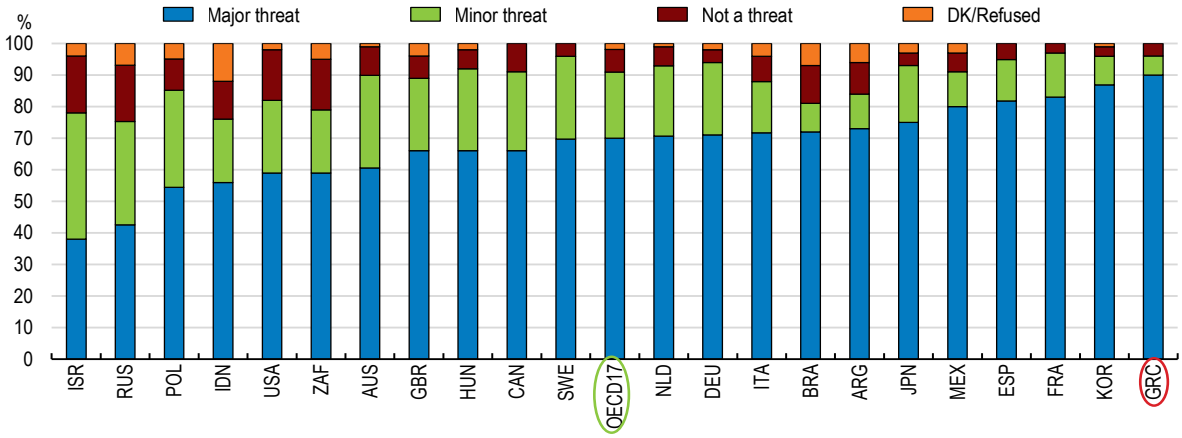
New Zealand has been especially successful in garnering public support when enacting its Climate Change Response (Zero-carbon) Amendment Act in 2019, which develops a framework for reaching zero GHG emissions by 2050. In the years preceding the plan's enactment, the government led successful communication and education campaigns, developing public awareness that was reflected in climate issues playing a central role in most political parties' agendas (Policy Ltd., 2020[114]). New Zealand's geographical exposure to climate change may have helped develop this awareness: similarly to Greece, New Zealand is composed of islands, is exposed to a rise in the sea level, and recent floods have led to the evacuation of thousands of households (Royal Society, 2016[115]). Further aiding acceptability, the policy tools were planned to be phased gradually, therefore allowing for adjustment, and were coupled with grandfathering and support measures (e.g., free allocation of 95% of the carbon credits at the farm level, as part of the local ETS) (de Klein, Rollo and van der Weerden, 2019[116]; OECD, 2021[117]; Climate Action Tracker, 2020[118]; Ministry of Environment, New Zealand Government, 2019[119]).

Source: (D'Arcangelo et al., 2022[11]).

For the broader population, ensuring the availability of independent information that is clearly communicated and combating false information are ongoing challenges. Providing accessible and relevant public information, communicated by diverse experts, promoting the skills to critically assess information, alongside regulating intentionally dishonest speech can contribute to balancing public discussions and encourage private investors to pursue green projects (Matasick, Alfonsi and Bellantoni, 2020[120]; Vona, 2021[121]). Emphasising the longer-term benefits of green economy policies, while acknowledging their short-term costs, can build support (Cohen et al., 2007[122]). Achieving awareness is especially important among more disadvantaged socio-economic groups (Vona, 2021[121]) and in regions that will be most affected by the transition, such as Western Macedonia and Peloponnese, with a high share of low-income households relying on the lignite mining industry (discussed below).

Figure 2.27. Nine out of ten Greeks perceive climate change to be a major threat

Share of survey respondents in a country perceiving climate change as a major, minor or no threat, 2018



Note: "OECD17" is the average of the participating OECD countries.
Source: (Pew Research Center, 2018[123]).

StatLink https://stat.link/wajhou

Although Greece has significantly improved accessibility to environmental data in recent years, there is room for further progress. The Ministry of Environment and Energy (MoEE) oversees the collection and publication of environmental data, in collaboration with the Hellenic Statistical Authority (OECD, 2020[8]). However, there is no coherent framework to collect, classify or maintain data. For example, many websites often offer fragmented or outdated data (IEEP, 2019[124]). There have been reports in the past of government bodies refusing to disclose environmental information to the public, including a case in which Greece's national Ombudsman found the refusal to disclose information to be not properly justified (WWF, 2018[102]; WWF/HOS, 2021[125]). Addressing these issues, the climate law voted by the Parliament in May 2022 creates a National Observatory for Climate Change Adaptation within the new Ministry of Climate Crisis and Civil Protection. It is designed to provide a reliable single national climate database as well as a monitoring and evaluation platform, providing information for business planning and general public awareness. The Observatory can assess and adapt the platform to support its usefulness for public decisions.

Achieving stakeholder consensus around green economy policy measures

Informing and engaging stakeholders and the general public in the design of policies can help improve the policies' quality, build a supporting consensus, and ensure that policies that bring short-term costs continue to be implemented. To this end, Greece engages in extensive consultation for draft laws before they are submitted to parliament, although these consultations happen relatively late in the legislative process (OECD, 2021[126]). The process involves exchanges with selected groups and uses the open government portal to engage with the general public, as occurred during the drafting of the new climate law. In addition, every regional and municipal administration must establish a stakeholder consultation committee, including representatives from local business associations, trade unions, NGOs and the public.

Greece can strengthen its consultation processes. First, ensuring a minimum time for consultations, and the availability of explanatory materials would improve the quality of discussions (IEEP, 2019[124]). Second, broadening the range of participants who are consulted through the open government portal will boost knowledge and trust in the process. It may also reduce the risk of policy capture (see Chapter 1 for a discussion on strengthening Greece's lobbying regulations) or limited perspectives participating in the consultation, which are challenges in Greece like in other OECD countries. This is illustrated by the online review of the new climate law, where most comments were made by actors in potentially affected industries or from environmental NGOs. Some OECD countries, including Denmark and France, established an advisory citizen assembly to discuss citizen involvement in climate action and proposed policy tools to raise the quality of public debate and support. Third, regulations and decisions that are not subject to mandatory consultation could also be brought to public discussion as part of their effectiveness evaluation, hence improving public engagement and the quality of a significant part of Greece's laws (OECD, 2020[8]). Assuring the participation of women and giving particular attention to gender considerations in policy evaluations would allow to mainstream gender into policies for achieving the green transition (OECD, Forthcoming[127]).

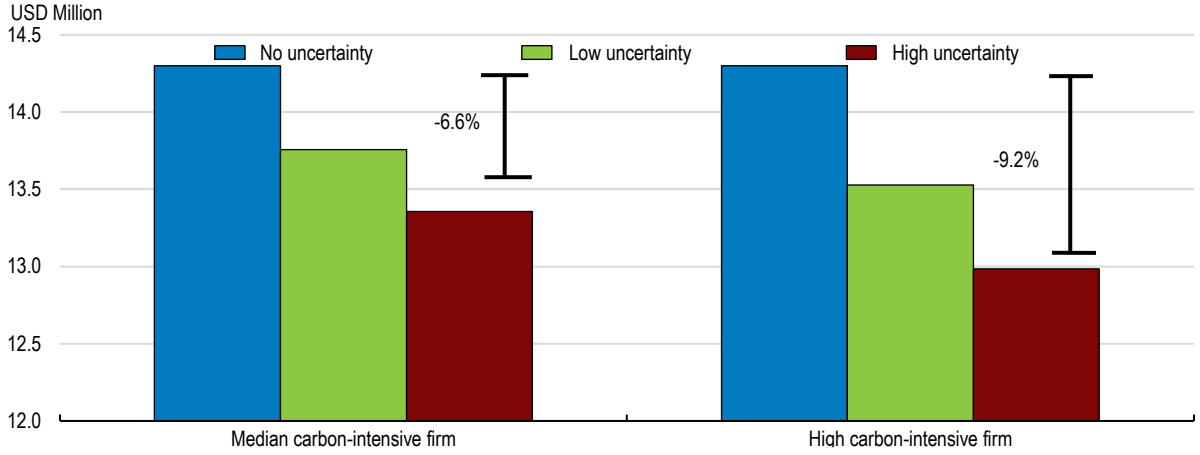
Policy certainty and stability support green investments

Providing a predictable and stable path for policies for the green economy transition helps firms and workers plan and adapt, and improves the acceptability of climate policies (Coady, Parry and Shang, 2018[128]; IMF, 2019[129]). Countries with higher environmental policy uncertainty have suffered from lower investment in support of the green economy transition (Figure 2.28). Stable and predictable policy paths are key to supporting private investors' long-term decisions and reducing transition risks, for example economic losses stemming from stranded assets (Tandon, 2021[130]). Greece's National Energy and Climate Plan and New Climate Law (Box 2.1) contribute to providing this certainty if their goals are implemented. Implementing mechanisms that help to avoid policy reversals can help achieve this. Other OECD countries, discussed in Box 2.10, have found that an independent institutional body that monitors and reports on progress towards long-term targets can help sustain the policy effort. Including climate mitigation and adaptation plans into higher order levels of legislation, so that they are more difficult to overturn; ensuring clear trajectories of carbon pricing or corridors (i.e., price floor and ceiling); introducing policies gradually; and establishing means to reduce speculation in climate-related financial assets (e.g., tools to appraise the conduct of climate-related financial trading (Quemin and Pahle, 2021[131])).

Greece can improve the certainty of firms' green investments, by guaranteeing tax credits or subsidies for green R&D or investments in green technology over long time horizons (Cammeraat, Dechezleprêtre and Lalanne, 2022[132]). The recent law granting super deductions on green and digital expenses and investments for SMEs from 2023 until 2025 is a step in the right direction.

Figure 2.28. Pursuing clear long-term policy programmes bolsters private sector investment

The effect of climate policy uncertainty on firm-level investment by carbon-intensity



Note: Height of bars gives average amount of firm-level investment in the sample. Whiskers indicate the difference in investment for firms under high or no uncertainty for median- and high carbon intensive firms respectively. Uncertainty refers to a cross-country indicator of Climate Policy Uncertainty based on newspaper article counts, covering 12 countries between 1990-2018.
Source: (Dechezleprêtre, Kruse and Berestycki, Forthcoming[133]); OECD Distributional information on household income, consumption and saving database (experimental); and OECD calculations.

StatLink https://stat.link/6wvi51

Consolidating capacity to implement green transition policies

Policy certainty and predictability, especially given the long time horizon of climate policies, are strongly linked to the need for effective governance. While Greece is a unitary state with public fiscal and staff resources concentrated in the central government, its system of environmental governance is decentralised, with several governmental bodies involved in the policy design and implementation process. The main responsibility for green policy at the central government lies with the Ministry of Environment and Energy. Several other ministries are involved in devising and implementing climate-related policies, including the newly created Ministry of Climate Crisis and Civil Protection, the Ministry of Development and Investments, the Ministry of Rural Development and Food, the Ministry of Finance, the Ministry of Infrastructure and Transport, the Ministry of Maritime Affairs and Insular Policy, and the Ministry of Tourism. At the subnational level, each regional authority has its own directorate for development planning, environment and infrastructure, and is involved in the implementation of climate-related policies, for example by devising regional adaptation actions plans and setting up land-use plans. Decentralised administrations of the national government supervise local governments and have significant environmental management responsibilities, particularly concerning spatial planning (OECD, 2020[8]).

While the responsibilities of the central, regional, and local governments are defined by law, their practical division is frequently unclear, resulting in gaps or overlap in implementation (IEEP, 2019[124]). To overcome this fragmentation, Greece has developed coordination networks, such as the Greek Environmental Network, the Inter-ministerial Committee on Energy and Climate, the National Climate Change Adaptation Council within the Ministry for Climate Crisis and Civil Protection (OECD, 2020[8]) and the Working Group on Sustainable Finance and Green Economic Transition within the Ministry of Finance. The Special Scientific Committee for the response to Climate Change within the Ministry for Climate Crisis and Civil Protection is providing scientific policy advice. These are steps in the right direction. Ensuring that mandates of the different bodies do not overlap, and consolidating responsibilities and resources would concentrate resources, expertise and responsibilities, and so improve implementation. The effectiveness of such consolidation and stronger coordination in implementing policies could be monitored by the independent body tasked with assessing progress against long-term climate targets (discussed above and Box 2.10).

Box 2.10. Independent advisory bodies can help strengthen and coordinate the policy mix

One effective strategy in designing and monitoring climate plans involves the establishment of independent economic advisory bodies on climate change. These bodies provide technical advice and help to coordinate different policy interventions across public and governmental institutions. The United Kingdom, Denmark and the Netherlands offer some examples.

In 2008, the **United Kingdom** established the **Committee on Climate Change (CCC)** as an executive non-departmental public body under the Climate Change Act. It is sponsored by the Department for Business, Energy & Industrial Strategy and works in cooperation with the Department for Environment, Food and Rural Affairs which oversees climate change and sustainable development. The CCC's role is to provide independent analysis and advise the Government on setting legally binding carbon budgets, monitoring the actions of the government and providing policy advice to reach the goals of the Climate Change Act. Each year, the CCC provides an assessment of the progress of the United Kingdom to the parliament. The government must respond to the reports with transparency and produce statements on the policies implemented to meet the carbon budget and emission goals of the country (Climate Change Committee, 2021[134]).

As part of the **Danish Climate Change Act**, The Danish Parliament has established two main independent councils (Danish Economic Councils, 2021[135]):

- **The Environmental Economic Council**, which is part of the Danish Economic Councils, was established by law in 2007. Its main goal is to provide analysis and advice to policymakers on the transition to a low-carbon economy by 2050, in addition to other environmental issues.
- **The Danish Council on Climate Change (*Klimarådet*)**, composed of experts to advise the government on the most cost-effective solutions to lower emissions, was strengthened and expanded with the Climate Change Act. It provides annual recommendations to the Ministry of Climate, Energy and Utilities with the aim of reaching the long-term national climate targets. The Council is tasked with preparing an annual climate status report, which includes a ten-year projection, assesses whether existing policy initiatives are sufficient to meet emission reduction targets, and presents a possible climate policy programme for the Danish Parliament. The government, in turn, has to produce an annual national strategy to ensure progress.

In **the Netherlands**, two independent research institutes are working with the government on climate change:

- **The Netherlands Environmental Assessment Agency** was established in 2008 and it is part of the Ministry of Infrastructure and Water Management. It advises the government on environmental policy, and amongst others releases annually the Climate and Energy Outlook, which reports the expected CO_2 emissions and the progress of the country in reducing them.
- **The National Institute for Public Health and the Environment** helps the Dutch government to coordinate the actions of different ministries and their policies relating to a sustainable, safe, and healthy environment. It is responsible for monitoring the quality of air, water and soil.

Source: (D'Arcangelo et al., 2022[11]).

Ensuring budget decisions support the green economy transition

To help ensure public finance decisions support environmental and climate policy goals, Greece is developing green budgeting tools as part of the Greece 2.0 Recovery and Resilience Plan reforms. Since 2020, Greece has been participating in the OECD Paris Collaborative on Green Budgeting, a platform to advance green budgeting practice, and is drawing on the OECD (2020[136]) Green Budgeting Framework, which applies across the budget cycle from planning to execution and oversight.

Greece's green budget is focusing on developing 'green tagging', one of the most widely used tools for green budgeting. France provides a useful example of the use of green budget tagging (Box 2.11). Green budgeting breaks down proposed expenditures by analysing their assessed impacts on environmental, climate and/or biodiversity objectives. The created database of information can help budget decisions support environmental objectives, by highlighting both spending that supports or weakens green objectives. It also serves to improve the quality of budget monitoring and enhance the transparency of spending, thus promoting accountability (OECD, 2020[137]). A challenge in implementing green tagging is to ensure that it is integrated early enough into the budget cycle and budget structure so that it can inform decisions, rather than being an additional, peripheral reporting obligation. Ongoing efforts by the Ministry of Finance, in collaboration with line ministries, to gradually implement green budgeting tools and build analytical capacities in its General Accounting Office contribute to achieving this.

Box 2.11. France, a pioneer in implementing green budget tagging

France conducted its first green tagging exercise in 2020. It established a system using positive, negative, and neutral classifications of all expenditures according to six environmental objectives. In 2022, a total of EUR 53.4 billion was tagged as having an impact on the environment from a total of EUR 586.6 billion of budget outlays and tax expenditure.

A working group of government officials was established to define the methodology, composed of officials from the Ministry of Economy and Finance (Budget Directorate, Directorate General of the Treasury, Tax Policy Directorate) and from the Sustainable Development Agency, a cross-cutting entity in charge of producing analyses and studies to support the Ministry of Ecological Transition.

The tagging tool is fully integrated into the regular budget procedure – preparation, approval and execution. A Budgetary Circular is produced every year by the Budget Directorate to define the procedures to be followed by the line ministries. The Budget Directorate is in regular contact with line ministries throughout the procedure.

The evolution of green tagging practices in France will enable the Ministry of Economy and Finance to publish a consistent time series to inform budget decisions. The procedure is evolving as France will continue to publish an annual green budget. The 2022 edition incorporates methodological clarifications and a green performance section.

Supporting workers and firms in transitioning to the green economy

Preparing workers for the green economy

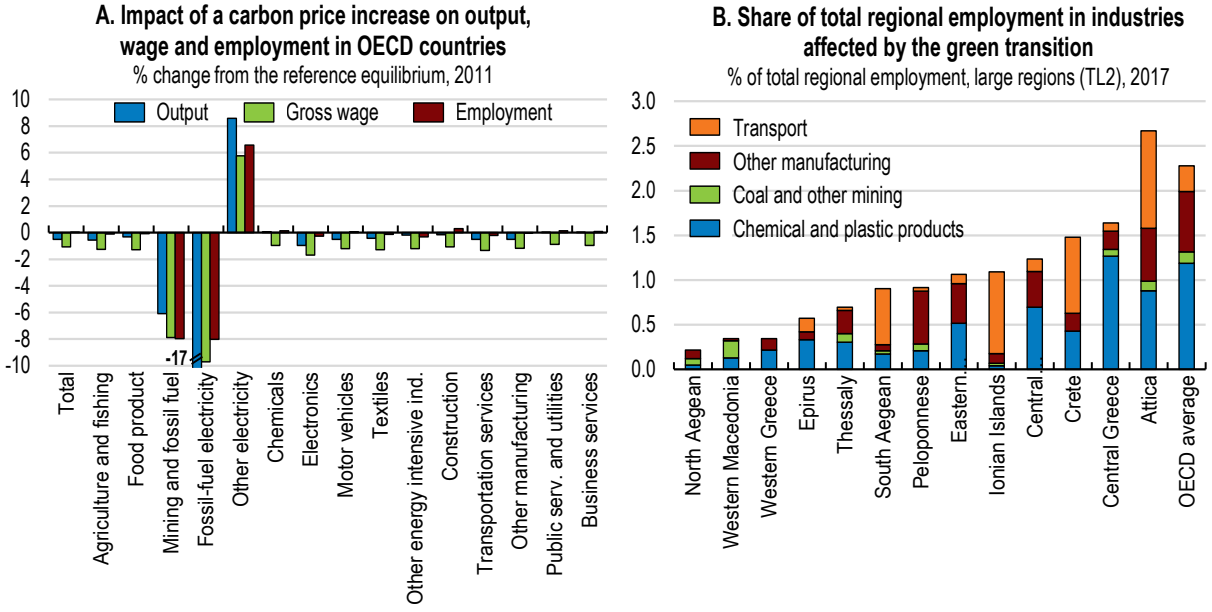
Greece's efforts to reduce greenhouse gas emissions and the likely effects of the changing climate will substantially alter firms' skill needs, implying that many employees will change jobs and professions. Carbon pricing mechanisms and government plans to replace fossil fuels with renewable energy sources, including ending lignite-fuelled electricity generation by 2028 (Government of Greece, 2021[138]), imply that many jobs in emission-intensive activities will disappear. Some sectors that are particularly affected, such

as in lignite mining and the linked value chain, are regionally concentrated in Western Macedonia and Peloponnese (see Box 2.12 for an overview and a comparison to similar challenges in Germany). In these regions, they are the dominant economic activity and employ around 11 000 workers, the skills of many of whom are not easily transferrable to other sectors. However, many affected jobs in energy-intensive industries, such as basic metals, plastics, non-metallic minerals, electrical equipment and motor vehicles (Figure 2.29) (OECD, 2017[139]; Dussaux, 2020[140]), are spread across Greece. In addition, important employing sectors less directly linked to energy will be affected. Hotter summers and reduced air travel may see tourism employment decline and shift to colder seasons and other non-traditional geographical regions, while the shift to zero-emission vehicles is likely to transform and potentially end the work of tens of thousands in the vehicle industry, such as mechanics.

The green economy transition has the potential to ultimately raise the total number of jobs, if supported by effective labour market policies. While some activities cease to be profitable, opportunities for new jobs arise. Modelling exercises and experience in other countries suggest that the total number of jobs is likely to decrease at first, as emission-intensive activities decline. These initial job losses are likely to range from insignificant to moderate, with effects depending on policy choices, industry mix and workers' skills (Chateau, Bibas and Lanzi, 2018[141]; Dechezleprêtre, Nachtigall and Stadler, 2020[142]; Dussaux, 2020[140]; Marin and Vona, 2019[143]; Metcalf and Stock, 2020[144]). In the long term, if managed successfully, the green economy transition is expected to create more jobs than it destroys (Fankhaeser, Sehlleier and Stern, 2008[145]; IEA, 2021[18]).

The green economy transition creates an opportunity for Greece to better match workers' skills with employers' needs, which can raise productivity if workers are well supported in acquiring the skills called for in the green economy. While some skills required in green jobs are transferable from brown jobs (ILO (International Labour Organisation), 2011[146]), the transition will increase the demand for some specific skills (for example, wind turbine technicians or solar consultants), generally in science, technology, engineering and maths (STEM), and for managerial skills to implement and monitor environmentally related organisational practices (Vona et al., 2018[147]; IMF, 2022[148]). Aligning training with firms' skill needs and improving access to high-quality training by implementing Greece's New Strategy for Lifelong Skilling would help workers in affected industries. Greece's large number of self-employed or workers in very small enterprises are likely to benefit from targeted support. In addition, employment subsidies to encourage hiring long-term unemployed can encourage workers to invest in skills (OECD, 2020[149]). For example, measures included in Greece's Recovery and Resilience plan, such as a EUR 50 million Green Jobs Initiative, subsidise the hiring of up to 10 000 unemployed, focusing on women, older workers and long-term unemployed (Government of Greece, 2021[138]). The scale of this programme is modest, and its success will require avoiding the administrative complexities that have limited employers' use of existing employment subsidy programmes. For example, it could provide priority groups of jobseekers with vouchers that reimburse employers some of their employment costs (OECD, 2020[149]).

Figure 2.29. Greece's green economy transition is likely to affect workers across many sectors



Note: Panel A: Estimated impacts on the total of OECD economies if a uniform tax of USD 50/tCO2 is implemented in all countries in the world, excluding emissions from land use, land-use change and forestry. The global nature of the tax in this scenario addresses potential issues of carbon leakage and other trade / reallocation effects stemming from the interactions across OECD and non-OECD countries. The outputs of the policy simulation are compared to the reference equilibrium (reference year of 2011) in which the carbon tax is not included. Panel B: The employment deviation represents the percentage difference between 2017 (base data) and 2040 under assumptions of SDS (Sustainable Development Scenario) of the IEA, as computed by the OECD ENV-Linkages model.
Source: (Chateau, Bibas and Lanzi, 2018[141]); and OECD (2021[150]).

StatLink https://stat.link/9h65of

Box 2.12. Phasing out the lignite industry in Western Macedonia, and a related case study from Germany

Phasing out the lignite industry in Western Macedonia

Located in North-Western Greece, Western Macedonia's economy is dominated by lignite mining, lignite-fired power plants and district heating systems. With Greece's electricity network long dominated by lignite thanks to the abundant domestic deposits, providing cheap and reliable energy, the region has been hosting 80% of the national industry for around 70 years (Ziouzios et al., 2021[151]; WWF Greece, 2016[152]). Around 190 000 people reside in the centres of the lignite industry – with 24-30% of the districts' population employed in the related mining or energy industries (Greek Ministry of Labour, 2020[153]).

Phasing out lignite is expected to lead to a large decline in regional GDP, a loss of 21 000 direct and indirect jobs (as more than 25% of all local jobs are directly or indirectly linked to the lignite industry) and a loss of EUR 9 billion in income between 2018-2028 (Ziouzios et al., 2021[151]; Alves Dias et al., 2018[154]).

Western Macedonia suffers from long-standing challenges. It is among the poorest regions in Greece, with GDP and disposable income about 30% lower than Attica; it suffers from chronically high unemployment (at 25-30% throughout the last decade, of which a large share is youth unemployment),

consistently higher than the national average; and the workforce has received less formal education, ageing faster than elsewhere in Greece (Greek Ministry of Labour, 2020[153]; TRACER, 2019[154]).

To help address these challenges, Western Macedonia is one of several regions targeted by the Just Transition Development Plan (JTDP), which tailors support and restructuring measures depending on local conditions, existing industries and infrastructure and upskilling potential. The country-wide plan includes twelve major investments totaling EUR 3 billion involving private, public and PPP financing, and is supported by an EU-wide facility. These investments support shifting toward natural gas and renewable energy production, establishing a pharmaceutical industry and facilitating a wine tourism ecosystem. In parallel, the plan introduces fifteen incentives to attract new production units, maintain existing businesses and support individuals throughout the transition (Greek Ministry of Labour, 2020[153]). A detailed Master Plan provides for five development pillars for Western Macedonia (SDAM - Greek Government Committee, 2020[155]): 1) Clean energy development; 2) Boosting manufacturing industry activities and trade; 3) Intelligent agricultural production; 4) Sustainable tourism; and 5) Combining education with research innovation and technology. The government expects the Master Plan to create 6000 new jobs in the region by 2028 that will absorb many of the workers laid off from the lignite sectors. Simultaneously, the plan is intended to encourage high-skilled workers to come to the region to work in emerging industries, and to diversify economic activities.

Phasing out the lignite industry in Germany

Coal-fired power generation is a major source of greenhouse gas emissions in Germany, and provides 18% of its energy supply mix (IEA, 2020[156]). In July 2020, the parliament passed legislation to end coal-fired power generation by 2038, potentially bringing the date forward to 2035. The major effect of exiting coal on the German economy will be in several relatively poor regions where larger shares of the population work in lignite (coal) mining, such as Lausitz and Rhineland.

The government is accompanying emission reductions with support for regions and workers. The federal government has pledged EUR 40 billion (1.2% of 2019 GDP) in support to affected coal mining regions up until 2038, focusing on infrastructure, innovation and job markets, and financial support of up to EUR 5 billion (0.1% of 2019 GDP) for early retirement (amounting to about EUR 580 000 per affected employee) (Commission on Growth, Structural Change and Employment, 2019[157]). To power plant owners, the government will pay EUR 4.35 billion (0.1% of 2019 GDP) to address potential future costs from legal remedies. This contrasts with the 'polluter pays' principle and increases the fiscal cost of reducing emissions. As exiting coal generation will raise electricity prices, to limit the loss in real incomes of lower income households the government is reducing renewables-generated electricity prices (Bach et al., 2020[158]).

Sources: Western Macedonia (The World Bank, 2020[159]; Hellenic Republic, 2019[160]; Ziouzios et al., 2021[151]; Karasmanaki et al., 2020[161]; SDAM - Greek Government Committee, 2020[155]); Germany (OECD, 2020[162]).

Helping firms seize the opportunities of the green economy

The green transition entails many firms changing what and how they produce. These shifts can allow firms to develop new markets and to expand, attracting workers from the sectors that will shrink with the shift to net-zero emission technologies. For example, firms specialising in upgrading energy efficiency through renovating buildings are likely to create new job opportunities (OECD, 2017[139]). These shifts are also likely to support sectors that are less developed in Greece than in other European countries, such as those associated with the circular economy (e.g., waste recycling, repair and reuse, and rental and leasing; discussed in Chapter 1) (OECD, 2020[8]). The small size of many of Greece's firms makes these shifts more challenging, given smaller firms generally lack the resources to develop new business processes and products. The government is dedicating some of the regional support for the green transition (discussed previously in Box 2.12) to the development of green economy SMEs. The 2021 Development

Law, which provides a legal framework for investment in such enterprises, may prove effective if they do emerge and grow (Government of Greece, 2019[163]). Further tools to support firms of various sizes are discussed in Box 2.13.

Box 2.13. Policy tools to support firms through the green transition

- **Supporting innovation** by firms to adopt low-carbon technologies, through public support for private R&D and technology investments (via grants, tax credits or prizes for innovations), public procurement (OECD, 2020[164]; OECD, 2011[165]) and accelerated depreciation rates. This may benefit from coupling with **supporting financing** through preferential loans, risk-sharing schemes, or increased climate-related disclosure obligations for firms and investment projects (OECD, 2020[164]).
- **Temporarily reducing business taxes** can support firms facing higher costs from rising emissions charges, as the reduced business taxes would free some cash flow, while the emission charge encourages measures to reduce emissions (Vona, 2021[121]; Klenert and Mattauch, 2019[166]). However, targeting the support may be challenging.
- **Abatement subsidies**: payments for reducing emissions below a pre-defined baseline, hence giving firms the flexibility to decide on how to reduce emissions. These subsidies face less opposition given they do not increase firms' costs, but they weigh on the public budget and may be difficult to phase out without sunset clauses announced up front. In addition, abatement subsidies by nature favour historical polluters while penalising firms that were already limiting emissions (D'Arcangelo et al., 2022[11]).
- **Exemptions, grandfathering and rebates**: reducing the potential negative effects of a mitigation policy by offsetting them with financial aid or excluding certain firms. This practice has sizable drawbacks as it may undermine the goal of emission reduction and create distortions that benefit incumbents to the detriment of innovative new firms (Tompson, 2009[167]; D'Arcangelo et al., 2022[11]).

Mobilising more private finance for the green economy transition

The substantial investment needs of the green economy transition, in combination with strained public finances, will require a boost to private financing for green projects. The Key Policy Insights chapter discusses how to mobilise private investments. In addition, green bonds can raise funds specifically for green projects by signaling higher expected profitability during the green economy transition and so redirecting funds from high-emission projects (OECD, 2021[27]). Greece's plans to issue its first green bonds in the second quarter of 2023 are an important step to develop this market.

The information gap between bond issuers and investors is a key obstacle for the growth of green bonds (Sartzetakis, 2019[168]). Measures included in the New Climate Law to provide information about their environmental impact and plans to reduce emissions for larger facilities and businesses, for example companies listed on the stock exchange or retailers employing more than 500 people, are welcome. However, penalties in case businesses fail to provide this information are small and capped at 0.1 to 0.5% of annual earnings. Stronger penalties would better encourage disclosing information. Aligning finance flows with the green economy transition thereby also requires funds for developing low-emission solutions for hard-to-abate activities. Devising rules for information disclosure such as that firms are not excluded based on narrow criteria such as current emission intensities would promote access to finance (Tandon, 2021[130]).

Policy recommendations for transitioning to a green economy

MAIN FINDINGS	RECOMMENDATIONS (Key Recommendations In Bold)
Policies to reach emission targets cost effectively	
Effective carbon prices differ substantially between fuels and users and are below levels expected to be necessary to reach net-zero. Higher carbon prices would disproportionately affect low-income households under current social support schemes.	**In the medium term, raise the price of emissions to at least the level of the EU Emission Trading Scheme, accompanied by temporary and targeted measures to help households adjust.**
Electricity wholesale market prices have been higher than in other European countries, while retail prices have been lower largely because of lower network costs. There is scope to improve competition in both markets. Financing and regulatory reforms are supporting the government's ambitious shift of electricity generation to renewable sources, while network and storage capacity are growing constraints.	Ensure network pricing provides sufficient financing and incentives to maintain and develop the network's capacity. Improve price comparison tools in the retail electricity market.
Reliance on road transport is high and contributes to pollution, congestion and accidents. Low spending on car purchases delays the shift to low emission vehicles. Cutting emissions from transport, to achieve Greece's 2030 target, will likely require shifting away from individual road transport. Restrictions on high-emission vehicles are weakly enforced. Taxes for vehicles are not always based on CO_2 emissions. Purchase grants and tax exemptions for low-emission vehicles have high fiscal costs and benefit higher-income households more. Tax revenues from fuel sales will decline with a higher share of low emission vehicles.	Enforce existing restrictions on high-emission cars. Set out a timeline for gradually tightening restrictions for using fossil-fuel cars in cities through congestion charges and low-emission zones. Base all vehicle taxes on CO_2 emissions. Replace purchase grants with subsidised loans to leverage more private financing and encourage the shift towards zero-emission cars. Implement distance-based road-usage charge to maintain transport tax revenues.
The railway network is under-used and underdeveloped with low perceived efficiency. Infrastructure investments prioritise road transport.	**Raise investment in public transport informed by cost-and-benefit analyses.** For railways, prioritise quality improvements of existing lines to reach EU average network usage. Use competitive tenders to allocate public service contracts to railway operators.
The government targets renovating the energy efficiency of 60 000 dwellings annually, and this pace will need to approximately double to renovate all insufficiently insulated buildings by 2050.	**Mandate a timeline of tightening minimum energy efficiency standards, to apply to all existing buildings by 2050.** Substantially upscale plans for supporting renovations with interest-subsidised loans that can be repaid via energy savings to leverage more private financing.
Adapting to a hotter and more volatile climate	
Public compensation for damages from extreme weather events imposes fiscal costs and provides little certainty. Insurance coverage is low and the sharing of risk between the public and private sectors is not transparent.	Conduct risk assessment for damages from climate change to anticipate exposure, private capacities to bear costs and to identify governmental re-insurance needs. **Formalise risk-sharing, for example by making property insurance for extreme weather events compulsory for all buildings.**
Water scarcity is projected to increase with climate change. Water could be used more efficiently. Water prices are generally too low to recover costs while social tariffs for water discourage saving.	Ensure water prices reflect water scarcity and supply costs. Replace social water tariffs with income transfers not directly linked to water consumption.
Climate change will impact public infrastructure.	Incorporate planning for the future climate into infrastructure projects, including by considering shadow carbon prices.
Implementing the policies for the green economy transition	
The transition to a green economy will require many workers, firms and regions to adapt their existing activities to new opportunities. Responsibility for implementing green economy transition policies is fragmented across many government bodies. Lack of knowledge about climate change and low levels of public trust can raise opposition to mitigation policies. Uncertainty about long-term returns during the green economy transition leads the public and private sectors to under-invest in green projects relative to carbon-intensive projects. Lack of information on how public expenditures would support green objectives can make public spending less effective in achieving the green economy transition.	**Increase access and quality of active labour market policies and training of workers across all sectors and regions affected by the green economy transition.** Consolidate responsibilities and resources for implementing policies. Improve public access to environmental data. Strengthen consultation of draft policies by setting minimum consultation periods, attract broader participation in the open government portal, and call on independent bodies to review policy programmes and have the government respond to the review. Support financing of green investments by limiting longer-term policy uncertainty and putting into place a regulatory framework for green bond-financed investments. Integrate green budgeting early into the budget cycle.

References

ACEA (2021), *ACEA Tax Guide 2021*. [62]

ACEA (2021), *Electric Vehicles: Tax benefits & purchase incentives*. [56]

ACER (2021), *ACER's Preliminary Assessment of Europe's high energy prices and the current wholesale electricity market design*. [34]

ACER/CEER (2021), *Annual Report on the Results of Monitoring the Internal Electricity and Natural Gas Markets in 2020: Electricity Wholesale Markets Volume*. [40]

ACER/CEER (2021), *Annual Report on the Results of Monitoring the Internal Electricity and Natural Gas Markets in 2020: Energy Retail Markets and Consumer Protection Volume*. [43]

Agence de la transition écologique (ADEME) (2019), *La contribution climat-solidarité: une taxe carbone pour la transition écologique et pour plus de solidarité fiscale*. [106]

Alogoskoufis, S. et al. (2021), "ECB economy-wide climate stress test: Methodology and results", *ECB Occasional Paper Series* 281, https://www.ecb.europa.eu/pub/pdf/scpops/ecb.op281~05a7735b1c.en.pdf. [83]

Alves Dias, P. et al. (2018), *EU Coal Regions: Opportunities and Challenges Ahead*, Publications Office of the European Union, https://data.europa.eu/doi/10.2760/668092. [169]

Bach, S. et al. (2020), *Nachbesserungen beim Klimapaket richtig, aber immer noch unzureichend-CO 2-Preise stärker erhöhen und Klimaprämie einführen*. [158]

Bank of Greece (2021), *Annual Report of the Governor for the Year 2021*, https://doi.org/10.52903/annrep.gr2021. [84]

Bank of Greece (2011), *The Environmental, Economic and Social Impacts of Climate Change in Greece*. [81]

Beck, M. et al. (2015), "Carbon tax and revenue recycling: Impacts on households in British Columbia", *Resource and Energy Economics*, Vol. 41, pp. 40-69, https://doi.org/10.1016/j.reseneeco.2015.04.005. [111]

Blake, H., T. Bulman and I. Joumard (forthcoming), *Background paper for thematic chapter*. [26]

Borenstein, S. and L. Davis (2016), "The Distributional Effects of US Clean Energy Tax Credits", *Tax Policy and the Economy*, Vol. 30/1, pp. 191-234, https://doi.org/10.1086/685597. [58]

Borghesi, S., C. Franco and G. Marin (2020), "Outward Foreign Direct Investment Patterns of Italian Firms in the European Union's Emission Trading Scheme", *The Scandinavian Journal of Economics*, Vol. 122/1, pp. 219-256, https://doi.org/10.1111/sjoe.12323. [21]

BPIE (2021), *Nearly Zero: A Review of EU Member State Implementation of New Build Requirements*, https://www.bpie.eu/publication/nearly-zero-a-review-of-eu-member-state-implementation-of-new-build-requirements/. [66]

BPIE (2018), *iBRoad Factsheet: Greece: Current use of EPCs and potential links to iBRoad*. [68]

Brown, A. and J. Koettl (2015), "Active labor market programs - employment gain or fiscal drain?", *IZA Journal of Labor Economics* 12, https://link.springer.com/article/10.1186/s40172-015-0025-5. [170]

Brown, A. and J. Koettl (2015), "Active labor market programs - employment gain or fiscal drain?", *IZA Journal of Labor Economics*, Vol. 4/1, https://doi.org/10.1186/s40172-015-0025-5. [29]

Bundesregierung (2020), *4. Spitzengespräch der Konzertierten Aktion Mobilität - "Transformation unterstützen, Wertschöpfungsketten stärken"*, https://www.bundesregierung.de/breg-de/aktuelles/pressemitteilungen/4-spitzengespraech-der-konzertierten-aktion-mobilitaet-transformation-unterstuetzen-wertschoepfungsketten-staerken--1815818 (accessed on 17 March 2022). [55]

Cammeraat, E., A. Dechezleprêtre and G. Lalanne (2022), "Innovation and industrial policies for green hydrogen", *OECD Science, Technology and Industry Policy Papers*, No. 125, OECD Publishing, Paris, https://doi.org/10.1787/f0bb5d8c-en. [132]

Castellazzi, L., P. Bertoldi and M. Economidou (2017), *Overcoming the split incentive barrier in the building sectors: unlocking the energy efficiency potential in the rental & multifamily sectors*, https://doi.org/10.2790/912494. [73]

Chateau, J., R. Bibas and E. Lanzi (2018), "Impacts of Green Growth Policies on Labour Markets and Wage Income Distribution: A General Equilibrium Application to Climate and Energy Policies", *OECD Environment Working Papers*, No. 137, OECD Publishing, Paris. [141]

Climate Action Tracker (2020), *New Zealand*, https://climateactiontracker.org/countries/new-zealand/. [118]

Climate Change Committee (2021), , https://www.theccc.org.uk/about/. [134]

Coady, D., I. Parry and B. Shang (2018), "Energy Price Reform: Lessons for Policymakers", *Review of Environmental Economics and Policy*, Vol. 12/2, pp. 197-219, https://doi.org/10.1093/reep/rey004. [128]

Cohen, G. et al. (2007), "Bridging the Partisan Divide: Self-Affirmation Reduces Ideological Closed-Mindedness and Inflexibility in Negotiation", *Journal of Personality and Social Psychology*, Vol. 93/3, pp. 415-430, https://doi.org/10.1037/0022-3514.93.3.415. [122]

Commission on Growth, Structural Change and Employment (2019), *Final Report*, Federal Ministry for Economic Affairs and Energy (BMWi). [157]

Conseil des prélèvements obligatoires (CPO) (2019), *La fiscalité environnementale au défi de l'urgence climatique*. [107]

Danish Economic Councils (2021), *Danish Economic Councils | De Økonomiske Råd*, https://dors.dk/english. [135]

D'Arcangelo, F. et al. (2022), "A Framework to Decarbonise the Economy", *Economic Policy Paper* 31. [11]

D'Arcangelo, F. et al. (2022), *Estimating the CO2 emission and revenue effects of carbon pricing: new evidence from a large cross-country dataset*. [13]

de Klein, C., M. Rollo and T. van der Weerden (2019), *Assessment of tools for estimating on-farm GHG emissions: Report for the Ministry for Primary Industries*, AgResearch. [116]

Dechezleprêtre, A. et al. (Forthcoming), *Fighting Climate Change: International Attitudes toward Climate Policies*. [24]

Dechezleprêtre, A., T. Kruse and C. Berestycki (Forthcoming), "Measuring and Assessing the Effect of Environmental Policy Uncertainty", *Economics Department Working Paper*. [133]

Dechezleprêtre, A., D. Nachtigall and B. Stadler (2020), "The effect of energy prices and environmental policy stringency on manufacturing employment in OECD countries: Sector- and firm-level evidence"*, OECD Economics Department Working Papers*, No. 1625, OECD Publishing, Paris. [142]

Degiuli, N. et al. (2021), "The impact of slow steaming on reducing CO2 emissions in the Mediterranean Sea", *Energy Reports*, Vol. 7, pp. 8131-8141. [61]

Demmou, L. and G. Franco (2020), "Do sound infrastructure governance and regulation affect productivity growth? New insights from firm level data", *OECD Economics Department Working Papers* No. 1609, https://doi.org/10.1787/410535403555. [47]

DESFA (2022), *Energy demand to 2050*. [31]

Dianeosis (2021), *The consequences of climate change in Greece*, https://www.dianeosis.org/wp-content/uploads/2021/10/climate_change_2021_brochure.pdf. [82]

Douenne, T. and A. Fabre (2020), "Yellow Vests, Pessimistic Beliefs, and Carbon Tax Aversion". [103]

Dussaux, D. (2020), "The joint effects of energy prices and carbon taxes on environmental and economic performance: Evidence from the French manufacturing sector"*, OECD Environment Working Papers*, No. 154, OECD Publishing, Paris, https://doi.org/10.1787/b84b1b7d-en. [140]

EC/EIB (2019), *Energy Savings in Existing Housing Programme, Greece: Case Study*. [69]

ECMWF (2021), *European Climate Data Explorer*. [77]

Economides, G. et al. (2018), *The Economics of Climate Change*. [87]

Economidou, M., V. Todeschi and P. Bertoldi (2019), *Accelerating energy renovation investments in buildings – Financial & fiscal instruments across the EU*, https://doi.org/10.2760/086805. [72]

Electrive (2019), *Greece introduces purchase subsidy for electric vehicles*, https://www.electrive.com/2020/06/08/greece-to-subsidize-up-to-15-of-new-evs/ (accessed on 21 March 2021). [57]

ELSTAT (2022), *Press release: Issuing of motor vehicle licenses: January 2022*, https://www.statistics.gr/documents/20181/754946a9-b39b-f3e2-5083-34de630800a3. [50]

European Commission (2022), *NextGenerationEU: European Commission endorses positive preliminary assessment of Greece's request for €3.6 billion disbursement under Recovery and Resilience Facility*, https://ec.europa.eu/commission/presscorner/detail/en/IP_22_1354 (accessed on 2 March 2022). [70]

European Commission (2022), *Quarterly report: On European electricity markets*. [39]

European Commission (2021), *Commission staff working document: Analysis of the recovery and resilience plan of Greece Accompanying the document Proposal for a COUNCIL IMPLEMENTING DECISION on the approval of the assessment of the recovery and resilience plan for Greece*, https://ec.europa.eu/transparency/documents-register/detail?ref=SWD(2021)155&lang=en. [64]

European Commission (2021), *Commission Staff Working Document: Preliminary analysis of the long-term renovation strategies of 13 Member States*. [74]

European Commission (2021), *EU Building Stock Observatory*, https://ec.europa.eu/energy/eu-buildings-factsheets_en (accessed on 14 February 2021). [67]

European Commission (2021), *Market Reform Plan for Greece: Preliminary for consultation*, https://ec.europa.eu/energy/sites/default/files/greece_market_reform_plan.pdf. [37]

European Commission (2021), *State aid: Commission approves €2.27 billion Greek aid scheme to support electricity production from renewable energy sources and high efficiency combined heat and power*, https://ec.europa.eu/commission/presscorner/detail/en/ip_21_6261 (accessed on 24 February 2022). [32]

European Commission (2021), *Statistical Pocketbook 2021: EU transport in figures*. [53]

European Commission (2020), *Commission Staff Working Document: Assessment of the final national energy and climate plan of Greece*. [17]

European Commission (2018), *Using insurance in adaptation to climate change*. [90]

European Environment Agency (2022), *Economic losses from climate-related extremes in Europe*, https://www.eea.europa.eu/ims/economic-losses-from-climate-related (accessed on 8 June 2022). [85]

European Investment Bank (2021), *Investment Report 2021/2022: Recovery as a springboard for change*, https://www.eib.org/attachments/publications/economic_investment_report_2021_chapter02_en.pdf. [15]

Fankhaeser, S., F. Sehlleier and N. Stern (2008), "Climate change, innovation and jobs", *Climate Policy*, Vol. 8/4, pp. 421-429, https://doi.org/10.3763/cpol.2008.0513. [145]

Farmaki, P. and A. Tranoulidis (2018), "Water Policy in Greece: Management and Pricing under the Provisions of the European Water Framework Directive 2000/60/EC", *CBU International Conference on Innovations in Science and Education*, pp. 107-12. [97]

G20/OECD (2012), *Disaster Risk Assessment and Risk Financing: A G20/OECD Methodological Framework: Executive Summary*. [92]

Gaglia, A. et al. (2018), "Energy Performance of European Residential Buildings; Energy Use, Technical and Environmental Characteristics of the Greek Residential Sector - Energy Conservation and CO2 Reduction", *Energy and Buildings* November, https://doi.org/10.1016/j.enbuild.2018.10.042. [71]

Government of Greece (2021), *Greece 2.0 - National Recovery and Resilience Plan*. [138]

Government of Greece (2019), *National Strategy for Sustainable and Fair Growth 2030*, https://www.nationalgrowthstrategy.gr/images/anaptuxiakh_strathgikh_2030.pdf. [163]

Greek Ministry of Labour (2020), *Σχέδιο δίκαιης αναπτυξιακής μετάβασης των λιγνιτικών Περιοχών (Just Transition Development Plan of the Lignite Areas) - Volume 1: Situation Analysis & International Practices*. [153]

Guisse, N. and S. Hoibian (2017), *Les Français et leurs territoires: vécus et attentes vis-à-vis des pouvoirs publics*, https://www.credoc.fr/publications/les-francais-et-leurs-territoires-vecus-et-attentes-vis-a-vis-des-pouvoirs-publics-1. [104]

Hellenic Republic (2022), *National Reform Programme 2022*. [63]

Hellenic Republic (2019), *National Energy and Climate Plan*, https://ec.europa.eu/energy/sites/ener/files/el_final_necp_main_en.pdf. [160]

Henderson, B. et al. (2021), "Policy strategies and challenges for climate change mitigation in the Agriculture, Forestry and Other Land Use (AFOLU) sector", *OECD Food, Agriculture and Fisheries Papera* No. 149, https://doi.org/10.1787/47b3493b-en. [7]

High-level Commission on Carbon Prices (2017), *Report of the High-level Comission on Carbon Prices*, https://www.carbonpricingleadership.org/report-of-the-highlevel-commission-on-carbon-prices. [14]

ICCT (2020), *The end of the road? An overview of combustion-engine car phase-out announcements across Europe*, https://theicct.org/publication/the-end-of-the-road-an-overview-of-combustion-engine-car-phase-out-announcements-across-europe/. [60]

IEA (2021), *Global EV Outlook 2021: Accelerating ambitions despite the pandemic*. [54]

IEA (2021), *Net Zero by 2050: A Roadmap for the Global Energy Sector*. [18]

IEA (2020), *World Energy Balances - Germany*, https://www.iea.org/data-and-statistics/data-browser/?country=GERMANY&fuel=Energy%20supply&indicator=TPESbySource. [156]

IEA (2017), *Energy Policies of IEA Countries: Greece 2017 Review*, https://doi.org/10.1787/9789264285316-en. [41]

IEA/NEA (2020), *Projected Costs of Generation Electricity*. [42]

IEEP (2019), *Environmental Governance Assessments: Greece*. [124]

ILO (International Labour Organisation) (2011), *Skills for Green Jobs: A Global View, Synthesis report based on 21 country studies conducted jointly with CEDEFOP (European Centre for the Development of Vocational Training)*. [146]

IMF (2022), *World Economic Outlook: War sets back the global recovery*, https://www.imf.org/en/Publications/WEO/Issues/2022/04/19/world-economic-outlook-april-2022. [148]

IMF (2021), *IMF Country Report No. 21/154*. [52]

IMF (2019), *Fiscal Monitor: How to Mitigate Climate Change*. [129]

Ioannidis, F. et al. (2021), "Assessment of the Target Model Implementation in the Wholesale Electricity Market of Greece", *Energies*, Vol. 6397/14, https://doi.org/10.3390/en14196397. [38]

IPCC (2022), *Climate Change 2022: Impacts, Adaptation and Vulnerability: Summary for Policymakrers*. [78]

IPTO (2021), *Ten year network development plan of the transmission system: 2023-2032 Exectutive Summary*. [33]

ITF (2021), *ITF Transport Outlook 2021*, https://doi.org/10.1787/16826a30-en. [49]

ITF (2017), *Transition to Shared Mobility: How large cities can deliver inclusive transport services*. [65]

Karasmanaki, E. et al. (2020), "The attitude of the local community towards investments in lignite before transitioning to the post-lignite era: The case of Western Macedonia, Greece", *Resources Policy*, Vol. 68, p. 101781, https://doi.org/10.1016/j.resourpol.2020.101781. [161]

Klenert, D. and L. Mattauch (2019), "Carbon Pricing for Inclusive Prosperity: The Role of Public Support", *Economics for Inclusive Prosperity Network*, Vol. Policy Brief 16. [166]

Koop, C. and C. Hanretty (2018), "Political Independence, Accountability, and the Quality of Regulatory Decision-Making", *Comparitive Political Studies*, Vol. 51/1, pp. 38-75, https://doi.org/10.1177/0010414017695329. [46]

Lenaerts, K., S. Tagliapietra and G. Wolff (2021), "Can Climate Change Be Tackled Without Ditching Economic Growth?", *Bruegel Working Paper* 10/2021. [28]

Lutsey, N. and M. Nicholas (2019), "Update on electric vehicle costs in the United States through 2030", *ICCT Working Paper* 2019-06, https://theicct.org/publication/update-on-electric-vehicle-costs-in-the-united-states-through-2030/. [51]

Magnenou, F. (2019), *"Gilets jaunes" : les prix du carburant ont-ils augmenté un an après le début du mouvement ?*, https://www.francetvinfo.fr/economie/transports/gilets-jaunes/infographies-gilets-jaunes-les-prix-du-carburant-ont-ils-augmente-un-an-apres-le-debut-du-mouvement_3702561.html. [108]

Marin, G. and F. Vona (2019), "Climate policies and skill-biased employment dynamics: Evidence from EU countries", *Journal of Environmental Economics and Management*, Vol. 98, p. 102253, https://doi.org/10.1016/j.jeem.2019.102253. [143]

Marini, A. et al. (2019), *A Quantitative Evaluation of the Greek Social Solidarity Income*. [25]

Matasick, C., C. Alfonsi and A. Bellantoni (2020), "Governance Responses to Disinformation", *OECD Working Papers on Public Governance*, Vol. 39, https://doi.org/10.1787/19934351. [120]

Metcalf, G. and J. Stock (2020), *The Macroeconomic Impact of Europe's Carbon Taxes*, National Bureau of Economic Research, Cambridge, MA, https://doi.org/10.3386/w27488. [144]

Ministry of Environment, New Zealand Government (2019), *Climate Change Response (Zero Carbon) Amendment Act 2019*. [119]

MoEE (2020), *Fourth Biennial Report Under the United Nations Framework Convention On Climate Change*. [3]

MoEE (2018), *7th National Communication and 3rd Biennial Report under the United Nations Framework Convention on Climate Change*. [80]

MoEE (2018), *Report on the long-term strategy to mobilise investment in the renovation of private and public residential and commercial buildings in the national building stock*. [2]

Naegele, H. and A. Zaklan (2019), "Does the EU ETS cause carbon leakage in European manufacturing?", *Journal of Environmental Economics and Management*, Vol. 93, pp. 125-147, https://doi.org/10.1016/j.jeem.2018.11.004. [23]

Naumann, G. et al. (2020), *Global impacts of heat and cold extremes in the EU*, https://doi.org/10.2760/47878. [79]

NEA (2019), *Nuclear Power in a Clean Energy System*. [36]

Nicholas, M. and M. Bernard (2021), "Success factors for electric carsharing", *ICCT Working Paper* 2021-30, https://theicct.org/publication/success-factors-for-electric-carsharing/. [59]

OECD (2022), *Accounting for the energy transition in the OECD global long-term model: a proposed approach*. [1]

OECD (2022), *Global Plastics Outlook: Economic Drivers, Environmental Impacts and Policy Options*, OECD Publishing, Paris, https://doi.org/10.1787/de747aef-en. [10]

OECD (2021), *Brick by brick: building better housing policies*, https://doi.org/10.1787/b453b043-en. [96]

OECD (2021), *Effective Carbon Rates 2021: Pricing Carbon Emissions through Taxes and Emissions Trading*, OECD Publishing, Paris, https://doi.org/10.1787/0e8e24f5-en. [19]

OECD (2021), *Enhancing financial protection against catastrophe risks: the role of catastrophe risk insurance programmes*. [91]

OECD (2021), *Financial Markets and Climate Transition: Opportunities, Challenges and Policy Implications*, https://www.oecd.org/finance/Financial-Markets-and-Climate-Transition-Opportunities-challenges-and-policy-implications.htm. [27]

OECD (2021), *Government at a Glance 2021*, OECD Publishing, Paris, https://doi.org/10.1787/1c258f55-en. [126]

OECD (2021), *Making Better Policies for Food Systems*, OECD Publishing, Paris, https://doi.org/10.1787/ddfba4de-en. [117]

OECD (2021), *Managing Climate Risks, Facing up to Losses and Damages*, https://doi.org/10.1787/55ea1cc9-en. [95]

OECD (2021), "No net zero without SMEs: Exploring the key issues for greening SMEs and green entrepreneurship", *OECD SME and Entrepreneurship Papers* No. 30, https://doi.org/10.1787/bab63915-en. [75]

OECD (2021), *OECD Regional Outlook 2021: Addressing COVID-19 and Moving to Net Zero Greenhouse Gas Emissions*, OECD Publishing, Paris, https://doi.org/10.1787/17017efe-en. [150]

OECD (2020), *Green Budgeting Framework*, http://www.oecd.org/environment/green-budgeting/OECD-Green-Budgeting-Framework-Highlights.pdf. [136]

OECD (2020), *COVID-19 and the low-carbon transition: impacts and possible policy responses*. [164]

OECD (2020), *Green Budget Tagging: Introductory Guidance and Principles*, http://www.oecd-ilibrary.org/docserver/fe7bfcc4-en.pdf?expires=1622814636&id=id&accname=ocid84004878&checksum=D6AC96224CDBC737F93235AFAA8C1FB9. [137]

OECD (2020), *OECD Economic Surveys: Germany 2020*, OECD Publishing, Paris, https://doi.org/10.1787/91973c69-en. [162]

OECD (2020), *OECD Economic Surveys: Greece 2020*, OECD Publishing, Paris, https://doi.org/10.1787/b04b25de-en. [149]

OECD (2020), *OECD Environmental Performance Reviews: Greece 2020*, https://doi.org/10.1787/cec20289-en. [8]

OECD (2020), *OECD Territorial Reviews: Regional Policy for Greece Post-2020*, https://doi.org/10.1787/cedf09a5-en. [101]

OECD (2019), *Enhancing Climate Change MItigation through Agriculture*, https://doi.org/10.1787/e9a79226-en. [6]

OECD (2019), *Low and zero emissions in the steel and cement industries: barriers, technologies and policies*, https://www.oecd.org/greengrowth/GGSD2019_IssuePaper_CementSteel.pdf. [4]

OECD (2019), *Taxing Energy Use 2019: Using Taxes for Climate Action*, OECD Publishing, Paris, https://doi.org/10.1787/058ca239-en. [112]

OECD (2018), "Climate-resilient infrastructure", *OECD Environment Policy Paper* No. 14. [98]

OECD (2017), "Boosting Disaster Prevention through Innovative Risk Governance: Insights from Austria, France and Switzerland", *OECD Reviews of Risk Management Policies*, https://doi.org/10.1787/19934106. [93]

OECD (2017), *Employment Implications of Green Growth: Linking Jobs, Growth, and Green Policies*. [139]

OECD (2016), *Financial Management of Flood Risk*, https://doi.org/10.1787/9789264257689-en. [94]

OECD (2016), *OECD Reviews of Risk Management Policies: Trends in Risk COmmunication Policies and Practices*, https://doi.org/10.1787/9789264260467-en. [88]

OECD (2014), *The Governance of Regulators*, https://doi.org/10.1787/9789264209015-en. [48]

OECD (2011), *Demand-side Innovation Policies*, OECD Publishing, Paris, https://doi.org/10.1787/9789264098886-en. [165]

OECD (2010), *Cities and Climate Change*, https://doi.org/10.1787/9789264091375-en. [100]

OECD (Forthcoming), *Empowering women in the transition towards green growth in Greece*. [127]

OECD (forthcoming), *Taxing Energy Use 2022*. [16]

OECD/ITF (2019), *Tax Revenue Implications of Decarbonising Road Transport: Scenarios for Slovenia*. [30]

OECD/NEA (2012), *Nuclear Energy and Renewables: System Effects in Low-carbon Electricity Systems*. [35]

OECD/The World Bank (2019), *Fiscal Resilience to Natural Disaster: Lessons From Country Experiences*, https://doi.org/10.1787/27a4198a-en. [89]

Office fédéral de l'environnement (OFEV), Confédération Suisse (2020), *Taxe sur le CO2*, https://www.bafu.admin.ch/bafu/fr/home/themes/climat/info-specialistes/mesures-reduction/taxe-co2.html. [113]

Peet, C. and K. Harrison (2012), "Historical Legacies and Policy Reform: Diverse Regional Reactions to British Columbia's Carbon Tax", *BC Studies*, Vol. 173, pp. 95-120, https://doi.org/10.14288/bcs.v0i173.2431. [110]

Pew Research Center (2018), *Spring 2018 Global Attitudes Survey*. [123]

Pisany-Ferry, J. (2021), "Climate policy is macroeconomic policy, and the implications will be significant", *Peterson Insitute for International Economics - Policy Brief* 21-20. [12]

Pizer, W. and J. Aldy (2015), "The Competitiveness Impacts of Climate Change Mitigation Policies", *Journal of the Association of Environmental and Resource Economists*, Vol. 2/4, https://www.journals.uchicago.edu/doi/full/10.1086/683305. [20]

Policy Ltd. (2020), , https://policy.nz/topic/environment#Emissions%20reduction. [114]

Quemin, S. and M. Pahle (2021), "Financials threaten to undermine the functioning of emissions markets", *SSRN Electronic Journal*, https://doi.org/10.2139/ssrn.3985079. [131]

Royal Society (2016), *Coastal Change*, https://www.royalsociety.org.nz/what-we-do/our-expert-advice/all-expert-advice-papers/climate-change-implications-for-new-zealand/key-risks/coastal-change/. [115]

RSM (2019), *Enforcing the enhancement of energy efficiency regulations in the English private rented sector*, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/825485/enforcing-enhancement-energy-efficiency-regulations-English-private-rented-sector.pdf. [76]

Sartzetakis, E. (2019), "Green Bonds as an instrument to finance low carbon transition", *Bank of Greece Working Paper* 258. [168]

Sato, M. and A. Dechezleprêtre (2015), "Asymmetric industrial energy prices and international trade", *Energy Economics*, Vol. 52, pp. S130-S141, https://doi.org/10.1016/j.eneco.2015.08.020. [22]

SDAM - Greek Government Committee (2020), *Just Transition Development Plan—Current Situation and Prospect for Areas in Energy Transition in Greece*, https://www.sdam.gr/sites/default/files/consultation/Current_situation_and_prospects_for_areas_in_energy_transition_in_Greece_EN.pdf. [155]

Statista (2019), *Prix annuel moyen du pétrole brut de l'OPEP entre 1960 et 2019*, https://fr.statista.com/statistiques/564926/prix-annuel-du-petrole-de-l-opep-1960/. [109]

Sutherland, D. et al. (2011), "Public Policies and Investment in Network Infrastructure", *OECD Journal: Economic Studies*, Vol. 2011/1, https://doi.org/10.1787/19952856. [45]

Swiss Re Institute (2021), *The economics of climate change: no actions is not an option*, https://www.swissre.com/dam/jcr:e73ee7c3-7f83-4c17-a2b8-8ef23a8d3312/swiss-re-institute-expertise-publication-economics-of-climate-change.pdf. [86]

Tandon, A. (2021), "Transition finance: Investigating the state of play: A stocktake of emerging approaches and financial instruments", *OECD Environment Working Papers* No. 179, https://doi.org/10.1787/68becf35-en. [130]

The World Bank (2020), *A Road Map for a Managed Transition of Coal-Dependent Regions in Western Macedonia*. [159]

Tompson, W. (2009), *The Political Economy of Reform: Lessons from Pensions, Product Markets and Labour Markets in Ten OECD Countries*, OECD Publishing, Paris, https://doi.org/10.1787/9789264073111-en. [167]

TRACER (2019), *Report on the Current Role of Coal Mining and Related Policies in the TRACER Target Regions*, https://tracer-h2020.eu/wp-content/uploads/2019/11/TRACER-D3.1_Report_final.pdf. [154]

Valaskas, K., E. Demian and S. Stavrak (2022), *The role of the Greek plastics industry in the circular economy*, IOBE, http://iobe.gr/docs/research/RES_05_F_08022022_REP_GR.pdf. [9]

Vie Publique (2017), *Loin des métropoles, le sentiment d'être délaissé par les pouvoirs publics*, https://www.vie-publique.fr/en-bref/19769-loin-des-metropoles-sentiment-detre-delaisse-par-les-pouvoirs-publics. [105]

Vitale, C. and J. Terrero (2022), *Analysis of the links between National Recovery and Resilience Plan and OECD Product Market Regulation Indicators: Greece*. [44]

Vona, F. (2021), "Managing the distributional effects of environmental and climate policies: The narrow path for a triple dividend", *OECD Environment Working Papers*, No. 188, OECD Publishing, Paris, https://doi.org/10.1787/361126bd-en. [121]

Vona, F. et al. (2018), "Environmental Regulation and Green Skills: An Empirical Exploration", *Journal of the Association of Environmental and Resource Economists*, Vol. 5/4, pp. 713-753, https://doi.org/10.1086/698859. [147]

World Bank (2021), *Inputs and Recommendations for the Development of a Draft NDRM Plan for Greece*, https://www.civilprotection.gr/sites/default/gscp_uploads/en_drm_plan.pdf. [99]

Wreford, A., A. Ignaciuk and G. Gruère (2017), "Overcoming barriers to the adoption of climate-friendly practices in agriculture", *OECD Food, Agriculture and Fisheries Papers* No. 101, https://doi.org/10.1787/97767de8-en. [5]

WWF (2018), *Environmental Law in Greece: English Summary of the 14th Annual Law Review*, World Wildlife Fund Greece, http://www.wwf.gr/images/pdfs/WWF Annual environmental law review2018-ENG Summary.pdf. [102]

WWF Greece (2016), *Roadmap for the Transition of the Western Macedonia Region to a Post-Lignite Era, Economic and Technical Assessment*, https://regionsbeyondcoal.eu/wp-content/uploads/2019/02/Roadmap_PostLignite_EN_FINAL-1.pdf. [152]

WWF/HOS (2021), *Report submitted by Greek NGOs to the Aarhus Convention Secretariat - 2021 Reporting Cycle*, https://unece.org/sites/default/files/2021-06/WWF-HOS_report_Aarhus_Convention_Secretariat_2021_Reporting_Cycle.pdf. [125]

Ziouzios, D. et al. (2021), "Challenges and Opportunities of Coal Phase-Out in Western Macedonia", *Climate*, Vol. 9/7, p. 115, https://doi.org/10.3390/cli9070115. [151]

OECD Economic Surveys

GREECE

Greece has rebounded from the COVID-19 crisis, generating strong employment growth. Government support measures, implementation of the Greece 2.0 Recovery and Resilience Package and the reforms of the past decade have been supporting the economy. However, headwinds from surging energy prices and uncertainty following Russia's war of aggression against Ukraine have slowed the recovery. Returning the budget to surplus, better targeting energy support measures and maintaining government revenues while broadening the tax base and improving its efficiency will help sustain the recovery and Greece's prospects of achieving an investment-grade sovereign debt rating. Maintaining the reform momentum, prioritising banks' health and addressing the long-standing barriers to private investment, can help maintain this momentum into the long term. This would also support Greece in contributing its share to address climate change, by achieving net zero emissions, while raising living standards. The changing climate is already disrupting livelihoods and well-being in Greece. A well-chosen mix of carbon pricing, public infrastructure investments, raising buildings' energy efficiency and moving transport into low-emission modes can achieve emission cuts cost-effectively, while making people better off with improved housing quality and mobility. Engaging all stakeholders, maintaining a consensus and supporting vulnerable households affected by the green economy transition will help ensure progress continues into the longer term.

SPECIAL FEATURE: THE GREEN ECONOMY TRANSITION

Volume 2023/1
January 2023

PRINT ISBN 978-92-64-81430-1
PDF ISBN 978-92-64-41183-8

ISSN 0376-6438
2023 SUBSCRIPTION
(18 ISSUES)

9 789264 814301